280 MCEVOY RESIDENTIAL DEVELOPMENT AIR QUALITY ASSESSMENT

San José, California

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Introduction

The purpose of this report is to address air quality impacts and compute greenhouse gas (GHG) emissions associated with a new 12-story residential tower located at 280 McEvoy Street in San José. The air quality impacts and GHG emissions would be associated with 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 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 proposes to demolish a three-building commercial welding shop totaling 10,000 square feet (sf) on a 1.13-acre site and construct a 12-story residential tower that would include 381 affordable, prefabricated, residential units in two 11-story towers over a single one-story podium. The 104 parking spaces for the project would be provided in the first-floor garage podium.

The eastern residential tower (Building 1) would include 11 stories of residential units over the one-story podium, with a maximum roof height of 144 feet. Family housing would include a mix of one-, two-, and 44 three-bedroom units for a total of 132 residential units. Apartments would be located on the second through 12th stories of the building. The western tower (Building 2) would contain studio and one-bedroom residential units for workforce housing. The tower would include 11 stories of residential units over the one-story podium, with a maximum roof height of 144 feet. Workforce housing would include 178 studio units and 66 one-bedroom units for a total of 244 residential units. Apartments would be located on the second through 12th stories of the building.

The project proposes to design the building as a Leadership in Energy and Environmental Design (LEED) Platinum project and would include energy-efficient appliances and lighting, on-site stormwater treatment, and low-flow fixtures. The project would provide each household with free Santa Clara Valley Transportation Authority SmartPasses for transportation.

The project site is bounded by industrial uses to the north and east, commercial uses to the west, and multi-family residential uses to the south. Construction of the proposed project would begin in July 2020 and would take approximately 22 months.

Setting

The project is located in Santa Clara County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

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

Air Pollutants of Concern

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (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 or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). 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

TACs are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. 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 [DPM] near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

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 California Air Resources Board (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. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015.[2] See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

[2] 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.

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. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are the multi-family residences located south of the project site opposite W. San Carlos Street, with additional nearby residences to the west, north, south, of the project site. There is also a district community high school (Edge School) located on Sunol Street to the west of the project site. The project would include new sensitive receptors.

Regulatory Agencies

The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency [EPA]) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has recently published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.

Regulatory Setting

Federal Regulations

The United States Environmental Protection Agency (EPA) sets nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The EPA also sets nationwide fuel standards. California also has the ability to set motor vehicle emission standards and standards for fuel used in California, as long as they are the same or more stringent than the federal standards.

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO_X and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified DPM as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.[3]

[3] USEPA, 2000. *Regulatory Announcement, Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*. EPA420-F-00-057. December.

In concert with the diesel engine emission standards, the EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low sulfur highway fuel (15 ppmw sulfur), also called ultra-low sulfur diesel (ULSD), is currently required for use by all vehicles in the U.S.

All of the above federal diesel engine and diesel fuel requirements have been adopted by California, in some cases with modifications making the requirements more stringent or the implementation dates sooner.

State Regulations

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.[4] In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

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. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or replaced to meet 2010 or later engine standards that have much lower DPM and $PM_{2.5}$ emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, this measure is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road or is retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

CARB has also adopted and implemented regulations to reduce DPM and NO_X emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.). The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce particulate matter and NO_X exhaust emissions by requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-averaged emission rates. Implementation of this regulation, in conjunction with stringent federal off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO_X.

[4] California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

Bay Area Air Quality Management District (BAAQMD)

BAAQMD has jurisdiction over an approximately 5,600-square mile area, commonly referred to as the San Francisco Bay Area (Bay Area). The District's boundary encompasses the nine San Francisco Bay Area counties, including Alameda County, Contra Costa County, Marin County, San Francisco County, San Mateo County, Santa Clara County, Napa County, southwestern Solano County, and southern Sonoma County.

BAAQMD is the lead agency in developing plans to address attainment and maintenance of the National Ambient Air Quality Standards and California Ambient Air Quality Standards. The District also has permit authority over most types of stationary equipment utilized for the proposed project. The BAAQMD is responsible for permitting and inspection of stationary sources; enforcement of regulations, including setting fees, levying fines, and enforcement actions; and ensuring that public nuisances are minimized.

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.

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

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

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.

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 1.

