Appendix B

Air Quality Assessment

ALMADEN VILLAS AIR QUALITY & GREENHOUSE GAS ASSESSMENT

San José, California

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Prepared for:

Leianne Humble
Senior Planner
Denise Duffy & Associates, Inc.
947 Cass St. Suite 5
Monterey, CA. 93940

Prepared by:

James A. Reyff
Casey Divine
Bill Popenuck

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 East Cotati Avenue
Cotati, CA 94931
(707) 794-0400

I&R Project#: 19-166

INTRODUCTION

The purpose of this report is to address air quality impacts and compute the greenhouse gas (GHG) emissions associated with the proposed Almaden Villas project located at 1747 Almaden Road in San José, California. The air quality impacts and GHG emissions would be associated with the demolition of the existing uses at the site, construction of the new building and infrastructure, and operation of the project. Air pollutant and GHG emissions associated with the construction and operation of the project were predicted using models. In addition, the potential construction health risk impact to nearby sensitive receptors and the impact of existing toxic air contaminant (TAC) sources affecting the proposed residences were evaluated. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

PROJECT DESCRIPTION

The project site is currently developed with a one-story, multi-tenant residential building on a 0.57-acre site. The project proposes to demolish the existing use and construct a six-story, 64 condominium unit residential building. Residential units would be located on the second through sixth floors. The project would have ground-level parking with 87 parking spaces using stacked parking lifts.

AIR POLLUTANTS AND CONTAMINANTS

Air pollution is governed by multiple federal and state standards to regulate and mitigate health impacts. At the federal level, there are six criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter (PM: $PM_{2.5}$ and PM_{10}), and sulfur dioxide (SO_2). California sets standards, similar to the NAAQS as California Ambient Air Quality Standards (CAAQS). Health effects of the primary criteria pollutants (i.e., the NAAQS) and their potential sources are described below and summarized in Table 1. Note that California includes pollutants or contaminants that are specific to certain industries and not associated with this project. These include hydrogen sulfide and vinyl chloride.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_X). The main sources of ROG and NO_X, often referred to as ozone precursors, are combustion processes (including combustion in motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, shortness of breath, and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

[1] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017.

Carbon Monoxide

Carbon monoxide is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. While CO transport is limited, it disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels that adversely affect local sensitive receptors (e.g., residents, schoolchildren, the elderly, hospital patients, etc.). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.

Nitrogen Dioxide

Nitrogen Dioxide is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 also contribute to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2 may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. NO_2 decreases lung function and may reduce resistance to infection. On January 22, 2010 the U.S. Environmental Protection Agency (EPA) strengthened the health-based NAAQS for NO_2.

Sulfur Dioxide

Sulfur dioxide is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels in the region. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles are those that are larger than 2.5 microns but smaller than 10 microns (PM_{10}). $PM_{2.5}$ refers to fine suspended particulate matter with an aerodynamic diameter of 2.5 microns or less that is not readily filtered out by the lungs. Nitrates, sulfates, dust, and combustion particulates are major components of PM_{10} and $PM_{2.5}$. These small particles can be directly emitted into the atmosphere as by-products of fuel combustion, through abrasion, such as tire or brake lining wear, or through fugitive dust (wind or mechanical erosion of soil). They can also be formed in the atmosphere through chemical reactions. Particulates may transport carcinogens and other toxic compounds that adhere to the particle surfaces and can enter the human body through the lungs.

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufactures.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

Air Pollutants of Concern in the Bay Area

High ozone levels are caused by the cumulative emissions of ROG and NO_X. These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, TACs are another group of pollutants of concern. TACs are injurious in small quantities and are regulated by the EPA and the California Air Resources Board (CARB). Some examples of TACs include benzene, butadiene, formaldehyde, and hydrogen sulfide. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants.

High volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stops) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high volume transit centers, or schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the Federal Hazardous Air Pollutants programs. Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

Table 1. Health Effects of Air Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood functions and nerve con-struction. • Behavioral and hearing problems in children.
Suspended Particulate Matter ($PM_{2.5}$ and PM_{10})	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardiorespiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, fin-ishes, coatings, etc.
Toxic Air Contaminants	• Cars and trucks, especially diesels. • Industrial sources such as chrome platers. • Neighborhood businesses such as dry cleaners and service stations. • Building materials and product.	• Cancer. • Chronic eye, lung, or skin irritation. • Neurological and reproductive disorders.

Source: CARB, 2009. ARB Fact Sheet: Air Pollution and Health, see: https://www.arb.ca.gov/research/health/fs/fs1/fs1.htm accessed May 1, 2018.

SETTING

The project is located in Santa Clara County, which is part of the San Francisco Bay Area Air Basin. The Air Basin includes the counties of San Francisco, Santa Clara, San Mateo, Marin, Napa, Contra Costa, and Alameda, along with the southeast portion of Sonoma County and the southwest portion of Solano County.

This Project is within the jurisdiction of the BAAQMD. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants, and the number of days during which the region exceeds air quality standards, have fallen dramatically. Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Local Climate and Air Quality

Air quality is a function of both local climate and local sources of air pollution. Air quality is the balance of the natural dispersal capacity of the atmosphere and emissions of air pollutants from human uses of the environment. Climate and topography are major influences on air quality.

Climate and Meteorology

During the summer, mostly clear skies result in warm daytime temperatures and cool nights in the Santa Clara Valley. Winter temperatures are mild, except for very cool but generally frost-less mornings. Further inland where the moderating effect of the bay is not as strong, temperature extremes are greater. Wind patterns are influenced by local terrain, with a northwesterly sea breeze typically developing during the daytime. Winds are usually stronger in the spring and summer. Rainfall amounts are modest, ranging from 13 inches in the lowlands to 20 inches in the hills.

Air Pollution Potential

Ozone and fine particle pollution, or $PM_{2.5}$, are the major regional air pollutants of concern in the San Francisco Bay Area. Ozone is primarily a problem in the summer, and fine particle pollution in the winter. Most of Santa Clara County is well south of the cooler waters of the San Francisco Bay and far from the cooler marine air which usually reaches across San Mateo County in summer. Ozone frequently forms on hot summer days when the prevailing seasonal northerly winds carry ozone precursors southward across the county, causing health standards to be exceeded. Santa Clara County experiences many exceedances of the $PM_{2.5}$ standard each winter. This is due to the high population density, wood smoke, industrial and freeway traffic, and poor wintertime air circulation caused by extensive hills to the east and west that block wind flow into the region. Recently, wildfires have caused many days per year of unhealthy air during summer and fall due to high particle pollution (e.g., $PM_{2.5}$ and PM_{10} levels that exceed standards).

Attainment Status Designations

The CARB is required to designate areas of the state as attainment, nonattainment, or unclassified for all state standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A "nonattainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An "unclassified" designation signifies that data does not support either an attainment or nonattainment status. The California Clean Air Act (CCAA) divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

Table 2 shows the state and federal standards for criteria pollutants and provides a summary of the attainment status for the San Francisco Bay Area with respect to national and state ambient air quality standards.

Table 2. NAAQS, CAAQS, and San Francisco Bay Area Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Carbon Monoxide (CO)	8-Hour	9 ppm ($10\ mg/m^3$)	Attainment	9 ppm ($10\ mg/m^3$)	Attainment
	1-Hour	20 ppm ($23\ mg/m^3$)	Attainment	35 ppm ($40\ mg/m^3$)	Attainment
Nitrogen Dioxide (NO_2)	Annual Mean	0.030 ppm ($57\ mg/m^3$)	Attainment	0.053 ppm ($100\ \mu g/m^3$)	Attainment
	1-Hour	0.18 ppm ($338\ \mu g/m^3$)	Attainment	0.100 ppm	Unclassified
Ozone (O_3)	8-Hour	0.07 ppm ($137\ \mu g/m^3$)	Nonattainment	0.070 ppm	Nonattainment
	1-Hour	0.09 ppm ($180\ \mu g/m^3$)	Nonattainment	Not Applicable	Not Applicable
Suspended Particulate Matter (PM_{10})	Annual Mean	$20\ \mu g/m^3$	Nonattainment	Not Applicable	Not Applicable
	24-Hour	$50\ \mu g/m^3$	Nonattainment	$150\ \mu g/m^3$	Unclassified
Suspended Particulate Matter ($PM_{2.5}$)	Annual Mean	$12\ \mu g/m^3$	Nonattainment	$12\ \mu g/m^3$	Attainment
	24-Hour	Not Applicable	Not Applicable	$35\ \mu g/m^3$	Nonattainment
Sulfur Dioxide (SO_2)	Annual Mean	Not Applicable	Not Applicable	$80\ \mu g/m^3$ (0.03 ppm)	Attainment
	24-Hour	0.04 ppm ($105\ \mu g/m^3$)	Attainment	$365\ \mu g/m^3$ (0.14 ppm)	Attainment
	1-Hour	0.25 ppm ($655\ \mu g/m^3$)	Attainment	0.075 ppm ($196\ \mu g/m^3$)	Attainment

Lead (Pb) is not listed in the above table because it has been in attainment since the 1980s. ppm = parts per million, mg/m^3 = milligrams per cubic meter, $\mu g/m^3$ = micrograms per cubic meter

Source: Bay Area Air Quality Management District, 2017. Air Quality Standards and Attainment Status. January 5.

Existing Air Pollutant Levels

BAAQMD monitors air pollution at various sites within the Bay Area. The closest air monitoring station (158 Jackson Street) that monitored O_3, CO, NO, NO_2, PM_{10}, and $PM_{2.5}$ over the past 5 years (2015 through 2019) is in the City of San José approximately 3.5 miles north of the project site. The data shows that during the past few years, the project area has exceeded the state and/or federal O_3, PM_{10}, and $PM_{2.5}$ ambient air quality standards. Table 3 lists air quality trends in data collected for the past 5 years and published by the BAAQMD and CARB, which is the most recent time-period available. Ozone standards (includes 1-hr concentration and 8-hr concentration) were exceeded on 0 to 4 days annually in San José and 3 to 15 days throughout the Bay Area. Measured 24-hour PM_{10} and $PM_{2.5}$ concentrations are exceeded on 0 to 6 monitoring days in San José and up to 18 days at any place in the Bay Area (note these levels were influences by smoke from wildfires).

Table 3. Ambient Air Quality Concentrations from 2014 through 2018

Pollutant	Standard	2015	2016	2017	2018	2019
Ozone						
Max 1-hr concentration		94 ppb	87 ppb	121 ppb	78 ppb	95 ppb
No. days exceeded: CAAQS	90 ppb	0	0	3	0	1
Max 8-hr concentration		81 ppb	66 ppb	98 ppb	61 ppb	81 ppb
No. days exceeded: CAAQS	70 ppb	2	0	4	0	2
NAAQS	70 ppb	2	0	4	0	2
Carbon Monoxide						
Max 1-hr concentration		2.4 ppm	2.0 ppm	2.1 ppm	2.5 ppm	1.7 ppm
No. days exceeded: CAAQS	20 ppm	0	0	0	0	0
NAAQS	35 ppm	0	0	0	0	0
Max 8-hr concentration		1.8 ppm	1.4 ppm	1.8 ppm	2.1 ppm	1.3 ppm
No. days exceeded: CAAQS	9.0 ppm	0	0	0	0	0
NAAQS	9 ppm	0	0	0	0	0
PM_{10}						
Max 24-hr concentration		58 µg/m³	41 µg/m³	70 µg/m³	122 µg/m³	77 µg/m³
No. days exceeded: CAAQS	50 µg/m³	1	0	6	4	4
NAAQS	150 µg/m³	0	0	0	0	0
Max annual concentration		22.0 µg/m³	18.5 µg/m³	21.6 µg/m³	23.1 µg/m³	19.2 µg/m³
No. days exceeded: CAAQS	-	-	-	-	-	-
$PM_{2.5}$						
Max 24-hr concentration		49.4 µg/m³	22.6µg/m³	49.7 g/m³	133.9µg/m³	27.6 µg/m³
No. days exceeded: NAAQS	35 µg/m³	2	0	6	15	4
Annual Concentration		10.0 g/m³	8.4 µg/m³	9.5 µg/m³	12.8µg/m³	12.8µg/m³
No. days exceeded: CAAQS	12 µg/m³	-	-	-	-	-
NAAQS	12 µg/m³	-	-	-	-	-
Nitrogen Dioxide						
Max 1-hr concentration		49 ppb	51 ppb	68 ppb	86 ppb	60 ppb
No. days exceeded: CAAQS	0.18 ppm	0	0	0	0	0
NAAQS	0.100 ppm	0	0	0	0	0
Annual Concentration		13 ppb	11 ppb	12 ppb	13 ppb	11 ppb
No. days exceeded: CAAQS	0.030 ppm	-	-	-	-	-
NAAQS	0.053 ppm	-	-	-	-	-

Source: Bay Area Air Quality Management District, 2020, Web: https://www.baaqmd.gov/about-air-quality/air-quality-summaries. California Air Resource Board, 2020, Web: https://arb.ca.gov/adam/select8/sc8start.php

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. The closest sensitive receptors to the project site are the adjacent (within 100 feet) single- and multi-family residences to the north, west, and south of the project site. There are additional residences at farther distances from the project site. This project would introduce new sensitive receptors to the area.

REGULATORY FRAMEWORK

Pursuant to the Federal Clean Air Act (FCAA) of 1970, the EPA established the NAAQS. The NAAQS were established for major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

Both the EPA and the CARB have established ambient air quality standards for common pollutants: CO, O_3, NO_2, SO_2, Pb, and PM. In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. These standards are designed to protect the health and welfare of the public with a reasonable margin of safety. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each criteria pollutant.

Federal Air Quality Regulations

At the federal level, the EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the FCAA, which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required EPA to establish primary and secondary NAAQS and required each state to prepare an air quality control plan referred to as a State Implement Plan (SIP). Federal standards include both primary and secondary standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.[2] The Federal Clean Air Act Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA has responsibility to review all state SIPs to determine conformity with the mandates of the FCAAA and determine if

[2] See: U.S. Environmental Protection Agency, Web: https://www.epa.gov/criteria-air-pollutants/naaqs-table, Accessed 13 August 2020

implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area which imposes additional control measures. Failure to submit an approvable SIP or to implement the Plan within the mandated timeframe may result in the application of sanctions on transportation funding and stationary air pollution sources in the air basin.

The 1970 FCAA authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The FCAA Amendments of 1990 changed deadlines for attaining NAAQS as well as the remedial actions required of areas of the nation that exceed the standards. Under the FCAA, state and local agencies in areas that exceed the NAAQS are required to develop SIPs to show how they will achieve the NAAQS by specific dates. The FCAA requires that projects receiving federal funds demonstrate conformity to the approved SIP and local air quality attainment Plan for the region. Conformity with the SIP requirements would satisfy the FCAA requirements.

State Air Quality Regulations

The CARB is the agency responsible for the coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA, adopted in 1988. The CCAA requires that all air districts in the state achieve and maintain the CAAQS by the earliest practical date. The CCAA specifies that districts should focus on reducing the emissions from transportation and air-wide emission sources and provides districts with the authority to regulate indirect sources.

CARB is also responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. CARB is primarily responsible for statewide pollution sources and produces a major part of the SIP. Local air districts provide additional strategies for sources under their jurisdiction. CARB combines this data and submits the completed SIP to the EPA.

Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

<u>California Clean Air Act</u>

In 1988, the CCAA required that all air districts in the state endeavor to achieve and maintain CAAQS for CO, O_3, SO_2, and NO_2 by the earliest practical date. The CCAA provides districts with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the state standards for these pollutants are more stringent than the national standards.

California Air Resources Board Handbook

In 1998, CARB identified particulate matter from diesel-fueled engines as a toxic air contaminant. CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.[3] CARB subsequently developed an Air Quality and Land Use Handbook[4] (Handbook) in 2005 that is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. The 2005 CARB Handbook recommends that planning agencies consider proximity to air pollution sources when considering new locations for "sensitive" land uses, such as residences, medical facilities, daycare centers, schools, and playgrounds.

Air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners, and large gasoline service stations. Key recommendations in the Handbook relative to the Plan Area include taking steps to consider or 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.
- Within 300 feet of gasoline fueling stations (note that new fueling stations utilize enhanced vapor recovery systems that substantially reduce emissions).
- Within 300 feet of dry-cleaning operations (note that dry cleaning with TACs is being phased out and will be prohibited in 2023).

Bay Area Air Quality Management District

The BAAQMD seeks to attain and maintain air quality conditions in the San Francisco Bay Area Air Basin (SFBAAB) through a comprehensive program of planning, regulation, enforcement, technical innovation, and education. The clean air strategy includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The BAAQMD also inspects stationary sources and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by law.

Clean Air Plan

The BAAQMD is responsible for developing a Clean Air Plan which guides the region's air quality planning efforts to attain the CAAQS. The BAAQMD's 2017 Clean Air Plan is the latest Clean Air Plan which contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_X), particulate matter and greenhouse gas emissions. The Bay Area 2017 Clean Air Plan, which was adopted on April 19, 2017 by the BAAQMD's board of directors, includes:

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[3] California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.
[4] California Air Resources Board, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* April.

- Updates the Bay Area 2010 Clean Air Plan in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone;
- Provides a control strategy to reduce ozone, particulate matter (PM), air toxics, and greenhouse gases in a single, integrated plan;
- Reviews progress in improving air quality in recent years; and
- Continues and updates emission control measures.

BAAQMD CARE Program

The Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources, area sources and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco.

Planning Healthy Places

BAAQMD developed a guidebook that provides air quality and public health information intended to assist local governments in addressing potential air quality issues related to exposure of sensitive receptors to exposure of emissions from local sources of air pollutants. The guidance provides tools and recommended best practices that can be implemented to reduce exposures. The information is provided as recommendations to develop policies and implementing measures in city or county General Plans, neighborhood or specific plans, land use development ordinances, or into projects.

BAAQMD California Environmental Quality Act Air Quality Guidelines

The BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines[5] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of their CEQA Guidelines. In May 2011, the updated BAAQMD CEQA Air Quality Guidelines were

[5] Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

amended to include a risk and hazards threshold for new receptors and modify procedures for assessing impacts related to risk and hazard impacts. A recent update to the Guidelines was published in May 2017. *Attachment 1* includes detailed community risk modeling methodology.

BAAQMD Rules and Regulations

Projects with combustion equipment or other processes that directly emit air pollutants, precursor air pollutants or toxic air contaminants are subject to BAAQMD permitting rules and regulations that typically require obtaining permits to operate. Common sources requiring permits that may be constructed in the plan area include diesel engines used to power emergency generators and gasoline fueling dispensaries.

Odors

Odor impacts are subjective in nature and are generally regarded as an annoyance rather than a health hazard. The ability to detect and react to odors varies considerably among people. A strong or unfamiliar odor is more easily detected and are more likely to cause complaints. BAAQMD responds to odor complaints from the public and considers a source to have a substantial number of odor complaints if the complaint history includes five or more confirmed complaints per year averaged over a 3-year period. Facilities that are regulated by CalRecycle (e.g. landfill, composting, etc.) are required to have Odor Impact Minimization Plans in place. Some odor source examples from BAAQMD include landfills, composting facilities, wastewater treatment plants, asphalt batch plants, , chemical manufacturing, food processing facilities, and coffee roasters. A review of the project area could not find any of these land uses, but indicated auto body shops were nearby; however odors from these are controlled by BAAQMD and should not produce significant odors.

Toxic Air Contaminants

A group of toxic substances found in ambient air referred to as Hazardous Air Pollutants (HAPs) under the CAA and Toxic Air Contaminants (TACs) under the CCAA. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. They are regulated at the local, state, and federal level.

HAPs are the air contaminants identified by U.S. EPA as known or suspected to cause cancer, serious illness, birth defects, or death. Many of these contaminants originate from human activities, such as fuel combustion and solvent use. Mobile source air toxics (MSATs) are a subset of the 188 HAPS. Of the 21 HAPs identified by U.S. EPA as MSATs, a priority list of six priority HAPs were identified that include: diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. The Federal Highway Administration[6] reports that while vehicle miles traveled (VMT) in the United States is expected to increase by 64 percent over the period 2000 to 2020, emissions of MSATs are anticipated to decrease substantially as a result of efforts to control mobile source emissions (by 57% to 67% depending on the contaminant).

[6] Federal Highway Administration, 2016. Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. https://www.fhwa.dot.gov/environMent/air_quality/air_toxics/policy_and_guidance/msat/

California developed a program under the Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807, Tanner 1983), also known as the Tanner Toxics Act, to identify, characterize and control TACs. Subsequently, AB 2728 (Tanner, 1992) incorporated all 188 HAPs into the AB 1807 process. TACs include all HAPs plus other containments identified by CARB. These are a broad class of compounds known to cause morbidity or mortality (cancer risk). TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly), described by CARB (2016e)[7], was enacted in 1987, and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

Particulate matter from diesel exhaust is the predominant TAC in urban air and is estimated to represent about 70 percent of the cancer risk from TACs, based on the statewide average reported by CARB (2012). According to CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under State Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB reports that recent air pollution studies have shown an association that diesel exhaust and other cancer-causing toxic air contaminants emitted from vehicles are responsible for much of the overall cancer risk from TACs in California[8]. Particulate matter emitted from diesel-fueled engines (diesel particulate matter [DPM]) was found to comprise much of that risk. In 1998, CARB formally identified DPM as a TAC[9]. Diesel particulate matter is of particular concern since it can be distributed over large regions, thus leading to widespread public exposure. The particles emitted by diesel engines are coated with chemicals, many of which have been identified by U.S. EPA as HAPs, and by CARB as TACs. The vast majority of diesel exhaust particles (over 90 percent) consist of $PM_{2.5}$, which are the particles that can be inhaled deep into the lung (CARB 2012). Like other particles of this size, a portion will eventually become trapped within the lung possibly leading to adverse health effects. While the gaseous portion of diesel exhaust also contains TACs, CARB's 1998 action was specific to DPM, which accounts for much of the cancer-causing potential from diesel exhaust. California has adopted a comprehensive diesel risk

[7] California Air Resources Board (CARB). 2016. AB 2588 Air Toxics "Hot Spots" Program. https://www.arb.ca.gov/ab2588/ab2588.htm
[8] California Air Resources Board (CARB) 2012. Overview: Diesel Exhaust and Health. https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health Accessed May 20, 2018.
[9] California Air Resources Board (CARB). 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October. https://www.arb.ca.gov/diesel/documents/rrpFinal.pdf

reduction program to reduce DPM emissions 85 percent by 2020[10]. The EPA and CARB adopted low sulfur diesel fuel standards in 2006 that reduce diesel particulate matter substantially.

Smoke from residential wood combustion can be a source of TACs. Wood smoke is typically emitted during winter when dispersion conditions are poor. Localized high TAC concentrations can result when cold stagnant air traps smoke near the ground and, with no wind the pollution can persist for many hours, especially in sheltered valleys during winter. Wood smoke also contains a significant amount of PM_{10} and $PM_{2.5}$. Wood smoke is an irritant and is implicated in worsening asthma and other chronic lung problems.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles.[11] The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle. In 2011, CARB amended the Airborne Toxic Control Measures for Stationary Diesel Engines Regulation to reduce DPM and criteria pollutant emissions and implemented regulations and monitoring for generator diesel engines greater than 50 horsepower.[12] In 2014, CARB adopted the nation's first regulation aimed at cleaning up off-road construction equipment to reduce emissions of DPM and ensure fleets gradually turnover the oldest and dirtiest equipment to newer, cleaner models.[13]

Local Plans and Policies

City San José Envision 2040 General Plan

The San José Envision 2040 General Plan includes goals, policies, and actions to reduce exposure of the City's sensitive population to exposure of air pollution and toxic air contaminants or TACs. The following goals, policies, and actions are applicable to the proposed project:

Applicable Goals – Air Pollutant Emission Reduction

Goal MS-10 Minimize air pollutant emissions from new and existing development.

Applicable Policies – Air Pollutant Emission Reduction

MS-10.1 Assess projected air emissions from new development in conformance with the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines and relative

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[10] *Ibid*

[11] Available online: https://ww2.arb.ca.gov/our-work/topics/construction-earthmoving-equipment. Accessed: September 3, 2020.

[12] Available online: https://ww2.arb.ca.gov/our-work/programs/stationary-diesel-atcm. Accessed: September 3, 2020.

[13] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: November 21, 2014.

to state and federal standards. Identify and implement feasible air emission reduction measures.

MS-10.2 Consider the cumulative air quality impacts from proposed developments for proposed land use designation changes and new development, consistent with the region's Clean Air Plan and State law.

Applicable Goals – Toxic Air Contaminants

Goal MS-11 Minimize exposure of people to air pollution and toxic air contaminants such as ozone, carbon monoxide, lead, and particulate matter.

Applicable Policies – Toxic Air Contaminants

MS-11.1 Require completion of air quality modeling for sensitive land uses such as new residential developments that are located near sources of pollution such as freeways and industrial uses. Require new residential development projects and projects categorized as sensitive receptors to incorporate effective mitigation into project designs or be located an adequate distance from sources of toxic air contaminants (TACs) to avoid significant risks to health and safety.

MS-11.2 For projects that emit toxic air contaminants, require project proponents to prepare health risk assessments in accordance with BAAQMD-recommended procedures as part of environmental review and employ effective mitigation to reduce possible health risks to a less than significant level. Alternatively, require new projects (such as, but not limited to, industrial, manufacturing, and processing facilities) that are sources of TACs to be located an adequate distance from residential areas and other sensitive receptors.

MS-11.4 Encourage the installation of appropriate air filtration at existing schools, residences, and other sensitive receptor uses adversely affected by pollution sources.

MS-11.5 Encourage the use of pollution absorbing trees and vegetation in buffer areas between substantial sources of TACs and sensitive land uses.

Actions – Toxic Air Contaminants

MS-11.7 Consult with BAAQMD to identify stationary and mobile TAC sources and determine the need for and requirements of a health risk assessment for proposed developments.

Applicable Goals – Construction Air Emissions

Goal MS-13 Minimize air pollutant emissions during demolition and construction activities

Applicable Policies – Construction Air Emissions

MS-13.1 Include dust, particulate matter, and construction equipment exhaust control measures as conditions of approval for subdivision maps, site development and planned development permits, grading permits, and demolition permits. At minimum, conditions shall conform to construction mitigation measures recommended in the current BAAQMD CEQA Guidelines for the relevant project size and type.

Applicable Actions – Construction Air Emissions

MS-13.4 Adopt and periodically update dust, particulate, and exhaust control standard measures for demolition and grading activities to include on project plans as conditions of approval based upon construction mitigation measures in the BAAQMD CEQA Guidelines.

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA and these significance thresholds were contained in the District's 2011 *CEQA Air Quality Guidelines*. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were challenged through a series of court challenges and were mostly upheld. BAAQMD updated the *CEQA Air Quality Guidelines* in 2017 to include the latest significance thresholds that were used in this analysis are summarized in Table 4.

Table 4. Community Risk Significance and GHG Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	**Average Daily Emissions (lbs./day)**	**Annual Average Emissions (tons/year)**
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Dust Control Measures or other Best Management Practices	None	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)**	
Excess Cancer Risk	>10.0 per one million	>100 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual $PM_{2.5}$	>0.3 µg/m^3	>0.8 µg/m^3	
Odors	**Complaints**	**Complaints**	
Land Use Projects	No threshold	5 confirmed complaints per year averaged over three years	
Greenhouse Gas Emissions			
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020) 660 metric tons annually or 2.6 metric tons per capita (for 2030)*		

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases.

*BAAQMD does not have a recommended post-2020 GHG threshold.

Air Quality Impacts and Conditions of Approval

Impact: Conflict with or obstruct implementation of the applicable air quality plan?

BAAQMD is the regional agency responsible for overseeing compliance with State and Federal laws, regulations, and programs within the San Francisco Bay Area Air Basin (SFBAAB). BAAQMD, with assistance from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), has prepared and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2017 Clean Air Plan*.[14] The primary goals of the Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions and protect the climate. The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which in turn affects region-wide emissions of air pollutants and GHGs.

The 2017 Clean Air Plan, adopted by BAAQMD in April 2017, includes control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. Plans must show consistency with the control measures listed within the Clean Air Plan. At the project-level, there are no consistency measures or thresholds. The proposed project would not conflict with the latest Clean Air planning efforts since 1) project would have emissions below the BAAQMD thresholds (see below), 2) the project would be considered urban infill, and 3) the project would be located near transit with regional connections.

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

The Bay Area is considered a non-attainment area for ground-level ozone and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM_{10} under the California Clean Air Act, but not the federal act. The area has attained both State and federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for ozone precursor pollutants (ROG and NO_X), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

Previously, CARB recommended the use of Urban Land Use Emissions Model (URBEMIS) for predicting construction and operational emissions. In 2012 URBEMIS was considered outdated and the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 replaced URBEMIS. CalEEMod is an enhanced update to URBEMIS that also includes the indirect emissions of GHGs from land use components that URBEMIS did not consider. CalEEMod was used to estimate emissions from construction and operation of the project, assuming full buildout.

[14] Bay Area Air Quality Management District (BAAQMD), 2017. *Final 2017 Clean Air Plan.*

The project land use types and size, and anticipated construction schedule were input to CalEEMod. The closest sensitive receptors to the project site are the adjacent single and multi-family residences to the north, west, and south of the project site.

In the 2017 update to the CEQA Air Quality Guidelines, BAAQMD identifies screening criteria for operational and construction related impacts from the sizes of land use projects that could result in significant criteria pollutant emissions. The criteria pollutant screening criteria was developed from default assumptions used by URBEMIS. The current version of CalEEMod has lower emissions rates than URBEMIS; therefore, the screening land uses sizes listed in the BAAQMD CEQA Air Quality Guidelines are appropriate. If the project is under the BAAQMD screening sizes, then the project would not generate operational criteria pollutants above the significance threshold. If the project is below the screening sizes, includes best construction management practices, and does not include particular construction activities,[15] then the project would not generate construction criteria pollutants above the significance threshold.

The construction screening size for "condo/townhouse, general" is 240 dwelling units and the operational screening size is 451 dwelling units. Condo/townhome projects of smaller size would be expected to have less-than-significant impacts with respect to construction and operational period criteria pollutant emissions. Since the project proposes to develop 64 residential condominium units, it is concluded that the project would not need to perform a detailed air quality assessment of its operational criteria air pollutants and precursor emissions. Also, since the project meets BAAQMD's screening criteria, the project would not result in the generation of operational criteria pollutant emissions and/or precursor emissions that would exceed the BAAQMD significance thresholds. Stationary sources of air pollution (e.g., generators) would not be part of this project.

Although the project construction would be below the screen size and incorporate best construction management practices, it does include the demolition of the two exiting commercial buildings. Therefore, an assessment of the construction criteria pollutant emissions was conducted.

Construction activity is anticipated to include demolition, site preparation, grading, trenching, building construction, architectural coating, and paving. Construction period emissions were modeled using the California Emissions Estimator Model, Version 2016.3.2 (CalEEMod). CalEEMod provided annual emissions for construction and estimates emissions for both on-site and off-site construction activities. The model output from CalEEMod is included as *Attachment 2*. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. A construction build-out scenario, including equipment list and schedule, was based on information provided by the project applicant. The proposed project land uses were input into CalEEMod, which included:

- 64 dwelling units and 99,075-sf entered as "Apartments Mid Rise" on 0.57-acres,[16]
- 87 spaces and 19,815-sf entered as "Enclosed Parking with Elevator",
- 1,500-sf of existing building demolition and 200 tons of pavement demolition and hauling,

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[15] Bay Area Air Quality Management District, *Section 3.5.1 Criteria Air Pollutants and Precursors, CEQA Air Quality Guidelines*, May 2017.

[16] The project has been reduced (from 64 to 62 units and from 99,075 to 90,323 square footage) since completion of the technical studies for this project. This decrease would not make a measurable difference and does not change the results of the technical studies. The more conservative, higher land uses were modeled and reported.

- 20 cubic yards (cy) of soil export during site preparation and 540-cy of soil export during grading, and
- 290 one-way cement truck trips during building construction.

The provided construction schedule assumed that the project would be built out over a period of approximately 19 months or 386 days, from 2021-2022. Average daily emissions were computed by dividing the total construction emissions by the number of construction days. Table 5 shows average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 5, predicted the construction period emissions would not exceed the BAAQMD significance thresholds.

Table 5. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Total construction emissions (tons)	0.79 tons	0.82 tons	0.03 tons	0.03 tons
Average daily emissions (pounds)[1]	4.09 lbs./day	4.23 lbs./day	0.15 lbs./day	0.14 lbs./day
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

Notes: [1]Assumes 386 workdays.

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD *CEQA Air Quality Guidelines* consider these impacts to be less-than-significant if best management practices are implemented to reduce these emissions. *Mitigation Measure AQ-1 would implement BAAQMD-recommended best management practices.*

Mitigation Measure AQ-1: **Include measures to control dust and exhaust during construction.**

During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less-than-significant level. Additional measures are identified to reduce construction equipment exhaust emissions. The contractor shall implement the following best management practices that are required of all projects:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Effectiveness of Mitigation Measure AQ-1

The measures above are consistent with BAAQMD-recommended basic control measures for reducing fugitive particulate matter that are contained in the BAAQMD CEQA Air Quality Guidelines.

Impact: Expose sensitive receptors to substantial pollutant concentrations?

Project impacts related to increased community risk can occur either by introducing a new source of TACs during construction and operation with the potential to adversely affect existing sensitive receptors in the project vicinity or by introducing a new sensitive receptor, such as a residential use, in proximity to an existing source of TACs.

Temporary project construction activity would generate dust and equipment exhaust on a temporary basis that could affect nearby sensitive receptors. A construction health risk assessment was prepared to address project construction impacts on the surrounding off-site sensitive receptors.

Operation of the project is not expected to be a source of TAC or localized air pollutant emissions. The project would not include the installation of emergency generators powered by diesel engines that would also have emissions of TACs and air pollutants. Additionally, the project would generate some traffic, consisting of mostly light-duty vehicles. However, the number of daily trips generated by the project after trip reductions are below 10,000 trips a day (i.e. 298 daily trips)[17] to not be considered a source of substantial TACs or $PM_{2.5}$.

The project would introduce new residents that are sensitive receptors. There are also several sources of TACs and localized air pollutants in the vicinity of the project. The impact of the existing sources of TAC upon the existing sensitive receptors and new incoming sensitive receptors was assessed.

Community Risk Methodology for Construction and Operation

Community risk impacts were addressed by predicting increased cancer risk, the increase in annual $PM_{2.5}$ concentrations and computing the Hazard Index (HI) for non-cancer health risks. The risk impacts from the project are the combination of risks from construction and operation sources. These sources include on-site construction activity, construction truck hauling, and increased traffic from the project. To evaluate the increased cancer risks from the project, a 30-year exposure period was used, per BAAQMD guidance,[18] with the sensitive receptors being exposed to both project construction and operation emissions during this timeframe.

The project increased cancer risk is computed by summing the project construction cancer risk and operation cancer risk contributions. Unlike, the increased maximum cancer risk, the annual $PM_{2.5}$ concentration and HI values are not additive but based on the annual maximum values for the entirety of the project. The project maximally exposed individual (MEI) is identified as the sensitive receptor that is most impacted by the project's construction and operation.

The methodology for computing community risks impacts is contained in *Attachment 1*. This involved the calculation of TAC and $PM_{2.5}$ emissions, dispersion modeling of these emissions, and computations of cancer risk and non-cancer health effects.

Modeled Sensitive Receptors

Receptors for this assessment included locations where sensitive populations would be present for extended periods of time (i.e., chronic exposures). This includes the existing adjacent residences to the north, west, and south of the project site, as shown in Figure 1. Residential receptors are assumed to include all receptor groups (i.e. infants, children, and adults) with almost continuous exposure to project emissions.

Construction Community Health Risk Impacts

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The primary

[17] Hexagon Transportation Consultants. *1747 Almaden Road Residential Development Transportation Analysis*. March 2020.
[18] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

community risk impact issue associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$.[19] This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod model provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.0280 tons (56 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.0063 tons (13 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[20] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions. Combustion equipment exhaust emissions were modeled as a series of point sources with a nine-foot release height (construction equipment exhaust stack height) placed at 15-foot (4.6-meter) intervals throughout the construction site. This resulted in 104 individual point sources being used to represent mobile equipment DPM exhaust emissions in the construction area, with DPM emissions occurring throughout the project construction site. The locations of the point sources used for the modeling are identified in Figure 1. Emissions from vehicle travel on- and off-site were distributed among the point sources throughout the site. Construction fugitive $PM_{2.5}$ dust emissions were modeled as an area source encompassing the entire construction site with a near ground level release height of 6.6 feet (2 meters). Construction emissions were modeled as occurring daily between 7:00 a.m. to 5:00 p.m., when the majority of construction activity would occur according to the provided construction information.

The modeling used a five-year data set (2006-2010) of hourly meteorological data from the San José International Airport that was prepared for use with the AERMOD model by BAAQMD. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2021-2022 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 4.9 feet (1.5 meters), 14.8 feet (4.5 meters), 7 25 feet (.6

[19] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.
[20] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

meters), and 35 feet (10.6 meters) were used to represent the breathing height on the first through fourth floors of nearby single- and multi-family residences and apartments.

Construction Community Risk Impacts

The maximum-modeled annual DPM and $PM_{2.5}$ concentrations, which includes both the DPM and fugitive $PM_{2.5}$ concentrations, were identified at nearby sensitive receptors (as shown in Figure 1) to find the maximally exposed individuals (MEIs). Using the maximum annual modeled DPM concentrations, the maximum increased cancer risks were calculated using BAAQMD recommended methods and exposure parameters described in *Attachment 1*. Non-cancer health hazards and maximum $PM_{2.5}$ concentrations were also calculated and identified. *Attachment 3* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

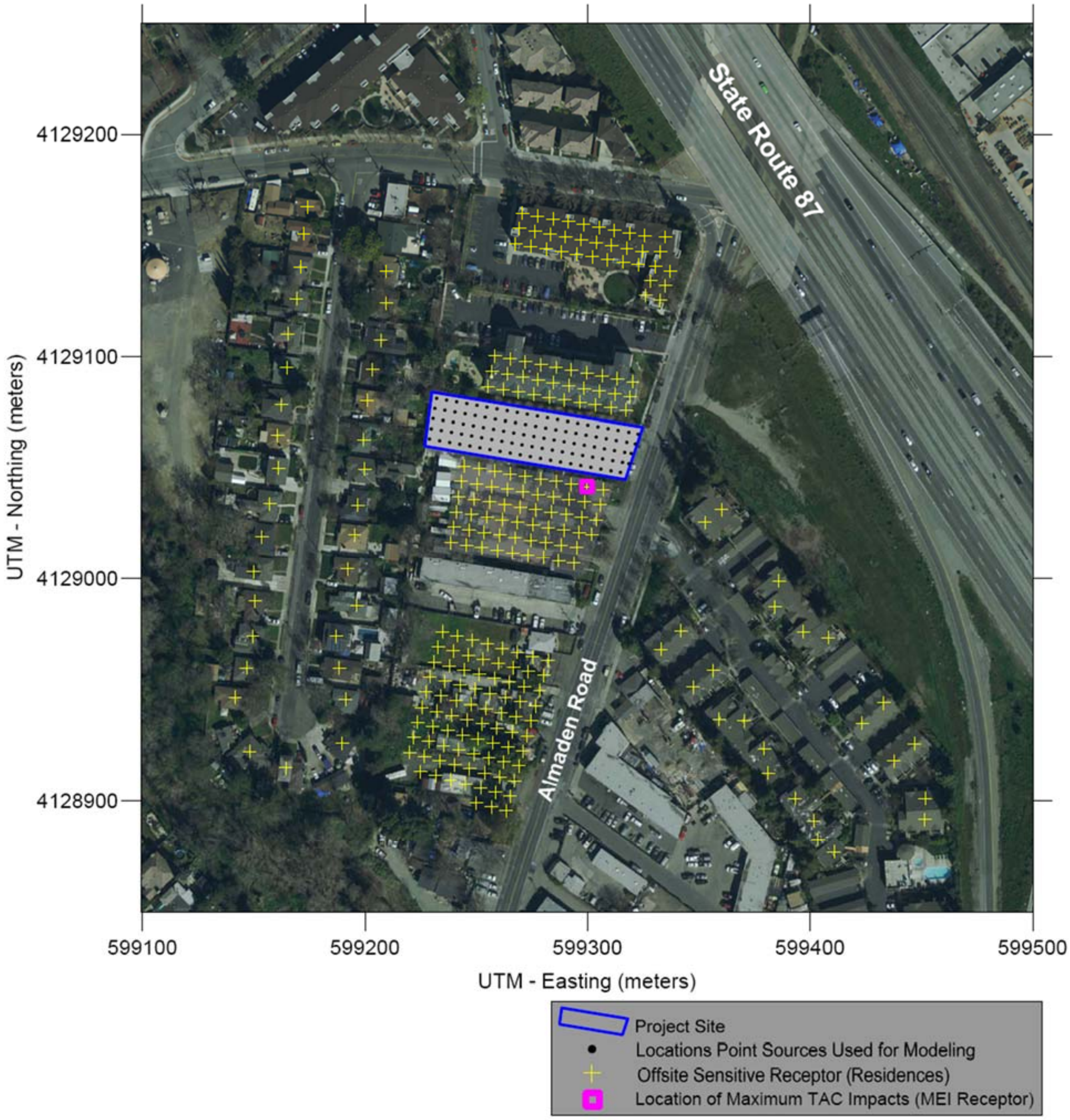
Results of this assessment indicated that the cancer risk MEI was located at a residential unit on the third floor (25 feet above ground) and the $PM_{2.5}$ concentration MEI was located at the same unit on the second floor (15 feet above ground) of the apartment building south of, and adjacent to, the southern project boundary (as seen in Figure 1). The maximum increased cancer risks from construction exceeds its BAAQMD single-source thresholds of greater than 10.0 per million. Table 6 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction activities affecting the MEIs.

Table 6. Construction Risk Impacts at the Off-site Residential MEIs

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction	Unmitigated Mitigated*	**31.8 (infant)** 3.8 (infant)	0.14 0.02	0.02 <0.01
	BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated Mitigated*	***Yes*** *No*	*No* *No*	*No* *No*

* Construction equipment engines with Tier 4 Interim and electric crane mitigation measures.

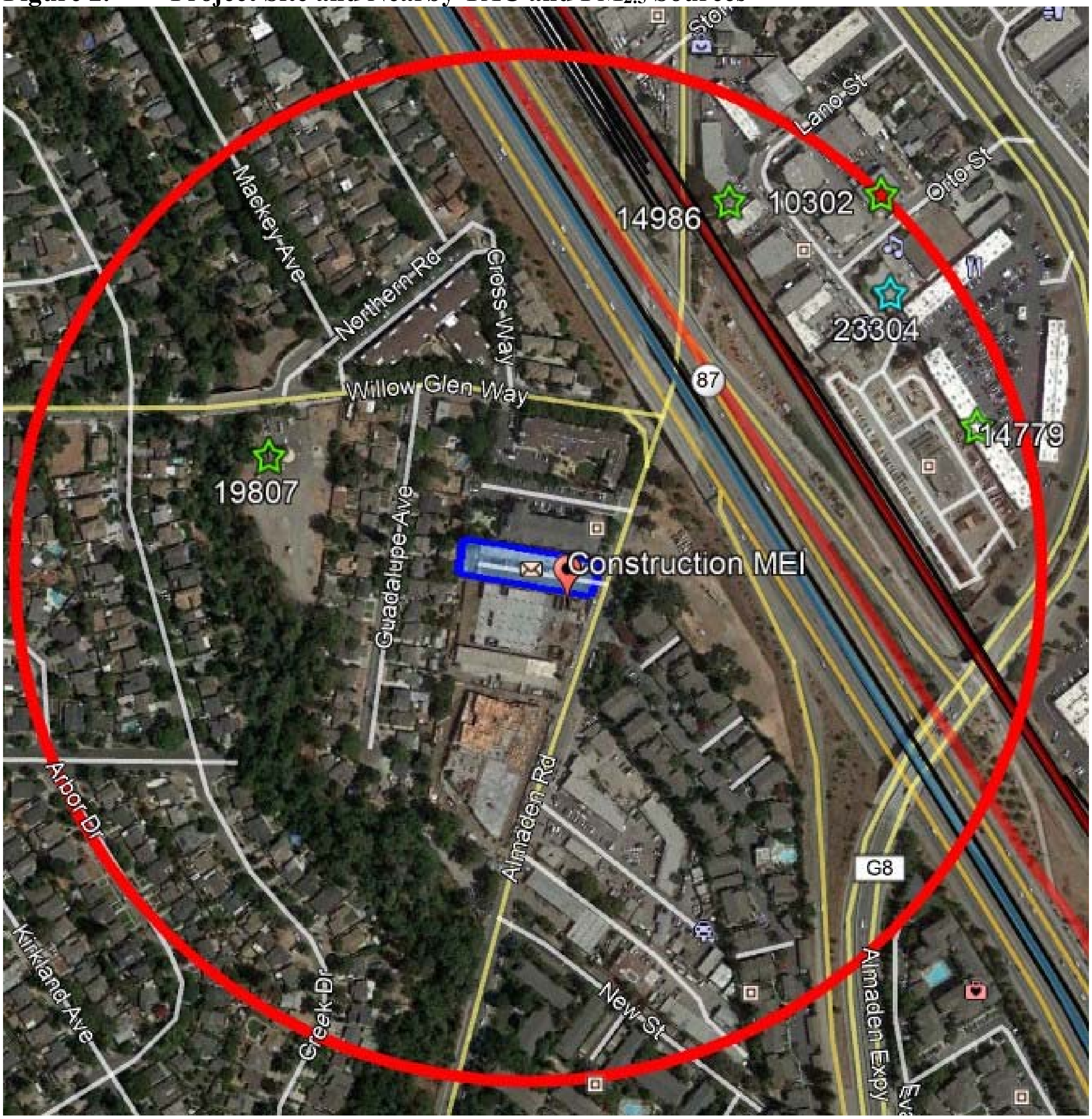
Figure 1. Project Construction Site, Point Source Locations, Locations of Off-Site Sensitive Receptors, and Maximum TAC Impacts



<u>Combined Impact of All TAC Sources on the Off-Site Construction MEI</u>

Community health risk assessments typically look at all substantial sources of TACs located within 1,000 feet of project sites and at new TAC sources that would be introduced by the project. These sources include railroads, highways, busy surface streets, and stationary sources identified by BAAQMD. The Union Pacific Railroad/Caltrain is east of the project site. A review of the project area indicates that traffic on State Route 87 (S.R. 87) and Almaden Expressway have an average daily traffic (ADT) of over 10,000 vehicles. All other roadways within the area are assumed to have an ADT that is less than 10,000 vehicles. Five stationary sources were identified within the 1,000-foot influence area using the BAAQMD's stationary source stationary source website map and Google Earth map. Figure 2 shows the sources affecting the project site. Details of the modeling and community risk calculations are included in *Attachment 4.*

Figure 2. Project Site and Nearby TAC and $PM_{2.5}$ Sources



Railroad - Caltrain

The project site and construction MEI are located near a rail line used for freight and passenger rail service. The construction MEI is located approximately 680 feet west of the rail lines. Trains traveling on these lines generate TAC and $PM_{2.5}$ emissions from diesel locomotives. Due to the proximity of the rail line to the proposed project and construction MEI, potential community risks to future project residents and at the construction MEI from DPM and $PM_{2.5}$ emissions from diesel locomotive engines were evaluated.