Table 1. Air Quality Significance 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	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
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	

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.

Impacts and Mitigation Measures

Impact 1: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable State or federal ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

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.

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions from construction and operation of the site assuming full build-out of the project. The project land use types and size, and anticipated construction schedule provided by the applicant were input to CalEEMod. The model output from CalEEMod is included as *Attachment 2*.

Construction period emissions

CalEEMod provided annual emissions for construction. CalEEMod provides emission estimates for both on-site and off-site construction activities. 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: 381 dwelling units entered as "Apartment High Rise" and 104 spaces as "Enclosed Parking with Elevator." Design square footages were entered as follows: 287,583 sf for residential uses that include amenities and commons spaces and 15,950 sf for the parking area. In addition, existing building demolition of 10,000 sf of was entered into the model. Earthwork included the export of 8,600 cubic yards (cy) of soil. There were an estimated 89 one-way asphalt hauling truck trips during demolition, and 1,600 one-way concrete trips and 60 one-way rebar trips during foundation construction were used in the modeling.

The construction schedule assumed that the project would be built out over a period of approximately 22 months, beginning in July 2020. Based on the provided construction schedule and equipment usage assumptions, there were an estimated 478 construction workdays. Average daily emissions were computed by dividing the total construction emissions by the number of construction days. Table 2 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 2, predicted the construction period emissions would not exceed the BAAQMD significance thresholds.

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*.

Table 2. Construction Period Emissions

Scenario	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Total construction emissions (tons)	2.5 tons	5.7 tons	0.1 tons	0.1 tons
Average daily emissions (pounds)[1]	10.2 lbs./day	23.7 lbs./day	0.4 lbs./day	0.4 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 478 workdays.

Operational Period Emissions

Operational air emissions from the project would be generated primarily from autos driven by future residents. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod was used to estimate emissions from operation of the proposed project assuming full build-out.

Land Uses

The project land uses were input to CalEEMod as described above for the construction period modeling.

Model Year

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 CalEEMod. The earliest the project could possibly be constructed and begin operating would be 2023. Emissions associated with build-out later than 2023 would be lower.

Trip Generation Rates

CalEEMod allows the user to enter specific vehicle trip generation rates, which were input to the model using the daily trip generation rate provided in the project trip generation table, including the 13-percent reduction for location-based urban low transit and the 20-percent reduction for low vehicle miles traveled (VMT). For each land use type, the forecasted daily trip rate with trip reductions applied was divided by the quantity of that land use to identify the weekday daily trip rate. The Saturday and Sunday trip rates were assumed to be the weekday rate adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips. The default trip lengths and trip types specified by CalEEMod were used.

Energy

Emissions from natural gas usage and indirect GHG emissions from electricity were computed in CalEEMod. The project would be designed to meet LEED Platinum standards. CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards. CalEEMod was adjusted in the mitigation tab to account for greater energy efficiency and high-efficiency lighting. The model has a default rate of 641.3 pounds of CO_2 per megawatt of electricity produced, which is based on PG&E's 2008 emissions rate. The rate was adjusted to account for PG&E's projected 2020 CO_2 intensity rate. This 2020 rate is based, in part, on the requirement of a renewable energy portfolio standard of 33 percent by the year 2020. The derived 2020 rate for PG&E was estimated at 290 pounds of CO_2 per megawatt of electricity delivered.[6]

Other Inputs

Wood-burning stoves and fireplaces are not permitted in new developments in the Bay Area; however, it was assumed that residential units could contain gas-powered fireplaces. Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions. The project would be designed to meet LEED Platinum standards. CalEEMod was adjusted in the mitigation tab to account for greater water efficiency and low-flow water utilities.

Existing Uses

A CalEEMod model run was developed to compute emissions from use of the existing building as if it was operating in 2023. Inputs for this modeling scenario included 10,000 sf of "General Light Industry", 0.8 acres of "Parking Lot", and the trip rate generation rates used in the traffic data. These inputs were applied to the modeling in the same manner described for the proposed project.

As shown in Table 3, operational emissions would not exceed the BAAQMD significance thresholds. This would be considered a *less-than-significant* impact.