Caltrain and Amtrak's Coast Starlight passenger trains use this portion of the rail line. Based on current Caltrain and Amtrak schedules, Caltrain operates 6 weekday trains between San Jose and Gilroy and Amtrak operates 2 daily Coast Starlight passenger trains between Seattle and Los Angles. In addition to the passenger trains, there are up to 6 freight trains that use the rail line on a daily basis.[21] All trains are assumed to use diesel-powered locomotives.

DPM and $PM_{2.5}$ emissions from trains on the rail line were calculated using EPA emission factors for locomotives[22] and CARB adjustment factors to account for fuels used in California.[23] Caltrain's current locomotive fleet consists of twenty-three 3,200 horsepower (hp) locomotives of model year or overhaul date of 1999 or earlier and six 3,600 hp locomotives of model year 2003.[24] In estimating emissions from the Caltrain locomotives, the 3,600 hp diesel locomotives were assumed to be used for trains traveling between San Jose to Gilroy[25]. For the Amtrak passenger trains it was assumed that these trains use 3,200 hp diesel locomotives and would continue to do so in the future. Each passenger train was assumed to use one locomotive and would be traveling at an average speed of 40 mph in the vicinity of the project site. Emissions from freight trains were calculated assuming they would use two locomotives with 2,300 hp engines (total of 4,600 hp) and would be traveling at about 40 mph.

Since the exposure period for calculating cancer risks recommended by the BAAQMD[26] is 30 years, passenger and freight train average DPM and $PM_{2.5}$ emissions for the year 2023 were conservatively assumed to represent emissions over the entire exposure period. DPM emissions from diesel-fueled locomotives will be reduced over time due to regulatory requirements for reduced particulate matter emissions from diesel locomotives. As such, use of DPM emissions for 2023 is a conservative estimate of emissions over the entire 30-year exposure period.

Modeling of locomotive emissions was conducted using the EPA's AERMOD dispersion model and five years (2006-2010) of hourly meteorological data from the San Jose Airport prepared for use with the AERMOD model by the BAAQMD. The San Jose Airport is about four miles northwest of the project site. Locomotive emissions from train travel within about 1,000 feet of the project site were modeled as a single line source comprised of a series of adjacent volume sources along the centerline of the rail lines near the project site. DPM and $PM_{2.5}$ concentrations were calculated at single receptor placed at the location of the construction MEI, discussed previously.

The maximum increased cancer risk at the construction MEI receptor would be 0.5 in one million. The maximum $PM_{2.5}$ concentration at the construction MEI receptor would be less than 0.01 $\mu g/m^3$

[21] Metropolitan Transportation Commission, 2006. *Bay Area Regional Rail Plan, Technical Memorandum 4a, Conditions, Configuration & Traffic on Existing System*. November 15.

[22] U.S. EPA, 2009. *Emission Factors for Locomotives* (EPA-420-F-09-025).

[23] CARB*, 2006. Offroad Modeling, Change Technical Memo*, *Changes to the Locomotive Inventory*. July.

[24] Caltrain *Commute Fleets*. Available at: http://www.caltrain.com/about/statsandreports.html.

[25] Caltrain 2015. *Short Range Transit Plan:FY2015-2024*. October 1, 2015.

[26] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. January 2016.

and the HI at this location would be less than 0.01. The risk impacts from the railroad on the MEI are discussed in Table 7. Details of the emission calculations, dispersion modeling and cancer risk calculations for the project are contained in *Attachment 4.*

Highways – S.R. 87

The project site and construction MEI are located near S.R. 87. The construction MEI is located approximately 400 feet west of the S.R. 87. A refined analysis of the impacts of TACs and $PM_{2.5}$ to the construction MEI and new sensitive receptors is necessary to evaluate potential cancer risks and $PM_{2.5}$ concentrations from S.R. 87. A review of the traffic information reported by the California Department of Transportation (Caltrans) indicates that S.R. 87 traffic includes 156,500 vehicles per day[27] (based on an annual average) that are about 2.56 percent trucks, of which 1.32 percent are considered diesel heavy duty trucks and 1.24 percent are medium duty trucks.[28]

<u>*Traffic Emissions Modeling*</u>

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on S.R. 87 using the Caltrans version of the EMFAC2017 emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (e.g., TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for $PM_{2.5}$. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (i.e., Santa Clara County), type of road, traffic mix assigned by CT-EMFAC2017 for the county and adjusted for the local truck mix on S.R. 87, year of analysis, and season.

Residential occupation of the project was assumed to occur in 2023. In order to estimate TAC and $PM_{2.5}$ emissions over the 30-year exposure period used for calculating increased cancer risks to new residents from traffic on S.R. 87, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2023 using the calculated mix of cars and trucks on S.R. 87. Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CT-EMFAC2017. Year 2023 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated (30 years), since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions will decrease in the future. Default EMFAC2017 vehicle model fleet age distributions for Santa Clara County were assumed. Average daily traffic volumes truck percentages were based on Caltrans data for S.R. 87 for 2016. Traffic volumes were assumed to increase 1 percent per year. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[29] which were then applied to the average daily traffic volumes to obtain estimated hourly traffic volumes and emissions for S.R. 87.

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[27] California Department of Transportation. 2018. *2017 Traffic Volumes on the California State Highway System*.
[28] Caltrans. 2017. *2016 Annual Average Daily Truck Traffic on the California State Highway System*
[29] The Burden output from EMFAC2007, CARB's previous version of the EMFAC model, was used for this since the current web-based version of EMFAC2011 does not include Burden type output with hour by hour traffic volume information.

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for future traffic on S.R. 87 and using these emissions with an air quality dispersion model to calculate TAC and $PM_{2.5}$ concentrations at the construction MEI and on-site receptor locations. Maximum increased lifetime cancer risks and annual $PM_{2.5}$ concentrations for the receptors were then computed using modeled TAC and $PM_{2.5}$ concentrations and BAAQMD methods and exposure parameters described in *Attachment 1*.

For all hours of the day, other than during peak a.m. and p.m. periods, an average speed of 65 mph was assumed for all vehicles. Based on traffic data from the Santa Clara Valley Transportation Authority's 2017 Monitoring and Conformance Report, traffic speeds during the peak a.m. and p.m. periods were identified.[30] For a 2-hour period during the peak a.m. period, an average travel speed of 25 mph was used for northbound traffic and an average speed of 60 mph was used for southbound traffic. For the peak p.m. period, an average travel speed of 25 mph was used for northbound traffic and an average travel speed of 45 mph was used for southbound traffic.

<u>Dispersion Modeling</u>

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the U.S. EPA AERMOD dispersion model, which is recommended by the BAAQMD for this type of analysis. Northbound and southbound traffic on S.R. 87 within about 1,000 feet of the project site was evaluated with the model. Emissions from vehicle traffic were modeled in AERMOD using a series of volume sources along a line (line volume sources), with line segments used to represent northbound and southbound travel lanes on S.R. 87. The modeling used a five-year data set (2006-2010) of hourly meteorological data from the San Jose Airport prepared by the BAAQMD for use with the AERMOD model. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations.

<u>Computed Cancer and Non-Cancer Health Impacts</u>

The maximum increased cancer risk at the construction MEI receptor would be 3.2 in one million. The maximum $PM_{2.5}$ concentration at the construction MEI receptor would be 0.14 $\mu g/m^3$ and the HI at this location would be less than 0.01. The risk impacts from the highway on the MEI are shown in Table 7. Details of the emission calculations, dispersion modeling and cancer risk calculations for the receptors with the maximum cancer risk from S.R. 87 traffic are also provided in *Attachment 4.*

Local Roadways – Almaden Expressway

For local roadways, BAAQMD has provided the *Roadway Screening Analysis Calculator* to assess whether roadways with traffic volumes of over 10,000 vehicles per day may have a potentially significant effect on a proposed project. Note this is a screening model and more refined modeling could be conducted if potentially significant impacts are identified. Two adjustments were made to the cancer risk predictions made by this calculator: (1) adjustment for latest vehicle emissions

[30] Santa Clara Valley Transportation Authority. *2017 CMP Monitoring and Conformance Report April 23, 2018.*

rates predicted using EMFAC2014 and (2) adjustment of cancer risk to reflect OEHHA guidance (see *Attachment 1*).

The calculator uses EMFAC2011 emission rates for the year 2014. However, a new version of the emissions factor model, EMFAC2014 is available. This version predicts lower emission rates. An adjustment factor of 0.5 was developed by comparing emission rates of total organic gases (TOG) for running exhaust and running losses developed using EMFAC2011 for year 2014 and those from EMFAC2014 for 2018. The predicted cancer risk was then adjusted using a factor of 1.3744 to account for new OEHHA guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.[31]

The ADT on Almaden Expressway was estimated to be 22,890 vehicles. These estimates were based on traffic volumes included in the project's traffic analysis for background plus project conditions in the project's traffic report.[32] The AM and PM peak-hour volumes were averaged and then multiplied by 10 to estimate the ADT.

The BAAQMD *Roadway Screening Analysis Calculator* for Santa Clara County was used for this roadway. Almaden Expressway was identified as a north-south directional roadway with the construction MEI located approximately 815 feet west of the roadway. Estimated risk values for this roadway at the MEI are listed in Table 7. Note that BAAQMD has found that non-cancer hazards from all local roadways would be well below the BAAQMD thresholds. Chronic or acute HI for the roadway would be below 0.03.

Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth and identifies the location of nearby stationary sources and their estimated risk and hazard impacts. In addition, *BAAQMD's Permitted Stationary Sources 2017* GIS website[33] was used to locate updated nearby permitted stationary sources. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. BAAQMD provided updated emissions data.[34] Those data were input into BAAQMD's *Risk and Hazards Emissions Screening Calculator* which computes the cancer risk, annual $PM_{2.5}$ concentrations, and HI using adjustments to account for new OEHHA guidance and distance from the sources.

Five stationary sources were identified; Plant #19807 is a diesel-powered generator and Plant #14986, #10302, #14779, and #23304 are auto body coating systems. Estimated risk values for these stationary sources at the MEI are listed in Table 7.

[31] Correspondence with Alison Kirk, BAAQMD, November 23, 2015.
[32] Hexagon Transportation Consultants. *1747 Almaden Road Residential Development Transportation Analysis*. March 2020.
[33] BAAQMD, https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65
[34] Correspondence with Areana Flores, BAAQMD, November 15, 2019.

BAAQMD's *Risk and Hazards Emissions Screening Calculator* values for Plant #19807 at the new project sensitive receptors indicated that the diesel-powered generator would have annual cancer risk levels exceeding the single-source significant threshold of 10.0 in one million. Therefore, refined modeling for this source was conducted at both the construction MEI and new project sensitive receptors.

To estimate potential cancer risks impacts from the Plant #19807 generator, the AERMOD dispersion model was used to calculate the maximum annual DPM concentrations at the construction MEI and new project sensitive receptor locations using DPM emissions data for Plant #19807 provided by BAAQMD. The modeling was conducted using a five-year data set (2006-2010) of hourly meteorological data from San Jose International Airport prepared for use with the AERMOD model by BAAQMD. Stack parameters for modeling (stack height and diameter, exhaust flow rate, and exhaust gas temperature) were based on AERMOD and BAAQMD default generator parameters. Annual average DPM concentrations were modeled assuming that generator testing could occur at any time, 24 hours a day.

At the construction MEI, the modeled maximum DPM concentration with a residential 30-year exposure cancer risk would be 4.6 in one million, the maximum annual $PM_{2.5}$ concentration would be less than 0.01 $\mu g/m^3$, and the maximum HI would be less than 0.01. The emissions and health risk calculations are provided in *Attachment 4*.

Combined Community Health Risk at Off-site Construction MEI

Table 7 reports both the project and cumulative community risk impacts at the sensitive receptor most affected by construction (i.e. the construction MEI). Without mitigation, the project's community risk from project construction activities would exceed the single-source maximum cancer risk and $PM_{2.5}$ concentration significance thresholds. The combined annual cancer risk, $PM_{2.5}$ concentration, and Hazard risk values, which includes unmitigated and mitigated, would not exceed their respective cumulative thresholds. With the incorporation of *Mitigation Measures AQ-1 and AQ-2*, the project construction's single-source and cumulative-source risks would no longer exceed the significance thresholds.

Table 7. Impacts from Combined Sources at Off-Site Construction MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction	Unmitigated Mitigated	**31.8 (infant)** 3.8 (infant)	0.14 0.02	0.02 <0.01
BAAQMD Single-Source Source Threshold		***>10.0***	***>0.3***	***>1.0***
Railroad at 680 feet west		0.5	<0.01	<0.01
S.R. 87 at 400 feet west		3.2	0.14	<0.01
Almaden Expressway (north-south) at 815 feet west, ADT 22,890		0.6	0.02	<0.03
Plant #19807 (Generator) at 745 feet west		4.6	<0.01	<0.01
Plant #14986 (Auto Body Coating) at 920 feet north		--	--	<0.01
Plant #10302 (Auto Body Coating) at 1,000 feet north		--	--	<0.01
Plant #14779 (Auto Body Coating) at 960 feet east		<0.1	<0.01	<0.01
Plant #23304 (Auto Body Coating) at 960 feet east		--	--	<0.01
Combined Sources	Unmitigated Mitigated	<40.8 (infant) <12.8 (infant)	<0.33 <0.21	<0.12 <0.11
BAAQMD Cumulative Source Threshold		***>100***	***>0.8***	***>10.0***
Exceed Any Thresholds?	Unmitigated Mitigated	***Yes*** *No*	*No* *No*	*No* *No*

***Mitigation Measure AQ-2*: Selection of equipment during construction to minimize emissions. Such equipment selection would include the following:**

The project shall develop a plan demonstrating that the off-road equipment used onsite to construct the project would achieve a fleet-wide average 70-percent reduction in DPM exhaust emissions or greater. One feasible plan to achieve this reduction would include the following:

- All diesel-powered off-road equipment, larger than 25 horsepower, operating on the site for more than two days continuously shall, at a minimum, meet U.S. EPA particulate matter emissions standards for Tier 4 Interim engines or equivalent. Where equipment meeting Tier 4 standards are not available, the equipment will be required to include CARB-certified Level 3 Diesel Particulate Filters that are considered CARB verified diesel emission control devices (VDECs). The use of equipment that includes electric or alternatively-fueled equipment (i.e., non-diesel) would also meet this requirement.

- Stationary construction cranes (building cranes) shall be powered by electricity.

Effectiveness of Mitigation Measure AQ-2

Implementation of *Mitigation Measure AQ-2* using Tier 4 Interim engines and electric cranes would reduce on-site diesel exhaust emissions from construction equipment by 88-percent. With mitigation, the computed maximum increased lifetime residential cancer risk from construction at the MEI, assuming infant exposure, would be 3.8 in one million or less. The mitigated cancer risk would no longer exceed its single-source significance thresholds.

Non-CEQA Impact: Exposure of Project Residents to Existing TACs Sources

Operational Community Health Risk Impacts – New Project Residences

In addition to evaluating health impact from project construction, a health risk assessment was completed to assess the impact that existing TAC sources would have on the new proposed sensitive receptors that the project would introduce. The same TAC sources identified above were used in this health risk assessment.[35]

Railroad – Caltrain

The rail line analysis for new project sensitive receptors was conducted in the same manner as described above for the construction MEI. The closest project site boundary is about 615 feet west from the rail line.

DPM and $PM_{2.5}$ concentrations were calculated at receptor locations placed within the proposed residential areas using a grid of receptors with 7-meter (23 feet) spacing. Receptor heights of 6.1 meters (20 feet) and 9.1 meters (30 feet), representative of breathing heights on the second and third floor levels of the project, were used in the modeling. The second-floor level would be the first level with residences. Figure 3 figure shows the railroad line segment used for the modeling and receptor locations at the project site where concentrations were calculated. The maximum modeled DPM and $PM_{2.5}$ concentrations occurred in the residential units closest to Almaden Road on the second-floor level. The location where the maximum modeled long-term on-site DPM and $PM_{2.5}$ concentrations occurred are shown in Figure 3.

The risk impacts from the railroad on the project receptors are discussed in Table 8. The maximum increased cancer risk at the project site was computed as 0.7 in one million. The location of maximum cancer risks is shown in Figure 3. Increased cancer risks at residences on floor levels above the second floor would be less than the maximum cancer risk on the second-floor level. Based on the rail line modeling, the maximum $PM_{2.5}$ concentration at the project site was 0.001 $\mu g/m^3$, occurring at the same receptor that had the maximum cancer risk on the second-floor level.

[35] We note that to the extent this analysis considers *existing* air quality issues in relation to the impact on *future residents* of the Project, it does so for informational purposes only pursuant to the judicial decisions in *CBIA v. BAAQMD* (2015) 62 Cal.4th 369, 386 and *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473, which confirm that the impacts of the environment on a project are excluded from CEQA unless the project itself "exacerbates" such impacts.

Figure 3. Project Site and Onsite Residential Receptors, State Route 87 Road Segments and Rail Line Segment Evaluated, and Location of Maximum TAC Impacts

Highways – S.R. 87

The highway analysis for the new project sensitive receptors was conducted in the same manner as described above for the construction MEI and the project set of receptors placed within the project residential areas spaced every 7 meters (23 feet). The closest project site boundary is about

300 feet west from S.R. 87. Figure 3 shows the roadway links and onsite receptor locations used in the modeling.

The risk impacts from the highway on the project receptors are discussed in Table 8. The maximum impacts occurred at a receptor height of 6.1 meters (second floor level) in residential units closest to S.R. 87. The maximum increased cancer risk at the project site was computed as 4.9 in one million. The location of maximum cancer risks is shown in Figure 3. Increased cancer risks at residences on floor levels above the second floor would be less than the maximum cancer risk on the second-floor level. The maximum $PM_{2.5}$ concentration at the project site was 0.22 $\mu g/m^3$, occurring at the same receptor that had the maximum cancer risk on the second-floor level. The maximum predicted annual DPM concentration from S.R. 87 traffic was 0.00513 $\mu g/m^3$. This concentration is much lower than the REL and the HI would be 0.001.

Local Roadways – Almaden Expressway

The roadway analysis was conducted for the new project sensitive receptors in the same manner as described above for the construction MEI. The project receptors would be 790 feet west of Almaden Expressway. The health risk results are provided in Table 8.

Stationary Sources

The stationary source screening analysis for the new project sensitive receptors was conducted in the same manner as described above for the construction MEI. Table 8 shows the health risk assessment results.

For Plant #19807, the modeled maximum DPM concentration occurred on the fourth-floor level in the southwest corner of the project residential area, with the residential 30-year exposure cancer risk at 8.8 in one million, the maximum annual $PM_{2.5}$ concentration at 0.02 $\mu g/m^3$, and the maximum HI at less than 0.01. The emissions and health risk calculations are provided in *Attachment 4*.

Combined Community Health Risk at Project Site

Community risk impacts from combined sources upon the project site sensitive receptors are reported in Table 8. As shown, the annual cancer risks, annual $PM_{2.5}$ concentrations, and Hazard Indexes are all below their respective single-source and cumulative significance thresholds.

Table 8. Community Risk Impact to New Project Residences

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Railroad at 615 feet west	0.7	<0.01	<0.01
S.R. 87 at 300 feet west	3.8	0.16	<0.01
Almaden Expressway (north-south) at 790 feet west, ADT 22,890	0.7	0.02	<0.03
Plant #19807 (Generator) at 380 feet	8.8	0.02	<0.01
Plant #14986 (Auto Body Coating) at 820 feet	--	--	<0.01
Plant #10302 (Auto Body Coating) at 1,000 feet	--	--	<0.01
Plant #14779 (Auto Body Coating) at 860 feet	<0.1	<0.01	<0.01
Plant #23304 (Auto Body Coating) at 860 feet	--	--	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>0.1***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Total	14.1	0.22	<0.10
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?	*No*	*No*	*No*

Greenhouse Gas Emissions

Setting

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO_2) and water vapor but there are also several others, most importantly methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO_2 and N_2O are byproducts of fossil fuel combustion.
- N_2O is associated with agricultural operations such as fertilization of crops.
- CH_4 is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO_2 being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO_2 equivalents (CO_2e).

An expanding body of scientific research supports the theory that global climate change is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California are adversely affected by the global warming trend. Increased precipitation and sea level rise will increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

Recent Regulatory Actions

Federal Clean Air Act

The Federal Clean Air Act (CAA), first passed in 1970, is the overarching federal-level law that, as of 2007 via the U.S. Supreme court decision in Massachusetts v. EPA, enables the U.S. EPA to provide regulations of key GHG emissions sources (mobile emissions), established a mandatory emissions reporting program for large stationary emitters, and implementation of vehicle fuel efficiency standards.

Assembly Bill 32 (AB 32), California Global Warming Solutions Act (2006)

AB 32, the Global Warming Solutions Act of 2006, codified the State's GHG emissions target by directing CARB to reduce the State's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, California Public Utilities Commission (CPUC), and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05.[36]

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State's main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. It required CARB and other state agencies to develop and adopt regulations and other initiatives reducing GHGs by 2012.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of CO_2e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO_2e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO_2e. Thus, an estimated reduction of 80 MMT of CO_2e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

CARB prepared an updated Scoping Plan which was released in 2017. The 2017 Scoping Plan identifies ways for California to reach the statewide 2030 climate target and next steps for reaching the 2050 target goal.

Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the CPUC to establish a greenhouse gas emission performance standard. Therefore, on January 25, 2007, the CPUC adopted an interim GHG Emissions Performance Standard in an effort to help mitigate climate change. The Emissions Performance Standard is a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have emissions no greater than a combined cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour. "New long-term commitment" refers to new plant investments (new construction), new or renewal

[36] Note that AB 197 was adopted in September 2016 to provide more legislative oversight of CARB.

contracts with a term of five years or more, or major investments by the utility in its existing baseload power plants. In addition, the CEC established a similar standard for local publicly owned utilities that cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural gas fired plant. On July 29, 2007, the Office of Administrative Law disapproved the CEC's proposed Greenhouse Gases Emission Performance Standard rulemaking action and subsequently, the CEC revised the proposed regulations. SB 1368 further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

Senate Bill 32 – California Global Warming Solutions Act of 2006

In September 2015, the California Legislature passed SB 350 (de Leon 2015), which increases the State's Renewables Portfolio Standard (RPS) for content of electrical generation from the 33 percent target for 2020 to a 50 percent renewables target by 2030.

Senate Bill 375, California's Regional Transportation and Land Use Planning Efforts (2008)

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

SB 350 Renewable Portfolio Standards

In September 2015, the California Legislature passed SB 350, which increases the states Renewables Portfolio Standard (RPS) for content of electrical generation from the 33 percent target for 2020 to a 50 percent renewables target by 2030.

Executive Order EO-B-30-15 (2015) and SB 32 GHG Reduction Targets

In April 2015, Governor Brown signed Executive Order which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed SB 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*. While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB is currently working on a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The proposed Scoping Plan Update was published on January 20, 2017 as directed by SB 32 companion legislation AB 197. The mid-term 2030 target is considered critical by CARB on the path to obtaining an even deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive Order S-3-05. The Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and obtain the statewide goals.

The new Scoping Plan establishes a strategy that will reduce GHG emissions in California to meet the 2030 target (note that the AB 32 Scoping Plan only addressed 2020 targets and a long-term goal). Key features of this plan are:

- Cap and Trade program places a firm limit on 80 percent of the State's emissions;
- Achieving a 50-percent Renewable Portfolio Standard by 2030 (currently at about 29 percent statewide);
- Increase energy efficiency in existing buildings;
- Develop fuels with an 18-percent reduction in carbon intensity;
- Develop more high-density, transit-oriented housing;
- Develop walkable and bikable communities;
- Greatly increase the number of electric vehicles on the road and reduce oil demand in half;
- Increase zero-emissions transit so that 100 percent of new buses are zero emissions;
- Reduce freight-related emissions by transitioning to zero emissions where feasible and near-zero emissions with renewable fuels everywhere else; and
- Reduce "super pollutants" by reducing methane and hydrofluorocarbons or HFCs by 40 percent.

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons CO_2e per capita (statewide) by 2030 and no more than 2 metric tons CO_2e per capita by 2050. The statewide per capita targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

Executive Order B-55-18 and SB 100 – 100 Percent Clean Energy Act of 2018

On September 10, 2018 Governor Brown signed both SB 100 – 100 Percent Clean Energy Act of 2018 and Executive Order B-55-18 to Achieve Carbon Neutrality. SB 100 sets California on course to achieving carbon-free emissions from the electric power production sector by 2045. SB100 also increases the required emissions reduction generated by retail sales to 60% by 2030, an increase in 10% compared to previous goals. B-55-18 establishes a new goal of achieving statewide "carbon neutrality as early as possible and no later than 2045, and to achieve and maintain net negative emissions thereafter".

Climate Smart San José

Climate Smart San José is a plan to reduce air pollution, save water, and create a stronger and healthier community. The City approved goals and milestones in February 2018 to ensure the City can substantially reduce GHG emissions through reaching the following goals and milestones:

- All new residential buildings will be Zero Net Carbon Emissions (ZNE) by 2020 and all new commercial buildings will be ZNE by 2030 (Note that ZNE buildings would be all electric with a carbon-free electricity source).
- San José Clean Energy (SJCE) will provide 100-percent carbon-free base power by 2021.
- One gigawatt of solar power will be installed in San José by 2040.
- 61 percent of passenger vehicles will be powered by electricity by 2030.

The California Energy Commission (CEC) updates the California Building Energy Efficiency Standards every three years, in alignment with the California Code of regulations. Title 24 Parts 6 and 11 of the California Building Energy Efficiency Standards and the California Green Building Standards Code (CALGreen) address the need for regulations to improve energy efficiency and combat climate change. The 2019 CAL Green standards include some substantial changes intended to increase the energy efficiency of buildings. For example, the code encourages the installation of solar and heat pump water heaters in low-rise residential buildings. The 2019 California Code went before City Council in October 2019 for approval, with an effective date of January 1, 2020. As part of this action, the City adopted a "reach code" that requires development projects to exceed the minimum Building Energy Efficiency requirements.[37] The City's reach code applies only to new residential and non-residential construction in San José. It incentivizes all-electric construction, requires increased energy efficiency and electrification-readiness for those choosing to maintain the presence of natural gas. The code requires that non-residential construction include solar readiness. It also requires additional EV charging readiness and/or electric vehicle service equipment (EVSE) installation for all development types.

City of San Jose Greenhouse Gas Reduction Strategy

The Greenhouse Gas Reduction Strategy (GHGRS) was a document prepared by the City of San José to help the City to quantify, reduce, and manage their GHG emissions.[38] The GHGRS was prepared alongside the *Envision San José 2040 General Plan Update* to ensure that the General Plan aligned with AB32. The City uses the following 'Plan-level' GHG significance threshold to reduce GHG emissions to meet the 2020 goal of AB32: 6.6 metric tons of CO_2 equivalent per service population per year (MT CO_2e / SP / year). Service population is defined as the number of residents plus the number of people working within San José. The City has also estimated an efficiency threshold of 3.04 MT CO_2e /SP for 2035. However, since this project would be operational post-2020, the 2020 efficiency threshold is not appropriate. This analysis uses an efficiency threshold for projects operational post-2020 that is more aggressive than the 2035 efficiency threshold proposed by the City of San José. Additionally, the GHGRS has several

[37] City of San José Transportation and Environmental Committee, *Building Reach Code for New Construction Memorandum,* August 2019.
[38] City of San José, 2011. *Greenhouse Gas Reduction Strategy for the City of San José*. June (updated December 2015). http://www.sanjoseca.gov/documentcenter/view/9388

measures that would implemented, monitored, and enforced by the City. These policies and measures are listed as attachments in the GHGRS. New development projects are subject to the greenhouse gas policies s listed in Attachment B and D of the GHGRS.

GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO_2e).[39] These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.[40] In 2017, GHG emissions from statewide emitting activities were 424 MMT. The 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 MT per person to 10.7 MT per person in 2017. The most recent Bay Area emission inventory was computed for the year 2011.[41] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011. According to San Jose's GHGRS, the City's emissions were 5.71 MMT.

BAAQMD Screening Thresholds

In the 2017 update to the CEQA Air Quality Guidelines, BAAQMD identifies screening criteria for the sizes of land use projects that could result in significant GHG emissions. The operational GHG screening size for "condo/townhouse, general" is 78 dwelling units. Condo/townhome projects of smaller size would be expected to have less-than-significant impacts with respect to operational GHG emissions. The project also would be considered less-than significant is it demonstrations it is consistent with the qualified GHG Reduction Strategy.

Impact: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction Emissions

GHG emissions associated with construction were computed to be 226 MT of CO_2e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

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[39] United States Environmental Protection Agency, 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018*. April. Web: https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf

[40] CARB. 2019. *2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf

[41] BAAQMD. 2015. *Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011*. January. Web: http://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf accessed Nov. 26, 2019.

Operational Emissions

The proposed project includes 64 condominium units, which would be below the operational GHG screening size for “condo/townhouse” of 78 dwelling units. Additionally, the project would implement and comply with the greenhouse gas reduction policies found in the *Envisions San José 2040 General Plan Policy* and the City’s *GHG Reduction Strategy*, which would in turn be consistent with the state’s goals. The project is also subject to the GHG reduction strategies listed in the *Greenhouse Gas Reduction Strategy Implementation Tracking* (Attachment D) tool in the GHG Reduction Strategy. The project would implement and comply with all relevant GHG reduction measures as determined by the City. Therefore; the GHG emissions for the proposed project would be below the BAAQMD significance threshold for GHG in 2020. Alternatively, if the project were to start operation beyond 2020, then it is assumed that GHG emissions would remain below the significance threshold since emissions decrease over time due to improvements in vehicle emissions and use of cleaner energy.

For informational purposes, the annual emissions resulting from operation of the proposed project are shown in Table 9.

Table 9. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	Proposed Project in 2023
Area	3
Energy Consumption	80
Mobile	240
Solid Waste Generation	15
Water Usage	7
Total (MT CO_{2e}/year)	345

Impact: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The proposed project would not conflict or otherwise interfere with the statewide GHG reduction measures identified in CARB’s 2017 Scoping Plan. For example, proposed buildings would be constructed in conformance with CALGreen and the Title 24 Building Code, which requires high-efficiency water fixtures and water-efficient irrigation systems.

Additionally, the project would implement and comply with the greenhouse gas reduction policies found in the *Envisions San José 2040 General Plan Policy,* which are also found in GHGRS as Attachment B. The project is also subject to the GHG reduction strategies listed in the *Greenhouse Gas Reduction Strategy Implementation Tracking* (Attachment D) tool in the GHGRS. The project would implement and comply with all relevant GHG reduction measures as determined by the City.

Supporting Documentation

Attachment 1 is the methodology used to compute community risk impacts, including the methods to compute lifetime cancer risk from exposure to project emissions.

Attachment 2 includes the CalEEMod output for project construction emissions. Also included are any modeling assumptions.

Attachment 3 is the construction health risk assessment. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format.

Attachment 4 includes the screening community risk calculations, modeling results, and health risk calculations from sources affecting the construction MEI and project, including refined railroad and highway modeling. BAAQMD's *Risk and Hazards Emissions Screening Calculator* files for the stationary source assessments, which are quite voluminous, are available upon request and would be provided in digital format.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[42] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[43] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[44] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

Potential increased cancer risk from inhalation of TACs are calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency and duration of exposure. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day). As recommended by the BAAQMD for residential exposures, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, BAAQMD recommends using the 95th percentile breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of

[42] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.
[43] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[44] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD.

Under previous OEHHA and BAAQMD HRA guidance, residential receptors are assumed to be at their home 24 hours a day, or 100 percent of the time. In the 2015 Risk Assessment Guidance, OEHHA includes adjustments to exposure duration to account for the fraction of time at home (FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 to 70 years. Use of the FAH factors is allowed by the BAAQMD if there are no schools in the project vicinity that would have a cancer risk of one in a million or greater assuming 100 percent exposure (FAH = 1.0).

Functionally, cancer risk is calculated using the following parameters and formulas:

Cancer Risk (per million) = $CPF \times Inhalation\ Dose \times ASF \times ED/AT \times FAH \times 10^6$

Where:

CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = $C_{air} \times DBR \times A \times (EF/365) \times 10^{-6}$

Where:

C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

The health risk parameters used in this evaluation are summarized as follows:

Parameter	***Exposure Type →***	**Infant**		**Child**		**Adult**
	Age Range →	**3rd Trimester**	**0<2**	**2 < 9**	**2 < 16**	**16 - 30**
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80th Percentile Rate		273	758	631	572	261
Daily Breathing Rate (L/kg-day) 95th Percentile Rate		361	1,090	861	745	335
Inhalation Absorption Factor		1	1	1	1	1
Averaging Time (years)		70	70	70	70	70
Exposure Duration (years)		0.25	2	14	14	14
Exposure Frequency (days/year)		350	350	350	350	350
Age Sensitivity Factor		10	10	3	3	1
Fraction of Time at Home		0.85-1.0	0.85-1.0	0.72-1.0	0.72-1.0	0.73

Non-Cancer Hazards

Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the BAAQMD significance thresholds to determine whether a significant non-cancer health impact from a project would occur.

Typically, for residential projects located near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is diesel particulate matter (DPM). For DPM, the chronic inhalation REL is 5 micrograms per cubic meter ($\mu g/m^3$).

Annual $PM_{2.5}$ Concentrations

While not a TAC, fine particulate matter ($PM_{2.5}$) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the California Environmental Quality Act (CEQA). The thresholds of significance for $PM_{2.5}$ (project level and cumulative) are in terms of an increase in the annual average concentration. When considering $PM_{2.5}$ impacts, the contribution from all sources of $PM_{2.5}$ emissions should be included. For projects with potential impacts from nearby local roadways, the $PM_{2.5}$ impacts should include those from vehicle exhaust emissions, $PM_{2.5}$ generated from vehicle tire and brake wear, and fugitive emissions from re-suspended dust on the roads.

Attachment 2: CalEEMod Modeling Inputs and Outputs

Air Quality/Noise Construction Information Data Request

Project Name: **Almaden Villas - 1747 Almaden Rd**

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load facto

Project Size	**64**	**Dwelling Units**	**0.57 total project acres disturbed**
	75400	**s.f. residential**	
		s.f. retail	
		s.f. office/commercial	
	23,675	**s.f. other, specify: Common Areas**	
	19815	**s.f. parking garage**	**87 spaces**
		s.f. parking lot	**spaces**
Construction Hours	**7 am to**		**5 pm**

Pile Driving? Y/N?

Project include OPERATIONAL GENERATOR OR FIRE PUMP on-site? Y/N? ____

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: _________

Fuel Type: ____________

Location in project (Plans Desired if Available):

DO NOT MULTIPLY EQUIPMENT HOURS/DAY BY THE QUANTITY OF EQUIPMENT

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Demolition	**Start Date:**	**4/15/2021**	**Total phase:**	**12**			**Overall Import/Export Volumes**
		End Date:	**5/1/2021**					
	Concrete/Industrial Saws	81	0.73			0	0	**Demolition Volume**
1	Excavators	158	0.38	8	10	6.7	80	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	247	0.4	8	5	3.3	40	(*or* total tons to be hauled
1	Tractors/Loaders/Backhoes	97	0.37	8	5	3.3	40	_1,500_ square feet *or*
								_?_ Hauling volume (tons
								Any pavement demolished and hauled? _200_ tons
	Site Preparation	**Start Date:**	**5/2/2021**	**Total phase:**	**5**			
		End Date:	**5/7/2021**					**Soil Hauling Volume**
1	Graders	187	0.41	6	3.3	4.0	19.8	Export volume = **20** cubic yards?
1	Rubber Tired Dozers	247	0.4	6	3.3	4.0	19.8	Import volume = **?** cubic yards?
1	Tractors/Loaders/Backhoes	97	0.37	6	3.3	4.0	19.8	
	Grading / Excavation	**Start Date:**	**5/8/2021**	**Total phase:**	**30**			
		End Date:	**6/18/2021**					**Soil Hauling Volume**
	Excavators	158	0.38			0	0	Export volume = **540** cubic yards?
1	Graders	187	0.41	8	20	5.3	160	Import volume = **?** cubic yards?
	Rubber Tired Dozers	247	0.4			0	0	
	Concrete/Industrial Saws	81	0.73			0	0	
1	Tractors/Loaders/Backhoes	97	0.37	8	15	4	120	
	Other Equipment?							
	Trenching/Ground Improvements	**Start Date:**	**6/1/2021**	**Total phase:**	**21**			
		End Date:	**6/29/2021**					
1	Tractor/Loader/Backhoe	97	0.37	8	5	1.9	40	
	Excavators	158	0.38			0	0	
	Other Equipment?							
	Building - Exterior	**Start Date:**	**6/22/2021**	**Total phase:**	**274**			**Cement Trucks? _145_ Total Round-Trips**
		End Date:	**7/9/2022**					
1	Cranes	231	0.29	8	120	3.5	960	Electric? (Y/N) _Y__ Otherwise assumed diesel
1	Forklifts	89	0.2	4	274	4.0	1096	Liquid Propane (LPG)? (Y/N) ___ Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	20	0.6	160	Or temporary line power? (Y/N) ___
	Tractors/Loaders/Backhoes	97	0.37			0	0	
1	Welders	46	0.45	8	20	0.6	160	
	Other Equipment?							
Building - Interior/Architectural Coatin		**Start Date:**	**7/10/2022**	**Total phase:**	**52**			
		End Date:	**9/20/2022**					
3	Air Compressors	78	0.48	4	38	2.9	456	
2	Aerial Lift	62	0.31	6	28	3.2	336	
1	*Man Lift*	20	0.031	7	52	7	364	
	Offsite/Onsite Improvements	**Start Date:**	**9/21/2022**	**Total phase:**	**28**			
		Start Date:	**10/28/2022**					
1	Cement and Mortar Mixers	9	0.56	8	16	4.6	128	
	Pavers	130	0.42			0	0	**Asphalt? ___ cubic yards or ____ round trips?**
1	Paving Equipment	132	0.36	4	4	0.6	16	
1	Rollers	80	0.38	4	4	0.6	16	
	Tractors/Loaders/Backhoes	97	0.37			0	0	
	Other Equipment?							

Equipment types listed in "Equipment Types" worksheet tab

Equipment listed in this sheet is to provide an example of inputs

Complete one sheet for each project component

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriat

Modify horsepower or load factor, as appropriate

Table 4
Project Trip Generation Estimates

Land Use	ITE Land Use Code	Location	% of Vehicle Mode Share	VMT[3] Existing	VMT[3] Project	% Reduction	Size	Daily Rate	Daily Trip	AM Peak Hour Pk-Hr Rate	AM Peak Hour Split In	AM Peak Hour Split Out	AM Peak Hour Trip In	AM Peak Hour Trip Out	AM Peak Hour Trip Total	PM Peak Hour Pk-Hr Rate	PM Peak Hour Split In	PM Peak Hour Split Out	PM Peak Hour Trip In	PM Peak Hour Trip Out	PM Peak Hour Trip Total
Proposed Land Uses																					
Multifamily Housing (Mid-Rise)[1]	221						64 Dwelling Units	5.44	348	0.360	26%	74%	6	17	23	0.44	61%	39%	18	11	29
- Location Based Reduction[2]		*Suburb with Multifamily Housing*	*88%*			*12%*			*-42*				*-1*	*-2*	*-3*				*-2*	*-1*	*-3*
- VMT Reduction[3]				*10.25*	*9.98*	*3%*			*-8*				*0*	*0*	*0*				*0*	*0*	*0*
Net Project Trips									**298**				**5**	**15**	**20**				**16**	**10**	**26**

Notes:
[1] Source: ITE *Trip Generation Manual*, 10th Edition 2017, average trip generation rates.
[2] The project site is located within an suburb with multifamily housing based on the City of San Jose VMT Evaluation Tool (February 29, 2019). The location-based vehicle mode shares are obtained from Table 6 of the City of San Jose Transportation Analysis Handbook (April 2018). The trip reductions are based on the percent of mode share for all of the other modes of travel besides vehicle.
[3] VMT per capita for residential use. Existing and project VMTs were estimated using the City of San Jose VMT Evaluation Tool.
It is assumed that every percent reduction in VMT per-capita is equivalent to one percent reduction in peak-hour vehicle trips.

Almaden Villas- 1747 Almande Rd, San Jose
Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	87.00	Space	0.00	19,815.00	0
Apartments Mid Rise	64.00	Dwelling Unit	0.57	99,075.00	183

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 58

Climate Zone 4 **Operational Year** 2023

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 290 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 CO2 Rate = 290

Land Use - Provided plans and construction sheet land uses

Construction Phase - Provided construction spreadsheet

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Trips and VMT - 200 tons pavement demo = 40 one-way demp trips +7 = 47, building const = 145 cement truck round trips

Demolition - Existing building demo = 1,500sf

Grading - site prep = 20ct export, grading = 540cy export

Vehicle Trips - w/ reuctions, apts = 4.66, 4.48, 4.11

Woodstoves - all gas no wood

Water And Wastewater - WTP treatment 100% aerobic

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim mitigation, electric cranes

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	52.00
tblConstructionPhase	NumDays	100.00	274.00
tblConstructionPhase	NumDays	10.00	12.00
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	NumDays	5.00	28.00
tblConstructionPhase	NumDays	1.00	5.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	9.60	20.48
tblFireplaces	NumberWood	10.88	0.00
tblGrading	AcresOfGrading	9.94	0.00
tblGrading	AcresOfGrading	1.25	0.50
tblGrading	MaterialExported	0.00	540.00
tblGrading	MaterialExported	0.00	20.00
tblLandUse	LandUseSquareFeet	34,800.00	19,815.00
tblLandUse	LandUseSquareFeet	64,000.00	99,075.00
tblLandUse	LotAcreage	0.78	0.00
tblLandUse	LotAcreage	1.68	0.57
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	2.90
tblOffRoadEquipment	UsageHours	6.00	4.60
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	3.50
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.60
tblOffRoadEquipment	UsageHours	1.00	3.30
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	3.30
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	7.00	47.00
tblTripsAndVMT	HaulingTripNumber	3.00	2.00
tblTripsAndVMT	HaulingTripNumber	0.00	290.00
tblVehicleTrips	ST_TR	6.39	4.48
tblVehicleTrips	SU_TR	5.86	4.11
tblVehicleTrips	WD_TR	6.65	4.66

tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0486	0.4719	0.3279	1.0300e-003	0.0474	0.0168	0.0642	0.0147	0.0155	0.0303	0.0000	93.0722	93.0722	0.0136	0.0000	93.4110
2022	0.7416	0.3445	0.3402	9.6000e-004	0.0387	0.0119	0.0505	0.0104	0.0112	0.0216	0.0000	86.8850	86.8850	0.0113	0.0000	87.1674
Maximum	**0.7416**	**0.4719**	**0.3402**	**1.0300e-003**	**0.0474**	**0.0168**	**0.0642**	**0.0147**	**0.0155**	**0.0303**	**0.0000**	**93.0722**	**93.0722**	**0.0136**	**0.0000**	**93.4110**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0205	0.2173	0.2939	1.0300e-003	0.0427	1.1300e-003	0.0439	0.0114	1.1000e-003	0.0125	0.0000	77.6599	77.6599	8.5700e-003	0.0000	77.8741

2022	0.7215	0.2145	0.2940	9.6000e-004	0.0387	2.9400e-003	0.0416	0.0104	2.9200e-003	0.0133	0.0000	71.9137	71.9137	6.4500e-003	0.0000	72.0751
Maximum	**0.7215**	**0.2173**	**0.2940**	**1.0300e-003**	**0.0427**	**2.9400e-003**	**0.0439**	**0.0114**	**2.9200e-003**	**0.0133**	**0.0000**	**77.6599**	**77.6599**	**8.5700e-003**	**0.0000**	**77.8741**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.11**	**47.12**	**12.01**	**0.00**	**5.47**	**85.78**	**25.51**	**13.23**	**84.95**	**50.20**	**0.00**	**16.88**	**16.88**	**39.56**	**0.00**	**16.96**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**4-15-2021**	**7-14-2021**	0.2110	0.0955
2	**7-15-2021**	**10-14-2021**	0.1635	0.0751
3	**10-15-2021**	**1-14-2022**	0.1624	0.0760
4	**1-15-2022**	**4-14-2022**	0.1447	0.0712
5	**4-15-2022**	**7-14-2022**	0.1903	0.1206
6	**7-15-2022**	**9-30-2022**	0.7265	0.7333
		Highest	0.7265	0.7333