Table 3. Operational Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2023 Project Operational Emissions (*tons/year*)	1.7 tons	1.2 tons	1.1 tons	0.3 tons
2023 Existing Use Emissions (*tons/year*)	0.1 tons	0.1 tons	0.1 tons	0.01 tons
Net Annual Emissions (*tons/year*)	1.6 tons	1.1 tons	1.0 tons	0.3 tons
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	No	No	No	No
2023 Project Operational Emissions (*pounds/day*)	8.9 lbs.	6.0 lbs.	5.6 lbs.	1.6 lbs.

[6] Pacific Gas & Electric, 2015. *Greenhouse Gas Emission Factors: Guidance for PG&E Customers*. November.

BAAQMD Thresholds (pounds/day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	No	No	No	No

Notes: [1] Assumes 365-day operation.

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.

In addition to the BAAQMD-recommended best management practices listed above, Mitigation Measure AQ-1 would require that the project reduce equipment exhaust emissions. This should be done by developing a plan demonstrating that the off-road equipment used on-site to construct

the project would achieve a fleet-wide average 70 percent reduction in diesel exhaust particulate matter emissions or more. 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 2 engines that include CARB-certified Level 3 Diesel Particulate Filters (DPF)[7] or equivalent. The use of Tier 3 engines that includes CARB-certified Level 3 DPF or Tier 4 engines would also meet this requirement. Alternatively, the use of equipment that includes alternatively-fueled equipment (i.e., non-diesel) would meet this requirement.

Effectiveness of Mitigation Measure AQ-1

Implementation of Mitigation Measure AQ-1, assuming Tier 2 engines that include CARB-certified Level 3 DPF, is considered to reduce fugitive dust emissions by 58 percent and reduce on-site diesel exhaust emissions by 84 percent.

Impact 2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

As discussed under Impact 1, the project would have emissions less than the BAAQMD thresholds. Therefore, the project would not contribute substantially to existing or projected violations of those standards. Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for the standard. The highest measured level over any 8-hour averaging period during the last 3 years in the Bay Area is less than 3.0 parts per million (ppm), compared to the ambient air quality standard of 9.0 ppm. Intersections affected by the project would have traffic volumes less than the BAAQMD screening criteria and, thus, would not cause a violation of an ambient air quality standard or have a considerable contribution to cumulative violations of these standards.[8] The project would not cause the violation of an air quality standard or worsen an existing violation of an air quality standard. This would be a *less-than-significant* impact.

Impact 3: Expose sensitive receptors to substantial pollutant concentrations?

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

[7] See http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm

[8] For a land-use project type, the BAAQMD CEQA Air Quality Guidelines state that a proposed project would result in a less-than-significant impact to localized carbon monoxide concentrations if the project would not increase traffic at affected intersections with more than 44,000 vehicles per hour.

receptors in the project vicinity. The project would introduce new residents that are sensitive receptors.