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4730	7.6900e-003	0.4771	4.0000e-005		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	3.3345	3.3345	8.0000e-004	5.0000e-005	3.3685
Energy	2.9800e-003	0.0255	0.0108	1.6000e-004		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	79.5355	79.5355	5.5700e-003	1.5800e-003	80.1444
Mobile	0.0621	0.2337	0.7294	2.6200e-003	0.2504	2.0400e-003	0.2524	0.0670	1.9000e-003	0.0689	0.0000	240.0771	240.0771	7.6500e-003	0.0000	240.2684
Waste						0.0000	0.0000		0.0000	0.0000	5.9761	0.0000	5.9761	0.3532	0.0000	14.8054
Water						0.0000	0.0000		0.0000	0.0000	1.4753	4.1783	5.6536	5.5000e-003	3.2900e-003	6.7728

Total	0.5381	0.2669	1.2173	2.8200e-003	0.2504	6.9100e-003	0.2573	0.0670	6.7700e-003	0.0738	7.4514	327.1254	334.5768	0.3727	4.9200e-003	345.3595

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4730	7.6900e-003	0.4771	4.0000e-005		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	3.3345	3.3345	8.0000e-004	5.0000e-005	3.3685
Energy	2.9800e-003	0.0255	0.0108	1.6000e-004		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	79.5355	79.5355	5.5700e-003	1.5800e-003	80.1444
Mobile	0.0621	0.2337	0.7294	2.6200e-003	0.2504	2.0400e-003	0.2524	0.0670	1.9000e-003	0.0689	0.0000	240.0771	240.0771	7.6500e-003	0.0000	240.2684
Waste						0.0000	0.0000		0.0000	0.0000	5.9761	0.0000	5.9761	0.3532	0.0000	14.8054
Water						0.0000	0.0000		0.0000	0.0000	1.4753	4.1783	5.6536	5.5000e-003	3.2900e-003	6.7728
Total	**0.5381**	**0.2669**	**1.2173**	**2.8200e-003**	**0.2504**	**6.9100e-003**	**0.2573**	**0.0670**	**6.7700e-003**	**0.0738**	**7.4514**	**327.1254**	**334.5768**	**0.3727**	**4.9200e-003**	**345.3595**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/15/2021	5/1/2021	5	12	
2	Site Preparation	Site Preparation	5/2/2021	5/7/2021	5	5	
3	Grading	Grading	5/8/2021	6/18/2021	5	30	
4	Trenching	Trenching	6/1/2021	6/29/2021	5	21	

5	Building Construction	Building Construction	6/22/2021	7/9/2022	5	274	
6	Architectural Coating	Architectural Coating	7/10/2022	9/20/2022	5	52	
7	Paving	Paving	9/21/2022	10/28/2022	5	28	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 200,627; Residential Outdoor: 66,876; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	1	6.70	158	0.38
Demolition	Rubber Tired Dozers	1	3.30	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	3.30	97	0.37
Site Preparation	Graders	1	4.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	4.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Grading	Graders	1	5.30	187	0.41
Grading	Rubber Tired Dozers	0	0.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	1	1.90	97	0.37
Building Construction	Cranes	1	3.50	231	0.29
Building Construction	Forklifts	1	4.00	89	0.20
Building Construction	Generator Sets	1	0.60	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction	Welders	1	0.60	46	0.45
Architectural Coating	Aerial Lifts	3	3.20	63	0.31
Architectural Coating	Aerial Lifts	1	7.00	63	0.31

Architectural Coating	Air Compressors	2	2.90	78	0.48
Paving	Cement and Mortar Mixers	1	4.60	9	0.56
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	0.60	132	0.36
Paving	Rollers	1	0.60	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	47.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	5.00	0.00	68.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	54.00	10.00	290.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					7.4000e-004	0.0000	7.4000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2000e-003	0.0427	0.0320	5.0000e-005		2.1200e-003	2.1200e-003		1.9500e-003	1.9500e-003	0.0000	4.8134	4.8134	1.5600e-003	0.0000	4.8523
Total	**4.2000e-003**	**0.0427**	**0.0320**	**5.0000e-005**	**7.4000e-004**	**2.1200e-003**	**2.8600e-003**	**1.1000e-004**	**1.9500e-003**	**2.0600e-003**	**0.0000**	**4.8134**	**4.8134**	**1.5600e-003**	**0.0000**	**4.8523**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	1.8000e-004	6.2800e-003	1.3700e-003	2.0000e-005	4.0000e-004	2.0000e-005	4.2000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.7696	1.7696	8.0000e-005	0.0000	1.7716
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.1000e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3151	0.3151	1.0000e-005	0.0000	0.3153
Total	**3.3000e-004**	**6.3800e-003**	**2.4700e-003**	**2.0000e-005**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**2.1000e-004**	**2.0000e-005**	**2.3000e-004**	**0.0000**	**2.0848**	**2.0848**	**9.0000e-005**	**0.0000**	**2.0870**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					3.3000e-004	0.0000	3.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	8.4000e-004	0.0204	0.0367	5.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	4.8134	4.8134	1.5600e-003	0.0000	4.8523
Total	**8.4000e-004**	**0.0204**	**0.0367**	**5.0000e-005**	**3.3000e-004**	**9.0000e-005**	**4.2000e-004**	**3.0000e-005**	**9.0000e-005**	**1.2000e-004**	**0.0000**	**4.8134**	**4.8134**	**1.5600e-003**	**0.0000**	**4.8523**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8000e-004	6.2800e-003	1.3700e-003	2.0000e-005	4.0000e-004	2.0000e-005	4.2000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.7696	1.7696	8.0000e-005	0.0000	1.7716
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.1000e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3151	0.3151	1.0000e-005	0.0000	0.3153
Total	**3.3000e-004**	**6.3800e-003**	**2.4700e-003**	**2.0000e-005**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**2.1000e-004**	**2.0000e-005**	**2.3000e-004**	**0.0000**	**2.0848**	**2.0848**	**9.0000e-005**	**0.0000**	**2.0870**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.7900e-003	0.0000	7.7900e-003	4.1700e-003	0.0000	4.1700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1100e-003	0.0235	0.0101	2.0000e-005		1.0400e-003	1.0400e-003		9.6000e-004	9.6000e-004	0.0000	2.0071	2.0071	6.5000e-004	0.0000	2.0233
Total	**2.1100e-003**	**0.0235**	**0.0101**	**2.0000e-005**	**7.7900e-003**	**1.0400e-003**	**8.8300e-003**	**4.1700e-003**	**9.6000e-004**	**5.1300e-003**	**0.0000**	**2.0071**	**2.0071**	**6.5000e-004**	**0.0000**	**2.0233**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.7000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0753	0.0753	0.0000	0.0000	0.0754
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.6000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1313	0.1313	0.0000	0.0000	0.1314
Total	**7.0000e-005**	**3.1000e-004**	**5.2000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**4.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.2066**	**0.2066**	**0.0000**	**0.0000**	**0.2068**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.5100e-003	0.0000	3.5100e-003	9.4000e-004	0.0000	9.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-004	6.6800e-003	0.0130	2.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.0071	2.0071	6.5000e-004	0.0000	2.0233
Total	**4.0000e-004**	**6.6800e-003**	**0.0130**	**2.0000e-005**	**3.5100e-003**	**4.0000e-005**	**3.5500e-003**	**9.4000e-004**	**4.0000e-005**	**9.8000e-004**	**0.0000**	**2.0071**	**2.0071**	**6.5000e-004**	**0.0000**	**2.0233**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.7000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0753	0.0753	0.0000	0.0000	0.0754
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.6000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1313	0.1313	0.0000	0.0000	0.1314
Total	**7.0000e-005**	**3.1000e-004**	**5.2000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**4.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.2066**	**0.2066**	**0.0000**	**0.0000**	**0.2068**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9100e-003	0.0731	0.0345	9.0000e-005		2.7000e-003	2.7000e-003		2.4900e-003	2.4900e-003	0.0000	7.8322	7.8322	2.5300e-003	0.0000	7.8955
Total	**5.9100e-003**	**0.0731**	**0.0345**	**9.0000e-005**	**3.0000e-005**	**2.7000e-003**	**2.7300e-003**	**0.0000**	**2.4900e-003**	**2.4900e-003**	**0.0000**	**7.8322**	**7.8322**	**2.5300e-003**	**0.0000**	**7.8955**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.7000e-004	9.0900e-003	1.9800e-003	3.0000e-005	5.8000e-004	3.0000e-005	6.0000e-004	1.6000e-004	3.0000e-005	1.9000e-004	0.0000	2.5603	2.5603	1.2000e-004	0.0000	2.5632
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Worker	2.3000e-004	1.6000e-004	1.7200e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4924	0.4924	1.0000e-005	0.0000	0.4927
Total	**5.0000e-004**	**9.2500e-003**	**3.7000e-003**	**4.0000e-005**	**1.1700e-003**	**3.0000e-005**	**1.2000e-003**	**3.2000e-004**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**3.0527**	**3.0527**	**1.3000e-004**	**0.0000**	**3.0559**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6000e-003	0.0275	0.0525	9.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	7.8322	7.8322	2.5300e-003	0.0000	7.8955
Total	**1.6000e-003**	**0.0275**	**0.0525**	**9.0000e-005**	**1.0000e-005**	**1.5000e-004**	**1.6000e-004**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**7.8322**	**7.8322**	**2.5300e-003**	**0.0000**	**7.8955**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.7000e-004	9.0900e-003	1.9800e-003	3.0000e-005	5.8000e-004	3.0000e-005	6.0000e-004	1.6000e-004	3.0000e-005	1.9000e-004	0.0000	2.5603	2.5603	1.2000e-004	0.0000	2.5632
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.7200e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4924	0.4924	1.0000e-005	0.0000	0.4927
Total	**5.0000e-004**	**9.2500e-003**	**3.7000e-003**	**4.0000e-005**	**1.1700e-003**	**3.0000e-005**	**1.2000e-003**	**3.2000e-004**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**3.0527**	**3.0527**	**1.3000e-004**	**0.0000**	**3.0559**

3.5 Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7000e-004	4.7300e-003	5.6400e-003	1.0000e-005		2.8000e-004	2.8000e-004		2.6000e-004	2.6000e-004	0.0000	0.6807	0.6807	2.2000e-004	0.0000	0.6862
Total	**4.7000e-004**	**4.7300e-003**	**5.6400e-003**	**1.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.6000e-004**	**2.6000e-004**	**0.0000**	**0.6807**	**0.6807**	**2.2000e-004**	**0.0000**	**0.6862**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.2000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2068	0.2068	0.0000	0.0000	0.2069
Total	**1.0000e-004**	**7.0000e-005**	**7.2000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2068**	**0.2068**	**0.0000**	**0.0000**	**0.2069**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	1.7000e-004	3.3800e-003	5.8400e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.6807	0.6807	2.2000e-004	0.0000	0.6862
Total	**1.7000e-004**	**3.3800e-003**	**5.8400e-003**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.6807**	**0.6807**	**2.2000e-004**	**0.0000**	**0.6862**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.2000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2068	0.2068	0.0000	0.0000	0.2069
Total	**1.0000e-004**	**7.0000e-005**	**7.2000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2068**	**0.2068**	**0.0000**	**0.0000**	**0.2069**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0205	0.2128	0.1290	2.8000e-004		0.0102	0.0102		9.4400e-003	9.4400e-003	0.0000	24.0062	24.0062	6.7700e-003	0.0000	24.1755
Total	**0.0205**	**0.2128**	**0.1290**	**2.8000e-004**		**0.0102**	**0.0102**		**9.4400e-003**	**9.4400e-003**	**0.0000**	**24.0062**	**24.0062**	**6.7700e-003**	**0.0000**	**24.1755**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.8000e-004	0.0197	4.2900e-003	6.0000e-005	2.1500e-003	6.0000e-005	2.2200e-003	5.7000e-004	6.0000e-005	6.2000e-004	0.0000	5.5392	5.5392	2.5000e-004	0.0000	5.5455
Vendor	2.2700e-003	0.0714	0.0190	1.9000e-004	4.5700e-003	1.6000e-004	4.7300e-003	1.3200e-003	1.5000e-004	1.4700e-003	0.0000	18.0025	18.0025	7.8000e-004	0.0000	18.0222
Worker	0.0116	8.0100e-003	0.0859	2.7000e-004	0.0298	1.9000e-004	0.0300	7.9200e-003	1.7000e-004	8.0900e-003	0.0000	24.6400	24.6400	5.6000e-004	0.0000	24.6540
Total	**0.0144**	**0.0991**	**0.1092**	**5.2000e-004**	**0.0365**	**4.1000e-004**	**0.0369**	**9.8100e-003**	**3.8000e-004**	**0.0102**	**0.0000**	**48.1817**	**48.1817**	**1.5900e-003**	**0.0000**	**48.2217**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0600e-003	0.0442	0.0693	2.8000e-004		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	8.5939	8.5939	1.7900e-003	0.0000	8.6385
Total	**2.0600e-003**	**0.0442**	**0.0693**	**2.8000e-004**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**8.5939**	**8.5939**	**1.7900e-003**	**0.0000**	**8.6385**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.8000e-004	0.0197	4.2900e-003	6.0000e-005	2.1500e-003	6.0000e-005	2.2200e-003	5.7000e-004	6.0000e-005	6.2000e-004	0.0000	5.5392	5.5392	2.5000e-004	0.0000	5.5455
Vendor	2.2700e-003	0.0714	0.0190	1.9000e-004	4.5700e-003	1.6000e-004	4.7300e-003	1.3200e-003	1.5000e-004	1.4700e-003	0.0000	18.0025	18.0025	7.8000e-004	0.0000	18.0222
Worker	0.0116	8.0100e-003	0.0859	2.7000e-004	0.0298	1.9000e-004	0.0300	7.9200e-003	1.7000e-004	8.0900e-003	0.0000	24.6400	24.6400	5.6000e-004	0.0000	24.6540
Total	**0.0144**	**0.0991**	**0.1092**	**5.2000e-004**	**0.0365**	**4.1000e-004**	**0.0369**	**9.8100e-003**	**3.8000e-004**	**0.0102**	**0.0000**	**48.1817**	**48.1817**	**1.5900e-003**	**0.0000**	**48.2217**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0179	0.1814	0.1220	2.7000e-004		8.5600e-003	8.5600e-003		7.9600e-003	7.9600e-003	0.0000	23.3178	23.3178	6.5600e-003	0.0000	23.4817
Total	**0.0179**	**0.1814**	**0.1220**	**2.7000e-004**		**8.5600e-003**	**8.5600e-003**		**7.9600e-003**	**7.9600e-003**	**0.0000**	**23.3178**	**23.3178**	**6.5600e-003**	**0.0000**	**23.4817**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	5.3000e-004	0.0176	4.0900e-003	5.0000e-005	2.1500e-003	5.0000e-005	2.2000e-003	5.6000e-004	5.0000e-005	6.1000e-004	0.0000	5.3073	5.3073	2.4000e-004	0.0000	5.3132
Vendor	2.0500e-003	0.0656	0.0174	1.8000e-004	4.4400e-003	1.3000e-004	4.5700e-003	1.2800e-003	1.3000e-004	1.4100e-003	0.0000	17.3172	17.3172	7.3000e-004	0.0000	17.3354
Worker	0.0105	6.9700e-003	0.0766	2.5000e-004	0.0289	1.8000e-004	0.0291	7.6900e-003	1.6000e-004	7.8500e-003	0.0000	23.0617	23.0617	4.9000e-004	0.0000	23.0739
Total	**0.0131**	**0.0901**	**0.0981**	**4.8000e-004**	**0.0355**	**3.6000e-004**	**0.0359**	**9.5300e-003**	**3.4000e-004**	**9.8700e-003**	**0.0000**	**45.6862**	**45.6862**	**1.4600e-003**	**0.0000**	**45.7225**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0000e-003	0.0430	0.0673	2.7000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	8.3466	8.3466	1.7200e-003	0.0000	8.3895
Total	**2.0000e-003**	**0.0430**	**0.0673**	**2.7000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**8.3466**	**8.3466**	**1.7200e-003**	**0.0000**	**8.3895**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.3000e-004	0.0176	4.0900e-003	5.0000e-005	2.1500e-003	5.0000e-005	2.2000e-003	5.6000e-004	5.0000e-005	6.1000e-004	0.0000	5.3073	5.3073	2.4000e-004	0.0000	5.3132
Vendor	2.0500e-003	0.0656	0.0174	1.8000e-004	4.4400e-003	1.3000e-004	4.5700e-003	1.2800e-003	1.3000e-004	1.4100e-003	0.0000	17.3172	17.3172	7.3000e-004	0.0000	17.3354
Worker	0.0105	6.9700e-003	0.0766	2.5000e-004	0.0289	1.8000e-004	0.0291	7.6900e-003	1.6000e-004	7.8500e-003	0.0000	23.0617	23.0617	4.9000e-004	0.0000	23.0739

Total	0.0131	0.0901	0.0981	4.8000e-004	0.0355	3.6000e-004	0.0359	9.5300e-003	3.4000e-004	9.8700e-003	0.0000	45.6862	45.6862	1.4600e-003	0.0000	45.7225

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7016					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0900e-003	0.0656	0.1046	1.7000e-004		2.6100e-003	2.6100e-003		2.5700e-003	2.5700e-003	0.0000	14.3762	14.3762	2.9900e-003	0.0000	14.4510
Total	**0.7087**	**0.0656**	**0.1046**	**1.7000e-004**		**2.6100e-003**	**2.6100e-003**		**2.5700e-003**	**2.5700e-003**	**0.0000**	**14.3762**	**14.3762**	**2.9900e-003**	**0.0000**	**14.4510**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.5000e-004	6.0100e-003	2.0000e-005	2.2700e-003	1.0000e-005	2.2800e-003	6.0000e-004	1.0000e-005	6.2000e-004	0.0000	1.8095	1.8095	4.0000e-005	0.0000	1.8105
Total	**8.2000e-004**	**5.5000e-004**	**6.0100e-003**	**2.0000e-005**	**2.2700e-003**	**1.0000e-005**	**2.2800e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**1.8095**	**1.8095**	**4.0000e-005**	**0.0000**	**1.8105**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7016					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6000e-003	0.0776	0.1148	1.7000e-004		2.1800e-003	2.1800e-003		2.1800e-003	2.1800e-003	0.0000	14.3762	14.3762	2.9900e-003	0.0000	14.4510
Total	**0.7052**	**0.0776**	**0.1148**	**1.7000e-004**		**2.1800e-003**	**2.1800e-003**		**2.1800e-003**	**2.1800e-003**	**0.0000**	**14.3762**	**14.3762**	**2.9900e-003**	**0.0000**	**14.4510**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.5000e-004	6.0100e-003	2.0000e-005	2.2700e-003	1.0000e-005	2.2800e-003	6.0000e-004	1.0000e-005	6.2000e-004	0.0000	1.8095	1.8095	4.0000e-005	0.0000	1.8105
Total	**8.2000e-004**	**5.5000e-004**	**6.0100e-003**	**2.0000e-005**	**2.2700e-003**	**1.0000e-005**	**2.2800e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**1.8095**	**1.8095**	**4.0000e-005**	**0.0000**	**1.8105**

3.8 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	8.3000e-004	6.6000e-003	7.1100e-003	1.0000e-005		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	0.9867	0.9867	2.4000e-004	0.0000	0.9927
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.3000e-004**	**6.6000e-003**	**7.1100e-003**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**0.9867**	**0.9867**	**2.4000e-004**	**0.0000**	**0.9927**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.1000e-004	2.3500e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7086	0.7086	1.0000e-005	0.0000	0.7090
Total	**3.2000e-004**	**2.1000e-004**	**2.3500e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7086**	**0.7086**	**1.0000e-005**	**0.0000**	**0.7090**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1000e-004	3.1000e-003	5.3400e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.9867	0.9867	2.4000e-004	0.0000	0.9927
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1000e-004**	**3.1000e-003**	**5.3400e-003**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.9867**	**0.9867**	**2.4000e-004**	**0.0000**	**0.9927**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.1000e-004	2.3500e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7086	0.7086	1.0000e-005	0.0000	0.7090
Total	**3.2000e-004**	**2.1000e-004**	**2.3500e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7086**	**0.7086**	**1.0000e-005**	**0.0000**	**0.7090**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0621	0.2337	0.7294	2.6200e-003	0.2504	2.0400e-003	0.2524	0.0670	1.9000e-003	0.0689	0.0000	240.0771	240.0771	7.6500e-003	0.0000	240.2684
Unmitigated	0.0621	0.2337	0.7294	2.6200e-003	0.2504	2.0400e-003	0.2524	0.0670	1.9000e-003	0.0689	0.0000	240.0771	240.0771	7.6500e-003	0.0000	240.2684

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	298.24	286.72	263.04	673,402	673,402
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	298.24	286.72	263.04	673,402	673,402

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.612822	0.036208	0.182365	0.105071	0.013933	0.005011	0.012748	0.021514	0.002168	0.001529	0.005280	0.000629	0.000720
Enclosed Parking with Elevator	0.612822	0.036208	0.182365	0.105071	0.013933	0.005011	0.012748	0.021514	0.002168	0.001529	0.005280	0.000629	0.000720

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	50.0293	50.0293	5.0000e-003	1.0400e-003	50.4629
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	50.0293	50.0293	5.0000e-003	1.0400e-003	50.4629
NaturalGas Mitigated	2.9800e-003	0.0255	0.0108	1.6000e-004		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	29.5062	29.5062	5.7000e-004	5.4000e-004	29.6815

NaturalGas Unmitigated	2.9800e-003	0.0255	0.0108	1.6000e-004		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	29.5062	29.5062	5.7000e-004	5.4000e-004	29.6815

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	552925	2.9800e-003	0.0255	0.0108	1.6000e-004		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	29.5062	29.5062	5.7000e-004	5.4000e-004	29.6815
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.9800e-003**	**0.0255**	**0.0108**	**1.6000e-004**		**2.0600e-003**	**2.0600e-003**		**2.0600e-003**	**2.0600e-003**	**0.0000**	**29.5062**	**29.5062**	**5.7000e-004**	**5.4000e-004**	**29.6815**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	552925	2.9800e-003	0.0255	0.0108	1.6000e-004		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	29.5062	29.5062	5.7000e-004	5.4000e-004	29.6815
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.9800e-003**	**0.0255**	**0.0108**	**1.6000e-004**		**2.0600e-003**	**2.0600e-003**		**2.0600e-003**	**2.0600e-003**	**0.0000**	**29.5062**	**29.5062**	**5.7000e-004**	**5.4000e-004**	**29.6815**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	264214	34.7552	3.4800e-003	7.2000e-004	35.0564
Enclosed Parking with Elevator	116116	15.2741	1.5300e-003	3.2000e-004	15.4065
Total		**50.0293**	**5.0100e-003**	**1.0400e-003**	**50.4629**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	264214	34.7552	3.4800e-003	7.2000e-004	35.0564
Enclosed Parking with Elevator	116116	15.2741	1.5300e-003	3.2000e-004	15.4065
Total		**50.0293**	**5.0100e-003**	**1.0400e-003**	**50.4629**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated	0.4730	7.6900e-003	0.4771	4.0000e-005		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	3.3345	3.3345	8.0000e-004	5.0000e-005	3.3685
Unmitigated	0.4730	7.6900e-003	0.4771	4.0000e-005		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	3.3345	3.3345	8.0000e-004	5.0000e-005	3.3685

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0702					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3882					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.6000e-004	2.2100e-003	9.4000e-004	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.5567	2.5567	5.0000e-005	5.0000e-005	2.5719
Landscaping	0.0144	5.4900e-003	0.4761	3.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	0.7778	0.7778	7.5000e-004	0.0000	0.7966
Total	**0.4730**	**7.7000e-003**	**0.4771**	**4.0000e-005**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**	**0.0000**	**3.3345**	**3.3345**	**8.0000e-004**	**5.0000e-005**	**3.3685**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0702					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3882					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.6000e-004	2.2100e-003	9.4000e-004	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.5567	2.5567	5.0000e-005	5.0000e-005	2.5719

Landscaping	0.0144	5.4900e-003	0.4761	3.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	0.7778	0.7778	7.5000e-004	0.0000	0.7966
Total	**0.4730**	**7.7000e-003**	**0.4771**	**4.0000e-005**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**	**0.0000**	**3.3345**	**3.3345**	**8.0000e-004**	**5.0000e-005**	**3.3685**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.6536	5.5000e-003	3.2900e-003	6.7728
Unmitigated	5.6536	5.5000e-003	3.2900e-003	6.7728

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	4.16986 / 2.62882	5.6536	5.5000e-003	3.2900e-003	6.7728
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.6536**	**5.5000e-003**	**3.2900e-003**	**6.7728**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	4.16986 / 2.62882	5.6536	5.5000e-003	3.2900e-003	6.7728
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.6536**	**5.5000e-003**	**3.2900e-003**	**6.7728**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.9761	0.3532	0.0000	14.8054
Unmitigated	5.9761	0.3532	0.0000	14.8054

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	29.44	5.9761	0.3532	0.0000	14.8054
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**5.9761**	**0.3532**	**0.0000**	**14.8054**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	29.44	5.9761	0.3532	0.0000	14.8054
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**5.9761**	**0.3532**	**0.0000**	**14.8054**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Almaden Villas- 1747 Almande Rd, San Jose - Construction

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	87.00	Space	0.00	19,815.00	0
Apartments Mid Rise	64.00	Dwelling Unit	0.57	99,075.00	183

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 CO2 Rate = 290

Land Use - Provided plans and construction sheet land uses

Construction Phase - Provided construction spreadsheet

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Trips and VMT - 1 Mile nearby TACs, 200 tons pavement demo = 40 one-way demp trips +7 = 47, building const = 145 cement truck round trips

Demolition - Existing building demo = 1,500sf

Grading - site prep = 20ct export, grading = 540cy export

Vehicle Trips - w/ reuctions, apts = 4.66, 4.48, 4.11

Woodstoves - all gas no wood

Water And Wastewater - WTP treatment 100% aerobic

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim mitigation, electric cranes

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	52.00
tblConstructionPhase	NumDays	100.00	274.00
tblConstructionPhase	NumDays	10.00	12.00
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	NumDays	5.00	28.00
tblConstructionPhase	NumDays	1.00	5.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	9.60	20.48
tblFireplaces	NumberWood	10.88	0.00
tblGrading	AcresOfGrading	9.94	0.00
tblGrading	AcresOfGrading	1.25	0.50
tblGrading	MaterialExported	0.00	540.00
tblGrading	MaterialExported	0.00	20.00
tblLandUse	LandUseSquareFeet	34,800.00	19,815.00
tblLandUse	LandUseSquareFeet	64,000.00	99,075.00
tblLandUse	LotAcreage	0.78	0.00
tblLandUse	LotAcreage	1.68	0.57
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	2.90
tblOffRoadEquipment	UsageHours	6.00	4.60
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	3.50
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.60
tblOffRoadEquipment	UsageHours	1.00	3.30
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	3.30
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00

tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	7.00	47.00
tblTripsAndVMT	HaulingTripNumber	3.00	2.00
tblTripsAndVMT	HaulingTripNumber	0.00	290.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblVehicleTrips	ST_TR	6.39	4.48
tblVehicleTrips	SU_TR	5.86	4.11
tblVehicleTrips	WD_TR	6.65	4.66
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0386	0.4158	0.2486	5.6000e-004	0.0123	0.0164	0.0287	5.2900e-003	0.0152	0.0205	0.0000	49.6482	49.6482	0.0125	0.0000	49.9617
2022	0.7324	0.3036	0.2673	5.5000e-004	3.7400e-003	0.0116	0.0153	1.0100e-003	0.0109	0.0119	0.0000	47.9707	47.9707	0.0105	0.0000	48.2321
Maximum	**0.7324**	**0.4158**	**0.2673**	**5.6000e-004**	**0.0123**	**0.0164**	**0.0287**	**5.2900e-003**	**0.0152**	**0.0205**	**0.0000**	**49.6482**	**49.6482**	**0.0125**	**0.0000**	**49.9617**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0105	0.1612	0.2146	5.6000e-004	7.5700e-003	7.5000e-004	8.3200e-003	1.9700e-003	7.4000e-004	2.7200e-003	0.0000	34.2359	34.2359	7.5500e-003	0.0000	34.4247
2022	0.7122	0.1735	0.2210	5.5000e-004	3.7400e-003	2.6300e-003	6.3700e-003	1.0100e-003	2.6300e-003	3.6400e-003	0.0000	32.9994	32.9994	5.6100e-003	0.0000	33.1397
Maximum	**0.7122**	**0.1735**	**0.2210**	**5.6000e-004**	**7.5700e-003**	**2.6300e-003**	**8.3200e-003**	**1.9700e-003**	**2.6300e-003**	**3.6400e-003**	**0.0000**	**34.2359**	**34.2359**	**7.5500e-003**	**0.0000**	**34.4247**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**6.26**	**53.47**	**15.55**	**0.00**	**29.40**	**87.90**	**66.58**	**52.70**	**87.07**	**80.36**	**0.00**	**31.12**	**31.12**	**42.76**	**0.00**	**31.19**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**4-15-2021**	**7-14-2021**	0.1943	0.0789
2	**7-15-2021**	**10-14-2021**	0.1382	0.0498

3	**10-15-2021**	**1-14-2022**	0.1354	0.0490
4	**1-15-2022**	**4-14-2022**	0.1207	0.0472
5	**4-15-2022**	**7-14-2022**	0.1690	0.0994
6	**7-15-2022**	**9-30-2022**	0.7256	0.7324
		Highest	0.7256	0.7324

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/15/2021	5/1/2021	5	12	
2	Site Preparation	Site Preparation	5/2/2021	5/7/2021	5	5	
3	Grading	Grading	5/8/2021	6/18/2021	5	30	
4	Trenching	Trenching	6/1/2021	6/29/2021	5	21	
5	Building Construction	Building Construction	6/22/2021	7/9/2022	5	274	
6	Architectural Coating	Architectural Coating	7/10/2022	9/20/2022	5	52	
7	Paving	Paving	9/21/2022	10/28/2022	5	28	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 200,627; Residential Outdoor: 66,876; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	1	6.70	158	0.38
Demolition	Rubber Tired Dozers	1	3.30	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	3.30	97	0.37
Site Preparation	Graders	1	4.00	187	0.41

Site Preparation	Rubber Tired Dozers	1	4.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Grading	Graders	1	5.30	187	0.41
Grading	Rubber Tired Dozers	0	0.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	1	1.90	97	0.37
Building Construction	Cranes	1	3.50	231	0.29
Building Construction	Forklifts	1	4.00	89	0.20
Building Construction	Generator Sets	1	0.60	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction	Welders	1	0.60	46	0.45
Architectural Coating	Aerial Lifts	3	3.20	63	0.31
Architectural Coating	Aerial Lifts	1	7.00	63	0.31
Architectural Coating	Air Compressors	2	2.90	78	0.48
Paving	Cement and Mortar Mixers	1	4.60	9	0.56
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	0.60	132	0.36
Paving	Rollers	1	0.60	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	47.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	2.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Grading	2	5.00	0.00	68.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	54.00	10.00	290.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	11.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

Paving	3	8.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.4000e-004	0.0000	7.4000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2000e-003	0.0427	0.0320	5.0000e-005		2.1200e-003	2.1200e-003		1.9500e-003	1.9500e-003	0.0000	4.8134	4.8134	1.5600e-003	0.0000	4.8523
Total	**4.2000e-003**	**0.0427**	**0.0320**	**5.0000e-005**	**7.4000e-004**	**2.1200e-003**	**2.8600e-003**	**1.1000e-004**	**1.9500e-003**	**2.0600e-003**	**0.0000**	**4.8134**	**4.8134**	**1.5600e-003**	**0.0000**	**4.8523**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	2.3300e-003	3.8000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.3020	0.3020	3.0000e-005	0.0000	0.3028

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	2.0000e-005	2.8000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0377	0.0377	0.0000	0.0000	0.0378
Total	**1.0000e-004**	**2.3500e-003**	**6.6000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.3397**	**0.3397**	**3.0000e-005**	**0.0000**	**0.3405**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.3000e-004	0.0000	3.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4000e-004	0.0204	0.0367	5.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	4.8134	4.8134	1.5600e-003	0.0000	4.8523
Total	**8.4000e-004**	**0.0204**	**0.0367**	**5.0000e-005**	**3.3000e-004**	**9.0000e-005**	**4.2000e-004**	**3.0000e-005**	**9.0000e-005**	**1.2000e-004**	**0.0000**	**4.8134**	**4.8134**	**1.5600e-003**	**0.0000**	**4.8523**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	2.3300e-003	3.8000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.3020	0.3020	3.0000e-005	0.0000	0.3028
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	2.0000e-005	2.8000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0377	0.0377	0.0000	0.0000	0.0378
Total	**1.0000e-004**	**2.3500e-003**	**6.6000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.3397**	**0.3397**	**3.0000e-005**	**0.0000**	**0.3405**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.7900e-003	0.0000	7.7900e-003	4.1700e-003	0.0000	4.1700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1100e-003	0.0235	0.0101	2.0000e-005		1.0400e-003	1.0400e-003		9.6000e-004	9.6000e-004	0.0000	2.0071	2.0071	6.5000e-004	0.0000	2.0233
Total	**2.1100e-003**	**0.0235**	**0.0101**	**2.0000e-005**	**7.7900e-003**	**1.0400e-003**	**8.8300e-003**	**4.1700e-003**	**9.6000e-004**	**5.1300e-003**	**0.0000**	**2.0071**	**2.0071**	**6.5000e-004**	**0.0000**	**2.0233**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.0000e-004	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0129	0.0129	0.0000	0.0000	0.0129
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.2000e-004	0.0000	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0157	0.0157	0.0000	0.0000	0.0157
Total	**2.0000e-005**	**1.1000e-004**	**1.4000e-004**	**0.0000**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0286**	**0.0286**	**0.0000**	**0.0000**	**0.0286**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.5100e-003	0.0000	3.5100e-003	9.4000e-004	0.0000	9.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-004	6.6800e-003	0.0130	2.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.0071	2.0071	6.5000e-004	0.0000	2.0233
Total	**4.0000e-004**	**6.6800e-003**	**0.0130**	**2.0000e-005**	**3.5100e-003**	**4.0000e-005**	**3.5500e-003**	**9.4000e-004**	**4.0000e-005**	**9.8000e-004**	**0.0000**	**2.0071**	**2.0071**	**6.5000e-004**	**0.0000**	**2.0233**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.0000e-004	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0129	0.0129	0.0000	0.0000	0.0129
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.2000e-004	0.0000	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0157	0.0157	0.0000	0.0000	0.0157
Total	**2.0000e-005**	**1.1000e-004**	**1.4000e-004**	**0.0000**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0286**	**0.0286**	**0.0000**	**0.0000**	**0.0286**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	5.9100e-003	0.0731	0.0345	9.0000e-005		2.7000e-003	2.7000e-003		2.4900e-003	2.4900e-003	0.0000	7.8322	7.8322	2.5300e-003	0.0000	7.8955
Total	**5.9100e-003**	**0.0731**	**0.0345**	**9.0000e-005**	**3.0000e-005**	**2.7000e-003**	**2.7300e-003**	**0.0000**	**2.4900e-003**	**2.4900e-003**	**0.0000**	**7.8322**	**7.8322**	**2.5300e-003**	**0.0000**	**7.8955**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	3.3700e-003	5.5000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.4369	0.4369	4.0000e-005	0.0000	0.4381
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	3.0000e-005	4.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0589	0.0589	0.0000	0.0000	0.0590
Total	**1.5000e-004**	**3.4000e-003**	**9.9000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.4959**	**0.4959**	**4.0000e-005**	**0.0000**	**0.4970**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6000e-003	0.0275	0.0525	9.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	7.8322	7.8322	2.5300e-003	0.0000	7.8955
Total	**1.6000e-003**	**0.0275**	**0.0525**	**9.0000e-005**	**1.0000e-005**	**1.5000e-004**	**1.6000e-004**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**7.8322**	**7.8322**	**2.5300e-003**	**0.0000**	**7.8955**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	7.0000e-005	3.3700e-003	5.5000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.4369	0.4369	4.0000e-005	0.0000	0.4381
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	3.0000e-005	4.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0589	0.0589	0.0000	0.0000	0.0590
Total	**1.5000e-004**	**3.4000e-003**	**9.9000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.4959**	**0.4959**	**4.0000e-005**	**0.0000**	**0.4970**

3.5 Trenching - 2021

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	4.7000e-004	4.7300e-003	5.6400e-003	1.0000e-005		2.8000e-004	2.8000e-004		2.6000e-004	2.6000e-004	0.0000	0.6807	0.6807	2.2000e-004	0.0000	0.6862
Total	**4.7000e-004**	**4.7300e-003**	**5.6400e-003**	**1.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.6000e-004**	**2.6000e-004**	**0.0000**	**0.6807**	**0.6807**	**2.2000e-004**	**0.0000**	**0.6862**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	1.0000e-005	1.9000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0248	0.0248	0.0000	0.0000	0.0248
Total	**3.0000e-005**	**1.0000e-005**	**1.9000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0248**	**0.0248**	**0.0000**	**0.0000**	**0.0248**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7000e-004	3.3800e-003	5.8400e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.6807	0.6807	2.2000e-004	0.0000	0.6862
Total	**1.7000e-004**	**3.3800e-003**	**5.8400e-003**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.6807**	**0.6807**	**2.2000e-004**	**0.0000**	**0.6862**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Worker	3.0000e-005	1.0000e-005	1.9000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0248	0.0248	0.0000	0.0000	0.0248
Total	**3.0000e-005**	**1.0000e-005**	**1.9000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0248**	**0.0248**	**0.0000**	**0.0000**	**0.0248**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0205	0.2128	0.1290	2.8000e-004		0.0102	0.0102		9.4400e-003	9.4400e-003	0.0000	24.0062	24.0062	6.7700e-003	0.0000	24.1755
Total	**0.0205**	**0.2128**	**0.1290**	**2.8000e-004**		**0.0102**	**0.0102**		**9.4400e-003**	**9.4400e-003**	**0.0000**	**24.0062**	**24.0062**	**6.7700e-003**	**0.0000**	**24.1755**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	7.3000e-003	1.1900e-003	1.0000e-005	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.9453	0.9453	1.0000e-004	0.0000	0.9477
Vendor	1.1700e-003	0.0442	0.0119	6.0000e-005	6.4000e-004	4.0000e-005	6.8000e-004	1.9000e-004	4.0000e-005	2.2000e-004	0.0000	5.5261	5.5261	5.1000e-004	0.0000	5.5389
Worker	3.8000e-003	1.6800e-003	0.0222	3.0000e-005	2.7900e-003	4.0000e-005	2.8300e-003	7.5000e-004	3.0000e-005	7.8000e-004	0.0000	2.9483	2.9483	1.2000e-004	0.0000	2.9512
Total	**5.1200e-003**	**0.0532**	**0.0353**	**1.0000e-004**	**3.5400e-003**	**9.0000e-005**	**3.6300e-003**	**9.7000e-004**	**8.0000e-005**	**1.0300e-003**	**0.0000**	**9.4198**	**9.4198**	**7.3000e-004**	**0.0000**	**9.4379**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0600e-003	0.0442	0.0693	2.8000e-004		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	8.5939	8.5939	1.7900e-003	0.0000	8.6385
Total	**2.0600e-003**	**0.0442**	**0.0693**	**2.8000e-004**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**8.5939**	**8.5939**	**1.7900e-003**	**0.0000**	**8.6385**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	7.3000e-003	1.1900e-003	1.0000e-005	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.9453	0.9453	1.0000e-004	0.0000	0.9477
Vendor	1.1700e-003	0.0442	0.0119	6.0000e-005	6.4000e-004	4.0000e-005	6.8000e-004	1.9000e-004	4.0000e-005	2.2000e-004	0.0000	5.5261	5.5261	5.1000e-004	0.0000	5.5389
Worker	3.8000e-003	1.6800e-003	0.0222	3.0000e-005	2.7900e-003	4.0000e-005	2.8300e-003	7.5000e-004	3.0000e-005	7.8000e-004	0.0000	2.9483	2.9483	1.2000e-004	0.0000	2.9512
Total	**5.1200e-003**	**0.0532**	**0.0353**	**1.0000e-004**	**3.5400e-003**	**9.0000e-005**	**3.6300e-003**	**9.7000e-004**	**8.0000e-005**	**1.0300e-003**	**0.0000**	**9.4198**	**9.4198**	**7.3000e-004**	**0.0000**	**9.4379**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	0.0179	0.1814	0.1220	2.7000e-004		8.5600e-003	8.5600e-003		7.9600e-003	7.9600e-003	0.0000	23.3178	23.3178	6.5600e-003	0.0000	23.4817
Total	**0.0179**	**0.1814**	**0.1220**	**2.7000e-004**		**8.5600e-003**	**8.5600e-003**		**7.9600e-003**	**7.9600e-003**	**0.0000**	**23.3178**	**23.3178**	**6.5600e-003**	**0.0000**	**23.4817**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	6.8100e-003	1.1300e-003	1.0000e-005	1.1000e-004	1.0000e-005	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.9086	0.9086	9.0000e-005	0.0000	0.9108
Vendor	1.0500e-003	0.0415	0.0108	6.0000e-005	6.2000e-004	3.0000e-005	6.5000e-004	1.8000e-004	3.0000e-005	2.1000e-004	0.0000	5.3185	5.3185	4.7000e-004	0.0000	5.3302
Worker	3.3900e-003	1.4400e-003	0.0195	3.0000e-005	2.7100e-003	4.0000e-005	2.7500e-003	7.2000e-004	3.0000e-005	7.6000e-004	0.0000	2.7613	2.7613	1.0000e-004	0.0000	2.7638
Total	**4.5800e-003**	**0.0498**	**0.0314**	**1.0000e-004**	**3.4400e-003**	**8.0000e-005**	**3.5100e-003**	**9.3000e-004**	**6.0000e-005**	**1.0000e-003**	**0.0000**	**8.9885**	**8.9885**	**6.6000e-004**	**0.0000**	**9.0049**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0000e-003	0.0430	0.0673	2.7000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	8.3466	8.3466	1.7200e-003	0.0000	8.3895
Total	**2.0000e-003**	**0.0430**	**0.0673**	**2.7000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**8.3466**	**8.3466**	**1.7200e-003**	**0.0000**	**8.3895**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	6.8100e-003	1.1300e-003	1.0000e-005	1.1000e-004	1.0000e-005	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.9086	0.9086	9.0000e-005	0.0000	0.9108
Vendor	1.0500e-003	0.0415	0.0108	6.0000e-005	6.2000e-004	3.0000e-005	6.5000e-004	1.8000e-004	3.0000e-005	2.1000e-004	0.0000	5.3185	5.3185	4.7000e-004	0.0000	5.3302
Worker	3.3900e-003	1.4400e-003	0.0195	3.0000e-005	2.7100e-003	4.0000e-005	2.7500e-003	7.2000e-004	3.0000e-005	7.6000e-004	0.0000	2.7613	2.7613	1.0000e-004	0.0000	2.7638
Total	**4.5800e-003**	**0.0498**	**0.0314**	**1.0000e-004**	**3.4400e-003**	**8.0000e-005**	**3.5100e-003**	**9.3000e-004**	**6.0000e-005**	**1.0000e-003**	**0.0000**	**8.9885**	**8.9885**	**6.6000e-004**	**0.0000**	**9.0049**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7016					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0900e-003	0.0656	0.1046	1.7000e-004		2.6100e-003	2.6100e-003		2.5700e-003	2.5700e-003	0.0000	14.3762	14.3762	2.9900e-003	0.0000	14.4510
Total	**0.7087**	**0.0656**	**0.1046**	**1.7000e-004**		**2.6100e-003**	**2.6100e-003**		**2.5700e-003**	**2.5700e-003**	**0.0000**	**14.3762**	**14.3762**	**2.9900e-003**	**0.0000**	**14.4510**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	1.1000e-004	1.5300e-003	0.0000	2.1000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2167	0.2167	1.0000e-005	0.0000	0.2169
Total	**2.7000e-004**	**1.1000e-004**	**1.5300e-003**	**0.0000**	**2.1000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2167**	**0.2167**	**1.0000e-005**	**0.0000**	**0.2169**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7016					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6000e-003	0.0776	0.1148	1.7000e-004		2.1800e-003	2.1800e-003		2.1800e-003	2.1800e-003	0.0000	14.3762	14.3762	2.9900e-003	0.0000	14.4510
Total	**0.7052**	**0.0776**	**0.1148**	**1.7000e-004**		**2.1800e-003**	**2.1800e-003**		**2.1800e-003**	**2.1800e-003**	**0.0000**	**14.3762**	**14.3762**	**2.9900e-003**	**0.0000**	**14.4510**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	1.1000e-004	1.5300e-003	0.0000	2.1000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2167	0.2167	1.0000e-005	0.0000	0.2169
Total	**2.7000e-004**	**1.1000e-004**	**1.5300e-003**	**0.0000**	**2.1000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2167**	**0.2167**	**1.0000e-005**	**0.0000**	**0.2169**

3.8 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.3000e-004	6.6000e-003	7.1100e-003	1.0000e-005		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	0.9867	0.9867	2.4000e-004	0.0000	0.9927
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.3000e-004**	**6.6000e-003**	**7.1100e-003**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**0.9867**	**0.9867**	**2.4000e-004**	**0.0000**	**0.9927**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	4.0000e-005	6.0000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0849	0.0849	0.0000	0.0000	0.0849

Total	**1.0000e-004**	**4.0000e-005**	**6.0000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0849**	**0.0849**	**0.0000**	**0.0000**	**0.0849**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1000e-004	3.1000e-003	5.3400e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.9867	0.9867	2.4000e-004	0.0000	0.9927
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1000e-004**	**3.1000e-003**	**5.3400e-003**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.9867**	**0.9867**	**2.4000e-004**	**0.0000**	**0.9927**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	4.0000e-005	6.0000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0849	0.0849	0.0000	0.0000	0.0849
Total	**1.0000e-004**	**4.0000e-005**	**6.0000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0849**	**0.0849**	**0.0000**	**0.0000**	**0.0849**

Attachment 3: Construction Health Risk Calculations

Almaden Villas, San Jose, CA

DPM Construction Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Emissions per Point Source (g/s)
2021	Construction	0.0164	Point	104	32.8	0.00899	1.13E-03	**1.09E-05**
2022	Construction	0.0116	Point	104	23.2	0.00636	8.01E-04	**7.70E-06**
Total		***0.0280***			***56***	***0.0153***	***0.0019***	

hr/day =	10	(7am - 5pm)
days/yr =	365	
hours/year =	3650	

Almaden Villas, San Jose, CA

PM2.5 Fugitive Dust Construction Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate $g/s/m^2$
2021	Construction	FUG	0.00529	10.6	0.00290	3.65E-04	2,281	**1.60E-07**
2022	Construction	FUG	0.00101	2.0	0.00055	6.97E-05	2,281	**3.06E-08**
Total			***0.0063***	***12.6***	***0.0035***	***0.0004***		

hr/day =	10	(7am - 5pm)
days/yr =	365	
hours/year =	3650	

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Emissions per Point Source (g/s)
2021	Construction	0.00075	Point	104	1.5	0.00041	5.18E-05	**4.98E-07**
2022	Construction	0.00263	Point	104	5.3	0.00144	1.82E-04	**1.75E-06**
Total		***0.0034***			***6.76***	***0.0019***	***0.0002***	

hr/day =	10	(7am - 5pm)
days/yr =	365	
hours/year =	3650	

PM2.5 Fugitive Dust Construction Emissions for Modeling - With Mitigation

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate $g/s/m^2$
2021	Construction	FUG	0.00197	3.9	0.00108	1.36E-04	2,281	**5.96E-08**
2022	Construction	FUG	0.00101	2.0	0.00055	6.97E-05	2,281	**3.06E-08**
Total			***0.0030***	***6.0***	***0.0016***	***0.0002***		

hr/day = 10 (7am - 5pm)
days/yr = 365
hours/year = 3650

Almaden Villas, San Jose, CA
Construction Health Impacts Summary

Maximum Impacts at Construction MEIs - Unmitigated

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2021	0.1135	0.1034	18.64	0.33	0.02	0.14
2022	0.0802	0.0198	13.17	0.23	0.02	0.08
Total	-	-	**31.8**	**0.6**	-	-
Maximum	0.1135	0.1034	**-**	**-**	**0.02**	**0.14**

Maximum Impacts at Construction MEIs - With Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2021	0.0052	0.0173	0.85	0.01	0.001	0.02
2022	0.0182	0.0089	2.99	0.05	0.004	0.02
Total	-	-	**3.8**	**0.1**	-	-
Maximum	0.0182	0.0173	**-**	**-**	**0.004**	**0.02**

Almaden Villas, San Jose, CA - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors - 1.5 meter height

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child				Adult
Age -->	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult	MEI	
	Exposure				Age	Cancer	Modeled		Age	Cancer		
Exposure	Duration		DPM Conc (ug/m3)		Sensitivity	Risk	DPM Conc (ug/m3)		Sensitivity	Risk	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	PM2.5	PM2.5
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2021	0.0340	10	5.58	2021	0.0340	1	0.10	0.10340	0.13284
2	1	1 - 2	2022	0.0240	10	3.94	2022	0.0240	1	0.07	0.0198	0.04090
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**9.5**				**0.17**		

* Third trimester of pregnancy

Almaden Villas, San Jose, CA - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors- 2nd Floor 4.5 meter receptor heights

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult		
	Exposure				**Age**	**Cancer**	**Modeled**		**Age**	**Cancer**	**MEI**	
Exposure	**Duration**		**DPM Conc (ug/m3)**		**Sensitivity**	**Risk**	**DPM Conc (ug/m3)**		**Sensitivity**	**Risk**	**Fugitive**	**Total**
Year	**(years)**	**Age**	**Year**	**Annual**	**Factor**	**(per million)**	**Year**	**Annual**	**Factor**	**(per million)**	**PM2.5**	**PM2.5**
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2021	0.0952	10	15.63	2021	0.0952	1	0.27	0.0463	0.1415
2	1	1 - 2	2022	0.0672	10	11.04	2022	0.0672	1	0.19	0.0089	0.0761
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**26.67**				**0.47**		

* Third trimester of pregnancy

Almaden Villas, San Jose, CA - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors- 3rd Floor 7.6 meter receptor heights

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child				Adult
Age -->	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult	MEI	
	Exposure				Age	Cancer	Modeled		Age	Cancer		
Exposure	Duration		DPM Conc (ug/m3)		Sensitivity	Risk	DPM Conc (ug/m3)		Sensitivity	Risk	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	PM2.5	PM2.5
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2021	0.1135	10	18.64	2021	0.1135	1	0.33	0.0181	0.1292
2	1	1 - 2	2022	0.0802	10	13.17	2022	0.0802	1	0.23	0.0035	0.0832
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**31.81**				**0.56**		

* Third trimester of pregnancy

Almaden Villas, San Jose, CA - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors- 4th Floor - 10.6 meter receptor heights

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child				Adult
Age -->	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult		
	Exposure				Age	Cancer	Modeled		Age	Cancer	MEI	
Exposure	Duration		DPM Conc (ug/m3)		Sensitivity	Risk	DPM Conc (ug/m3)		Sensitivity	Risk	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	PM2.5	PM2.5
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2021	0.0735	10	12.08	2021	0.0735	1	0.21	0.0098	0.081
2	1	1 - 2	2022	0.0520	10	8.53	2022	0.0520	1	0.15	0.0019	0.053
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**20.61**				**0.36**		

* Third trimester of pregnancy

Almaden Villas, San Jose, CA - With Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors - 4.5 meter height

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	MEI Fugitive PM2.5	MEI Total PM2.5
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2021	0.0044	10	0.71	2021	0.0044	1	0.01	0.01725	0.02160
2	1	1 - 2	2022	0.0153	10	2.51	2022	0.0153	1	0.04	0.00886	0.02414
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**3.2**				**0.06**		

* Third trimester of pregnancy

Almaden Villas, San Jose, CA - With Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors-3rd Floor -7.6 meter receptor heights

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult		
	Exposure				Age	Cancer	Modeled		Age	Cancer	MEI	
Exposure	Duration		DPM Conc (ug/m3)		Sensitivity	Risk	DPM Conc (ug/m3)		Sensitivity	Risk	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	PM2.5	PM2.5
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2021	0.0052	10	0.85	2021	0.0052	1	0.01	0.0067	0.011
2	1	1 - 2	2022	0.0182	10	2.99	2022	0.0182	1	0.05	0.0035	0.021
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**3.8**				**0.07**		

* Third trimester of pregnancy

Attachment 4: Community Risk Screening and Calculations

Railroad Emissions and Health Risk Calculations

Almaden Apartments, San jose, CA
DPM Modeling - Rail Line Information and DPM and PM2.5 Emission Rates
Diesel-Powered Passenger and Freight Trains

											DPM Emission Rates			
Year	**Description**	**No. Lines for Modeling**	**Link Width (ft)**	**Link Width (m)**	**Link Length (ft)**	**Link Length (miles)**	**Link Length (m)**	**Release Height (m)**	**Average No. Trains per Day**	**Train Travel Speed (mph)**	**Average Daily Emission Rate (g/mi/day)**	**Average Daily Emission Rate (g/day)**	**Link Emission Rate (g/s)**	**Link Emission Rate (lb/hr)**
2023	Caltrain - Passenger Trains								4.3	40	11.1	4.1	8.05E-05	6.39E-04
	Amtrak - Passenger Trains								2.0	40	4.6	1.7	3.34E-05	2.65E-04
	Freight Trains								6	40	26.5	9.6	1.12E-04	8.86E-04
	Total	**1**	**12**	**3.7**	**1,923**	**0.36**	**586**	**5.0**	**12**	**-**	**42.2**	**15.4**	**2.26E-04**	**1.79E-03**

Notes: Emission based on Emission Factors for Locomotives, USEPA 2009 (EPA-420-F-09-025)
Emissions for 2023 assumed to conservatively represent emissions over the entire 2023-2052 exposure period.
Fuel correction factors from Offroad Modeling Change Technical memo, Changes to the Locomotive Inventory, CARB July 2006.
PM2.5 calculated as 92% of PM emissions (CARB CEIDERS PM2.5 fractions)
Passenger trains assumed to operate for 14 hours per day
Freight trains assumed to operate for 24 hours per day

Passenger Trains	**Caltrain**	**Amtrak Starlight**	**Total**
Passenger trains - weekday =	6	2	8
Passenger trains - weekend =	0	2	2
Passenger trains - Sat only =	0	0	0
Total Trains =	6	4	10
Annual average daily trains =	4.3	2.0	6.3
Locomotive horsepower =	3600	3200	-
Locomotives per train =	1	1	-
Locomotive engine load =	0.5	0.5	-
Freight trains per day =			
Freight trains per day =	6	7 days/week	
Locomotive horsepower =	2300		
Locomotives per train =	2		
Total horsepower =	4600		
Locomotive engine load =	0.5		

Locomotive DPM Emission Factors (g/hp-hr)

Train Type	2023
Passenger	0.0817
Freight	0.0913

* emissions for entire exposure period assumed to be the same as the 2023 emissions.

PM2.5 to PM ratio = 0.92
DPM to PM ratio = 1

	CARB Fuel Adj Factor	
	2010	2011+
Passenger	0.717	0.709
Freight	0.851	0.840

Almaden Apts, San Jose, CA - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
Diesel-Powered Passenger and Freight Trains

Emissions Year	2023
Receptor Information	**2nd Floor Receptors**
Number of Receptors	34
Receptor Height =	2nd Floor - 6.1 meters
Receptor distances =	7 meter receptor grid in project residential area

Meteorological Conditions	
San Jose Airport Met Data	2006-2010
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

Construction MEI Maximum Concentrations

Meteorological Data Years	Average DPM Concentration (μg/m^3) 2023
2006-2010	0.00096
Meteorological Data Years	**Average PM2.5 Concentration (μg/m^3) 2023**
2006-2010	0.0009

Almaden Apts, San Jose, CA - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
Diesel-Powered Passenger and Freight Trains

Emissions Year	2023
Receptor Information	**3rd Floor Receptors**
Number of Receptors	34
Receptor Height =	3rd Floor - 9.1 meters
Receptor distances =	7 meter receptor grid in project residential area

Meteorological Conditions	
San Jose Airport Met Data	2006-2010
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

Construction MEI Maximum Concentrations

Meteorological Data Years	Average DPM Concentration (μg/m^3) 2023
2006-2010	0.00078
Meteorological Data Years	**Average PM2.5 Concentration (μg/m^3) 2023**
2006-2010	0.0007

Almaden Apts, San Jose, CA - On-Site Project Receptors - 2nd Floor
AERMOD Railroad DPM Risk Modeling Maximum Cancer Risk
Diesel-Powered Passenger and Freight Trains

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - <2**	**2 - <16**	**16 - 30**
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Rail Locomotive Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	2023	0.25	-0.25 - 0*	10	0.0010	0.013
1	2023	1	1	10	0.0010	0.158
2	2024	1	2	10	0.0010	0.158
3	2025	1	3	3	0.0010	0.025
4	2026	1	4	3	0.0010	0.025
5	2027	1	5	3	0.0010	0.025
6	2028	1	6	3	0.0010	0.025
7	2029	1	7	3	0.0010	0.025
8	2030	1	8	3	0.0010	0.025
9	2031	1	9	3	0.0010	0.025
10	2032	1	10	3	0.0010	0.025
11	2033	1	11	3	0.0010	0.025
12	2034	1	12	3	0.0010	0.025
13	2035	1	13	3	0.0010	0.025
14	2036	1	14	3	0.0010	0.025
15	2037	1	15	3	0.0010	0.025
16	2038	1	16	3	0.0010	0.025
17	2039	1	17	1	0.0010	0.003
18	2040	1	18	1	0.0010	0.003
19	2041	1	19	1	0.0010	0.003
20	2042	1	20	1	0.0010	0.003
21	2043	1	21	1	0.0010	0.003
22	2044	1	22	1	0.0010	0.003
23	2045	1	23	1	0.0010	0.003
24	2046	1	24	1	0.0010	0.003
25	2047	1	25	1	0.0010	0.003
26	2048	1	26	1	0.0010	0.003
27	2049	1	27	1	0.0010	0.003
28	2050	1	28	1	0.0010	0.003
29	2051	1	29	1	0.0010	0.003
30	2052	1	30	1	0.0010	0.003
Total Increased Cancer Risk						**0.71**

* Third trimester of pregnancy

Almaden Apts, San Jose, CA - On-Site Project Receptors - 3rd Floor
AERMOD Railroad DPM Risk Modeling Maximum Cancer Risk
Diesel-Powered Passenger and Freight Trains

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - <2**	**2 - <16**	**16 - 30**
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Rail Locomotive Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	2023	0.25	-0.25 - 0*	10	0.0008	0.011
1	2023	1	1	10	0.0008	0.128
2	2024	1	2	10	0.0008	0.128
3	2025	1	3	3	0.0008	0.020
4	2026	1	4	3	0.0008	0.020
5	2027	1	5	3	0.0008	0.020
6	2028	1	6	3	0.0008	0.020
7	2029	1	7	3	0.0008	0.020
8	2030	1	8	3	0.0008	0.020
9	2031	1	9	3	0.0008	0.020
10	2032	1	10	3	0.0008	0.020
11	2033	1	11	3	0.0008	0.020
12	2034	1	12	3	0.0008	0.020
13	2035	1	13	3	0.0008	0.020
14	2036	1	14	3	0.0008	0.020
15	2037	1	15	3	0.0008	0.020
16	2038	1	16	3	0.0008	0.020
17	2039	1	17	1	0.0008	0.002
18	2040	1	18	1	0.0008	0.002
19	2041	1	19	1	0.0008	0.002
20	2042	1	20	1	0.0008	0.002
21	2043	1	21	1	0.0008	0.002
22	2044	1	22	1	0.0008	0.002
23	2045	1	23	1	0.0008	0.002
24	2046	1	24	1	0.0008	0.002
25	2047	1	25	1	0.0008	0.002
26	2048	1	26	1	0.0008	0.002
27	2049	1	27	1	0.0008	0.002
28	2050	1	28	1	0.0008	0.002
29	2051	1	29	1	0.0008	0.002
30	2052	1	30	1	0.0008	0.002
Total Increased Cancer Risk						**0.58**

* Third trimester of pregnancy

Almaden Apts, San Jose, CA - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
Diesel-Powered Passenger and Freight Trains

Emissions Year	2023
Receptor Information	**Construction MEI receptor**
Number of Receptors	1
Receptor Height =	7.6 meters
Receptor distances =	at construction MEI receptor
Meteorological Conditions	
San Jose Airport Met Data	2006-2010
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

Construction MEI Maximum Concentrations

Meteorological Data Years	Average DPM Concentration ($\mu g/m^3$) 2023
2006-2010	0.00069

Meteorological Data Years	Average PM2.5 Concentration ($\mu g/m^3$) 2023
2006-2010	0.0006

Almaden Apts, San Jose, CA - Construction Maximum Impact (MEI) Receptor
AERMOD Railroad DPM Risk Modeling Parameters and Maximum Cancer Risk
Diesel-Powered Passenger and Freight Trains

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age --> / Parameter	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Rail Locomotive Cancer Risk by Year - Maximum Impact at Construction MEI Receptor

Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	2020	0.25	-0.25 - 0*	10	0.0007	0.009
1	2020	1	1	10	0.0007	0.113
2	2021	1	2	10	0.0007	0.113
3	2022	1	3	3	0.0007	0.018
4	2023	1	4	3	0.0007	0.018
5	2024	1	5	3	0.0007	0.018
6	2025	1	6	3	0.0007	0.018
7	2026	1	7	3	0.0007	0.018
8	2027	1	8	3	0.0007	0.018
9	2028	1	9	3	0.0007	0.018
10	2029	1	10	3	0.0007	0.018
11	2030	1	11	3	0.0007	0.018
12	2031	1	12	3	0.0007	0.018
13	2032	1	13	3	0.0007	0.018
14	2033	1	14	3	0.0007	0.018
15	2034	1	15	3	0.0007	0.018
16	2035	1	16	3	0.0007	0.018
17	2036	1	17	1	0.0007	0.002
18	2037	1	18	1	0.0007	0.002
19	2038	1	19	1	0.0007	0.002
20	2039	1	20	1	0.0007	0.002
21	2040	1	21	1	0.0007	0.002
22	2041	1	22	1	0.0007	0.002
23	2042	1	23	1	0.0007	0.002
24	2043	1	24	1	0.0007	0.002
25	2044	1	25	1	0.0007	0.002
26	2045	1	26	1	0.0007	0.002
27	2046	1	27	1	0.0007	0.002
28	2047	1	28	1	0.0007	0.002
29	2048	1	29	1	0.0007	0.002
30	2049	1	30	1	0.0007	0.002
Total Increased Cancer Risk						**0.51**

* Third trimester of pregnancy

SR 87 Emissions and Health Risk Calculations

Almaden Apartments, San Jose
Project Operation - State Route 87
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB-SR87_DPM	Northbound SR-87	N	3	668.0	0.42	16.97	55.7	3.4	variable	82,945
SB-SR87_DPM	Southbound SR-87	S	3	668.0	0.42	16.97	55.7	3.4	variable	82,945
									Total	165,890

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	45	25
Emissions per Vehicle (g/VMT)	0.00054	0.000471	0.000314	0.000321

Emisson Factors from CT-EMFAC2017

Analysis Year = ***2023***

Vehicle Type	2017 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Truck 1 (MDT)	1,938	2,055
Truck 2 (HDT)	2,068	2,192
Non-Truck	152,494	161,643
Total	**156,500**	**165,890**

Increase From 2017	1.06
Vehicles/Direction	**82,945**
Avg Vehicles/Hour/Direction	3,456

Traffic Data Year = ***2017***

Caltrans AADT (2017) & Truck %s (2016)	AADT Total	Total Truck	Trucks by Axle 2	3	4	5
Rte 87, A Almaden Expressway	156,500	4,006	1,938	427	220	1,422
Rte 87, A Almaden Expressway			48.38%	10.65%	5.48%	35.49%
Percent of Total Vehicles		2.56%	1.24%	0.27%	0.14%	0.91%

Traffic Increase per Year (%) = *1.00%*

2023 Hourly Traffic Volumes and DPM Emissions - NB-SR87_DPM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.91%	3243	2.03E-04	9	6.50%	5390	1.99E-04	17	5.58%	4627	2.51E-04
2	2.59%	2146	1.35E-04	10	7.36%	6105	3.83E-04	18	3.28%	2719	1.48E-04
3	2.88%	2385	1.50E-04	11	6.33%	5247	3.29E-04	19	2.36%	1956	1.23E-04
4	3.34%	2766	1.74E-04	12	6.84%	5676	3.56E-04	20	0.92%	763	4.79E-05
5	2.19%	1812	1.14E-04	13	6.15%	5104	3.20E-04	21	2.99%	2480	1.56E-04
6	3.39%	2814	1.77E-04	14	6.15%	5104	3.20E-04	22	4.14%	3434	2.15E-04
7	5.98%	4960	3.11E-04	15	5.23%	4340	2.72E-04	23	2.47%	2051	1.29E-04
8	4.66%	3863	1.43E-04	16	3.91%	3243	2.03E-04	24	0.86%	715	4.49E-05
								Total		82,945	

2023 Hourly Traffic Volumes Per Direction and DPM Emissions - SB-SR87_DPM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.91%	3243	2.03E-04	9	6.50%	5390	2.93E-04	17	5.58%	4627	1.68E-04
2	2.59%	2146	1.35E-04	10	7.36%	6105	3.83E-04	18	3.28%	2719	9.84E-05
3	2.88%	2385	1.50E-04	11	6.33%	5247	3.29E-04	19	2.36%	1956	1.23E-04
4	3.34%	2766	1.74E-04	12	6.84%	5676	3.56E-04	20	0.92%	763	4.79E-05
5	2.19%	1812	1.14E-04	13	6.15%	5104	3.20E-04	21	2.99%	2480	1.56E-04
6	3.39%	2814	1.77E-04	14	6.15%	5104	3.20E-04	22	4.14%	3434	2.15E-04
7	5.98%	4960	3.11E-04	15	5.23%	4340	2.72E-04	23	2.47%	2051	1.29E-04
8	4.66%	3863	2.10E-04	16	3.91%	3243	2.03E-04	24	0.86%	715	4.49E-05
								Total		82,945	

Almaden Apartments, San Jose
Project Operation - State Route 87
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2022

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB-SR87_PM25	Northbound SR-87	N	3	668	0.42	16.97	56	1.3	variable	82,945
SB-SR87_PM25	Southbound SR-87	S	3	668	0.42	16.97	56	1.3	variable	82,945
									Total	165,890

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	45	25
Emissions per Vehicle (g/VMT)	0.001657	0.00145	0.001244	0.002151

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and PM2.5 Emissions - NB-SR87_PM25

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	955	1.82E-04	9	7.11%	5899	1.46E-03	17	7.38%	6125	1.02E-03
2	0.42%	346	6.62E-05	10	4.39%	3643	6.96E-04	18	8.17%	6778	1.13E-03
3	0.41%	338	6.46E-05	11	4.66%	3868	7.39E-04	19	5.70%	4725	9.03E-04
4	0.26%	218	4.17E-05	12	5.89%	4884	9.33E-04	20	4.27%	3545	6.77E-04
5	0.50%	415	7.93E-05	13	6.15%	5103	9.75E-04	21	3.26%	2703	5.16E-04
6	0.90%	750	1.43E-04	14	6.04%	5007	9.57E-04	22	3.30%	2736	5.23E-04
7	3.79%	3146	6.01E-04	15	7.01%	5816	1.11E-03	23	2.46%	2040	3.90E-04
8	7.76%	6438	1.60E-03	16	7.14%	5918	1.13E-03	24	1.86%	1546	2.95E-04
								Total		82,945	

2022 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - SB-SR87_PM25

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	955	1.82E-04	9	7.11%	5899	9.85E-04	17	7.38%	6125	8.79E-04
2	0.42%	346	6.62E-05	10	4.39%	3643	6.96E-04	18	8.17%	6778	9.72E-04
3	0.41%	338	6.46E-05	11	4.66%	3868	7.39E-04	19	5.70%	4725	9.03E-04
4	0.26%	218	4.17E-05	12	5.89%	4884	9.33E-04	20	4.27%	3545	6.77E-04
5	0.50%	415	7.93E-05	13	6.15%	5103	9.75E-04	21	3.26%	2703	5.16E-04
6	0.90%	750	1.43E-04	14	6.04%	5007	9.57E-04	22	3.30%	2736	5.23E-04
7	3.79%	3146	6.01E-04	15	7.01%	5816	1.11E-03	23	2.46%	2040	3.90E-04
8	7.76%	6438	1.08E-03	16	7.14%	5918	1.13E-03	24	1.86%	1546	2.95E-04
								Total		82,945	

Almaden Apartments, San Jose
Project Operation - State Route 87
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2022

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB-SR87_TEXH	Northbound SR-87	N	3	668	0.42	16.97	56	1.3	variable	82,945
SB-SR87_TEXH	Southbound SR-87	S	3	668	0.42	16.97	56	1.3	variable	82,945
									Total	165,890

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	45	25
Emissions per Vehicle (g/VMT)	0.02964	0.02637	0.02500	0.04596

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and TOG Exhaust Emissions - NB-SR87_TEXH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	955	3.26E-03	9	7.11%	5900	3.13E-02	17	7.39%	6126	1.86E-02
2	0.42%	348	1.19E-03	10	4.39%	3643	1.24E-02	18	8.17%	6776	2.06E-02
3	0.41%	339	1.16E-03	11	4.67%	3871	1.32E-02	19	5.70%	4724	1.61E-02
4	0.27%	221	7.56E-04	12	5.89%	4887	1.67E-02	20	4.27%	3545	1.21E-02
5	0.50%	414	1.42E-03	13	6.15%	5100	1.74E-02	21	3.26%	2703	9.24E-03
6	0.91%	752	2.57E-03	14	6.03%	5005	1.71E-02	22	3.30%	2738	9.36E-03
7	3.79%	3147	1.08E-02	15	7.01%	5813	1.99E-02	23	2.46%	2038	6.96E-03
8	7.76%	6439	3.41E-02	16	7.13%	5918	2.02E-02	24	1.86%	1545	5.28E-03
								Total		82,945	

2022 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - SB-SR87_TEXH

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	955	3.26E-03	9	7.11%	5900	1.79E-02	17	7.39%	6126	1.77E-02
2	0.42%	348	1.19E-03	10	4.39%	3643	1.24E-02	18	8.17%	6776	1.95E-02
3	0.41%	339	1.16E-03	11	4.67%	3871	1.32E-02	19	5.70%	4724	1.61E-02
4	0.27%	221	7.56E-04	12	5.89%	4887	1.67E-02	20	4.27%	3545	1.21E-02
5	0.50%	414	1.42E-03	13	6.15%	5100	1.74E-02	21	3.26%	2703	9.24E-03
6	0.91%	752	2.57E-03	14	6.03%	5005	1.71E-02	22	3.30%	2738	9.36E-03
7	3.79%	3147	1.08E-02	15	7.01%	5813	1.99E-02	23	2.46%	2038	6.96E-03
8	7.76%	6439	1.96E-02	16	7.13%	5918	2.02E-02	24	1.86%	1545	5.28E-03
								Total		82,945	

Almaden Apartments, San Jose
Project Operation - State Route 87
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2022

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB-SR87_TEVAP	Northbound SR-87	N	3	668	0.42	16.97	56	1.3	variable	82,945
SB-SR87_TEVAP	Southbound SR-87	S	3	668	0.42	16.97	56	1.3	variable	82,945
									Total	165,890

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	45	25
Emissions per Vehicle per Hour (g/hour)	1.36126	1.36126	1.36126	1.36126
Emissions per Vehicle per Mile (g/VMT)	0.02094	0.02094	0.02094	0.02094

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and TOG Evaporative Emissions - NB-SR87_TEVAP

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	955	2.31E-03	9	7.11%	5900	1.42E-02	17	7.39%	6126	1.48E-02
2	0.42%	348	8.39E-04	10	4.39%	3643	8.80E-03	18	8.17%	6776	1.64E-02
3	0.41%	339	8.19E-04	11	4.67%	3871	9.35E-03	19	5.70%	4724	1.14E-02
4	0.27%	221	5.34E-04	12	5.89%	4887	1.18E-02	20	4.27%	3545	8.56E-03
5	0.50%	414	1.00E-03	13	6.15%	5100	1.23E-02	21	3.26%	2703	6.53E-03
6	0.91%	752	1.82E-03	14	6.03%	5005	1.21E-02	22	3.30%	2738	6.61E-03
7	3.79%	3147	7.60E-03	15	7.01%	5813	1.40E-02	23	2.46%	2038	4.92E-03
8	7.76%	6439	1.55E-02	16	7.13%	5918	1.43E-02	24	1.86%	1545	3.73E-03
								Total		82,945	

2022 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - SB-SR87_TEVAP

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	955	2.31E-03	9	7.11%	5900	1.42E-02	17	7.39%	6126	1.48E-02
2	0.42%	348	8.39E-04	10	4.39%	3643	8.80E-03	18	8.17%	6776	1.64E-02
3	0.41%	339	8.19E-04	11	4.67%	3871	9.35E-03	19	5.70%	4724	1.14E-02
4	0.27%	221	5.34E-04	12	5.89%	4887	1.18E-02	20	4.27%	3545	8.56E-03
5	0.50%	414	1.00E-03	13	6.15%	5100	1.23E-02	21	3.26%	2703	6.53E-03
6	0.91%	752	1.82E-03	14	6.03%	5005	1.21E-02	22	3.30%	2738	6.61E-03
7	3.79%	3147	7.60E-03	15	7.01%	5813	1.40E-02	23	2.46%	2038	4.92E-03
8	7.76%	6439	1.55E-02	16	7.13%	5918	1.43E-02	24	1.86%	1545	3.73E-03
								Total		82,945	

Almaden Apartments, San Jose
Project Operation - State Route 87
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2022

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB-SR87_FUG	Northbound SR-87	N	3	668	0.42	16.97	56	1.3	variable	82,945
SB-SR87_FUG	Southbound SR-87	S	3	668	0.42	16.97	56	1.3	variable	82,945
									Total	165,890

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	45	25.0
Tire Wear - Emissions per Vehicle (g/VMT)	0.00207	0.00207	0.00207	0.00207
Brake Wear - Emissions per Vehicle (g/VMT)	0.01660	0.01660	0.0166	0.01660
Road Dust - Emissions per Vehicle (g/VMT)	0.00700	0.00700	0.007	0.00700
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02566	0.02566	0.02566	0.02566

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - NB-SR87_FUG

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	955	2.83E-03	9	7.11%	5900	1.75E-02	17	7.39%	6126	1.81E-02
2	0.42%	348	1.03E-03	10	4.39%	3643	1.08E-02	18	8.17%	6776	2.01E-02
3	0.41%	339	1.00E-03	11	4.67%	3871	1.15E-02	19	5.70%	4724	1.40E-02
4	0.27%	221	6.55E-04	12	5.89%	4887	1.45E-02	20	4.27%	3545	1.05E-02
5	0.50%	414	1.23E-03	13	6.15%	5100	1.51E-02	21	3.26%	2703	8.00E-03
6	0.91%	752	2.22E-03	14	6.03%	5005	1.48E-02	22	3.30%	2738	8.10E-03
7	3.79%	3147	9.31E-03	15	7.01%	5813	1.72E-02	23	2.46%	2038	6.03E-03
8	7.76%	6439	1.91E-02	16	7.13%	5918	1.75E-02	24	1.86%	1545	4.57E-03
								Total		82,945	

2022 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - SB-SR87_FUG

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	955	2.83E-03	9	7.11%	5900	1.75E-02	17	7.39%	6126	1.81E-02
2	0.42%	348	1.03E-03	10	4.39%	3643	1.08E-02	18	8.17%	6776	2.01E-02
3	0.41%	339	1.00E-03	11	4.67%	3871	1.15E-02	19	5.70%	4724	1.40E-02
4	0.27%	221	6.55E-04	12	5.89%	4887	1.45E-02	20	4.27%	3545	1.05E-02
5	0.50%	414	1.23E-03	13	6.15%	5100	1.51E-02	21	3.26%	2703	8.00E-03
6	0.91%	752	2.22E-03	14	6.03%	5005	1.48E-02	22	3.30%	2738	8.10E-03
7	3.79%	3147	9.31E-03	15	7.01%	5813	1.72E-02	23	2.46%	2038	6.03E-03
8	7.76%	6439	1.91E-02	16	7.13%	5918	1.75E-02	24	1.86%	1545	4.57E-03
								Total		82,945	

Almaden Apartments, San Jose - State Route 87 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 2nd Floor Residential Receptors (6.1 meter receptor heights)

Emissions Year	2023
Receptor Information	
Number of Receptors	34
Receptor Height =	2nd Floor - 6.1 meters above ground level
Receptor distances =	7 meter spacing in project residential areas
Meteorological Conditions	
BAAQMD San Jose Airport Data	2006-2010
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Meteorological	Concentration (µg/m^3)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2006-2010	0.00513	0.2385	0.1665

Meteorological	PM2.5 Concentrations (µg/m^3)		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2006-2010	0.2164	0.2034	0.0130

Almaden Apartments, San Jose - State Route 87 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 3rd Floor Residential Receptors (9.1 meter receptor heights)

Emissions Year	2023
Receptor Information	
Number of Receptors	34
Receptor Height =	3rd Floor - 9.1 meters above ground level
Receptor distances =	7 meter spacing in project residential areas
Meteorological Conditions	
BAAQMD San Jose Airport Data	2006-2010
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Meteorological	Concentration (µg/m^3)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2006-2010	0.00371	0.1802	0.1253

Meteorological	PM2.5 Concentrations (µg/m^3)		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2006-2010	0.1629	0.1531	0.0098

Almaden Apartments, San Jose - State Route 87 Traffic - Maximum Cancer Risks
On-Site 2nd Floor Residential Receptors (6.1 meter receptor heights)
30-Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information				Cancer Risk (per million)			
		Exposure		Age	Annual TAC Conc (ug/m3)						
Exposure		Duration		Sensitivity		Exhaust	Evaporative		Exhaust	Evaporative	
Year	Year	(years)	Age	Factor	DPM	TOG	TOG	DPM	TOG	TOG	Total
0	2022	0.25	-0.25 - 0*	10	0.0051	0.2385	0.1665	0.070	0.019	0.001	0.09
1	2022	1	1	10	0.0051	0.2385	0.1665	0.84	0.224	0.009	1.08
2	2023	1	2	10	0.0051	0.2385	0.1665	0.84	0.224	0.009	1.08
3	2024	1	3	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
4	2025	1	4	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
5	2026	1	5	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
6	2027	1	6	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
7	2028	1	7	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
8	2029	1	8	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
9	2030	1	9	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
10	2031	1	10	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
11	2032	1	11	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
12	2033	1	12	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
13	2034	1	13	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
14	2035	1	14	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
15	2036	1	15	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
16	2037	1	16	3	0.0051	0.2385	0.1665	0.13	0.035	0.001	0.17
17	2038	1	17	1	0.0051	0.2385	0.1665	0.01	0.0039	0.000	0.019
18	2039	1	18	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
19	2040	1	19	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
20	2041	1	20	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
21	2042	1	21	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
22	2043	1	22	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
23	2044	1	23	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
24	2045	1	24	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
25	2046	1	25	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
26	2047	1	26	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
27	2048	1	27	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
28	2049	1	28	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
29	2050	1	29	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
30	2051	1	30	1	0.0051	0.2385	0.1665	0.01	0.004	0.000	0.019
Total Increased Cancer Risk			**Total**					3.82	1.014	0.042	**4.87**

* Third trimester of pregnancy

Almaden Apartments, San Jose - State Route 87 Traffic - Maximum Cancer Risks
On-Site 3rd Floor Residential Receptors (9.1 meter receptor heights)
30-Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information				Cancer Risk (per million)			
					Annual TAC Conc (ug/m3)						
Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
0	2022	0.25	-0.25 - 0*	10	0.0037	0.1802	0.1253	0.050	0.014	0.001	0.07
1	2022	1	1	10	0.0037	0.1802	0.1253	0.61	0.169	0.007	0.79
2	2023	1	2	10	0.0037	0.1802	0.1253	0.61	0.169	0.007	0.79
3	2024	1	3	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
4	2025	1	4	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
5	2026	1	5	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
6	2027	1	6	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
7	2028	1	7	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
8	2029	1	8	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
9	2030	1	9	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
10	2031	1	10	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
11	2032	1	11	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
12	2033	1	12	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
13	2034	1	13	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
14	2035	1	14	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
15	2036	1	15	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
16	2037	1	16	3	0.0037	0.1802	0.1253	0.10	0.027	0.001	0.12
17	2038	1	17	1	0.0037	0.1802	0.1253	0.01	0.0030	0.000	0.014
18	2039	1	18	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
19	2040	1	19	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
20	2041	1	20	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
21	2042	1	21	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
22	2043	1	22	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
23	2044	1	23	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
24	2045	1	24	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
25	2046	1	25	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
26	2047	1	26	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
27	2048	1	27	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
28	2049	1	28	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
29	2050	1	29	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
30	2051	1	30	1	0.0037	0.1802	0.1253	0.01	0.003	0.000	0.014
Total Increased Cancer Risk			**Total**					2.76	0.766	0.031	**3.6**

* Third trimester of pregnancy

Almaden Apartments, San Jose - State Route 87 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
Impact at Construction MEI Receptor Height = 7.6 meters

Emissions Year	2023
Receptor Information	**Construction MEI**
Number of Receptors	1
Receptor Height =	Construction MEI - 3rd Floor (7.6 meters)
Receptor distances =	at contruction MEI receptor location
Meteorological Conditions	
San Jose Airport Met Data	2006-2010
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Meteorological	Concentration ($\mu g/m^3$)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2006-2010	0.00340	0.1545	0.1075

Meteorological	PM2.5 Concentrations ($\mu g/m^3$)		
Data Years	Total PM2.5	Road Dust PM2.5	Vehicle PM2.5
2006-2010	0.1398	0.1313	0.0084

Almaden Apartments, San Jose - State Route 87 Traffic - Maximum Cancer Risks
Impact at Construction MEI Receptor Height = 7.6 meters
30-Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information				Cancer Risk (per million)			
					Annual TAC Conc (ug/m3)						
Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
0	2022	0.25	-0.25 - 0*	10	0.0034	0.1545	0.1075	0.046	0.012	0.000	0.06
1	2022	1	1	10	0.0034	0.1545	0.1075	0.56	0.145	0.006	0.71
2	2023	1	2	10	0.0034	0.1545	0.1075	0.56	0.145	0.006	0.71
3	2024	1	3	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
4	2025	1	4	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
5	2026	1	5	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
6	2027	1	6	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
7	2028	1	7	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
8	2029	1	8	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
9	2030	1	9	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
10	2031	1	10	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
11	2032	1	11	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
12	2033	1	12	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
13	2034	1	13	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
14	2035	1	14	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
15	2036	1	15	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
16	2037	1	16	3	0.0034	0.1545	0.1075	0.09	0.023	0.001	0.11
17	2038	1	17	1	0.0034	0.1545	0.1075	0.01	0.0025	0.000	0.012
18	2039	1	18	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
19	2040	1	19	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
20	2041	1	20	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
21	2042	1	21	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
22	2043	1	22	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
23	2044	1	23	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
24	2045	1	24	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
25	2046	1	25	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
26	2047	1	26	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
27	2048	1	27	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
28	2049	1	28	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
29	2050	1	29	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
30	2051	1	30	1	0.0034	0.1545	0.1075	0.01	0.003	0.000	0.012
Total Increased Cancer Risk			**Total**					2.53	0.656	0.027	**3.21**

* Third trimester of pregnancy

San Jose Water Company Emergency Diesel Generator - Emissions and Health Risk Calculations

Almaden Apartments, San Jose, CA - AERMOD Modeling Parameters
San Jose Water Company -Diesel Emergency Generator
Construction MEI Receptor - 7.6 meter receptor height

DPM Emission Rates			
	Annual	**DPM Emissions**	
	Operation	**Daily**	**Annual***
Source Type	**(hr)**	**(lb/day)**	**(lb/yr)**
Generator	-	0.1470	53.7

* BAAQMD emission inventory

Modeling Information		
Model:	AERMOD	
Source	Diesel Engine	
Source Type	Point	
Receptor Spacing	Construction MEI Receptor (7.6 meter receptor height)	
Meteorological Data	2006-2010 BAAQMD San Jose Airport data	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height (ft)	8	
Stack Diameter** (ft)	0.60	
Stack Exit Velocity** (ft/sec)	149	
Exhaust Temperature** (F)	872	
Annual Emission Rate (lb/year)	53.7	calculated
Hourly Emission Rate (lb/hr)	6.13E-03	

** BAAQMD default generator parameters

Almaden Apartments, San Jose, CA - DPM Cancer Risks at
Construction MEI Receptor - 7.6 meter receptor height
San Jose Water Co. (BAAQMD P# 19807) Diesel Emergency Generato

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	0.85	0.72	0.72	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

MEI Cancer Risk: Construction MEI Receptor
SJWC Emergency Generator

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.00834	0.10
2	1 - 2	10	0.00834	1.97
14	3 - 16	3	0.00834	2.17
14	17 - 30	1	0.00834	0.34
Total Increased Cancer Risk				**4.6**

* Third trimester of pregnancy

Almaden Apartments, San Jose, CA - AERMOD Modeling Parameters
San Jose Water Company -Diesel Emergency Generator

DPM Emission Rates			
	Annual	DPM Emissions	
	Operation	Daily	Annual*
Source Type	(hr)	(lb/day)	(lb/yr)
Generator	-	0.1470	53.7

* BAAQMD emission inventory

Modeling Information		
Model:	AERMOD	
Source	Diesel Engine	
Source Type	Point	
Receptor Spacing	onsite sensitive receptors (7 m grid spacing)	
Meteorological Data	2006-2010 BAAQMD San Jose Airport data	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height (ft)	8	
Stack Diameter** (ft)	0.60	
Stack Exit Velocity** (ft/sec)	149	
Exhaust Temperature** (F)	872	
Annual Emission Rate (lb/year)	53.7	calculated
Hourly Emission Rate (lb/hr)	6.13E-03	

** BAAQMD default generator parameters

Almaden Apartments, San Jose, CA - DPM Cancer Risks at
OnSite Residential Receptors - Floors 2 - 5
San Jose Water Co. (BAAQMD P# 19807) Diesel Emergency Generator

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	0.85	0.72	0.72	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

MEI Cancer Risk: Onsite Project Residential Receptors
SJWC Emergency Generator

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.01608	0.19
2	1 - 2	10	0.01608	3.80
14	3 - 16	3	0.01608	4.19
14	17 - 30	1	0.01608	0.65
Total Increased Cancer Risk				**8.8**

* Third trimester of pregnancy

Maximum Cancer Risk from Generator Operation
OnSite Residential Receptors - Floors 2 - 5

Receptor Floor Level	Receptor Type	DPM Annual Conc (ug/m3)	Maximum DPM Cancer Risk (per million)
2	Residential	0.01494	8.20
3	Residential	0.01571	8.62
4	**Residential**	**0.01608**	**8.83**
5	Residential	0.01557	8.55

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the “Search Parameter” box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Santa Clara	
Roadway Direction	North-South	
Side of the Roadway	West	
Distance from Roadway	815	feet
	MEI	
Annual Average Daily Traffic (ADT)	22,890	

Results

Santa Clara County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

0.018 ($\mu g/m^3$)

Cancer Risk

0.90 (per million)

Almaden Expressway

Cumulative plus project volumes from traffic report

Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

0.62

(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Bay Area

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using ~~CALINE4~~ Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the “Results” box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Santa Clara
Roadway Direction	North-South
Side of the Roadway	West
Distance from Roadway	790 feet
Annual Average Daily Traffic (ADT)	22,890

Results

Santa Clara County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

0.019 ($\mu g/m^3$)

Cancer Risk

0.95 (per million)

Almaden Expressway

Cumulative plus project volumes from traffic report

Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

0.66

(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehcicles traveling at 30 mph for Bay Area

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using ~~CALINE4~~ Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD

This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

Click here for guidance on coducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	**11/8/2019**
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	Almaden Villas
Address	1747 Almaden Rd
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Res
Project Size (# of units or building square feet)	44du

Comments: Blue highlighted from Stationary Source Website

For Air District assistance, the following steps must be completed:

1. Complete all the contact and project information requested in **Table A** Incomplete forms will not be processed. Please include a project site map.

2. Download and install the free program Google Earth, **http://www.google.com/earth/download/ge/,** and then download the county specific Google Earth stationary source application files from the District's website, **http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.** The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.

3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.

4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.

5. List the stationary source information in **Table B** blue section only.

6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.

7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.

Submit forms, maps, and questions to Areana Flores at 415-749-4616, or aflores@baaqmd.gov

Table B: Google Earth data

PROJECT SITE

Distance from Receptor (meters) or MEI[1]	FACID (Plant No.)	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	I&R Action
140	19807	San Jose Water Company	500 Willow Glen Way	8.8	<0.01	0.02		Generator		Updated emissions attached. Use health risk calculator to estimate risk	Source's emissions modeled in AERMOD
250	14986	Angkor Collision	1695 Angela Street	--	0.0001	--		Auto body coating		""	Computed
300	10302	Testa's Auto Body Inc	419 Orto Street	--	0.001	--		Auto body coating		""	Computed
260	14779	A and Wiltz Auto Body	1791 Angela Street	0.000003	0.00000002	0.00001		Auto body coating		""	Computed
260	23304	Caliber Collision Cente	1816 Angela Street	--	0.001	--		Auto body coating		""	Computed

Construction MEI

Distance from Receptor (meters) or MEI[1]	FACID (Plant No.)	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
225	19807	4.6	<0.01	<0.01
280	14986	--	0.0001	--
300	10302	--	0.001	--
295	14779	0.000002	0.00000002	0.000005
295	23304	--	0.001	--

Footnotes:

1. Maximally exposed individual
2. These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.
3. Each plant may have multiple permits and sources.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. Fuel codes: 98 = diesel, 189 = Natural Gas.
6. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
7. The date that the HRSA was completed.
8. Engineer who completed the HRSA. For District purposes only.
9. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
10. The HRSA "Chronic Health" number represents the Hazard Index.
11. Further information about common sources:
    a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
    b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index of 0.003 or less. To be
    c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010.
    Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
    d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but instead should reflect the
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.

Date last updated: 03/13/2018