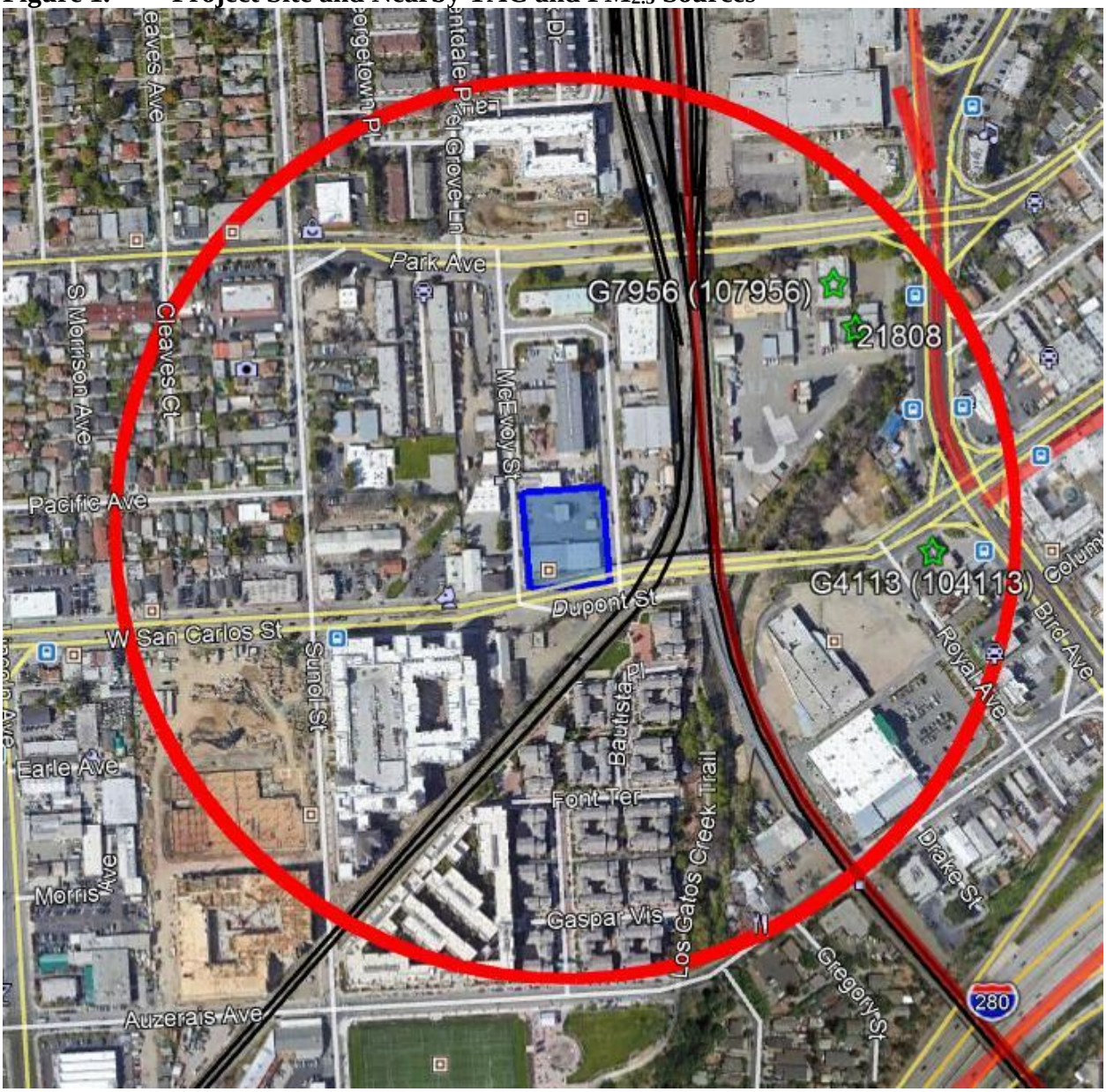
Temporary project construction activity would generate dust and equipment exhaust on a temporary basis that could affect nearby sensitive receptors. Operation of the project would not be considered a source of TAC or $PM_{2.5}$ emissions that would cause community risk impacts. The project would generate some automobile trips, but few truck diesel trips, and these would not result in localized health risks.

Impacts from nearby sources of TACs and $PM_{2.5}$ affecting the project site and construction emissions affecting nearby sensitive receptors were addressed. Community risk impacts were addressed by increased predicting lifetime cancer risk, the increase in annual $PM_{2.5}$ concentrations and computing the Hazard Index (HI) for non-cancer health risks. The methodology for computing community risks impacts is contained in *Attachment 1*.

Operational Community Risk Impacts

Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of a project site. These sources can include freeways or highways, railways, busy surface streets, and stationary sources identified by BAAQMD. Traffic on high volume roadways is a source of TAC emissions that may adversely affect sensitive receptors in close proximity to the roadway. A review of the project area indicates that traffic on State Route (S.R.) 82 (S. Montgomery Street), W. San Carlos Street, and Park Avenue would exceed 10,000 vehicles per day. Other nearby streets are assumed to have less than 10,000 vehicles per day. The Union Pacific Rail Road (UPRR) on which several agencies' trains use is approximately 110 feet east of the project site. A review of BAAQMD's stationary source Google Earth map tool identified three sources with the potential to affect the project site. Figure 1 shows the sources affecting the project site. Community risk impacts from these sources upon the project are reported in Table 5. Details of the modeling and community risk calculations are included in *Attachment 3.*

Figure 1. Project Site and Nearby TAC and $PM_{2.5}$ Sources



Highway: S.R. 82 (The Alameda)

The S. Montgomery Street roadway at the W. San Carlos Street intersection is considered part of State Route 82 (S.R. 82). BAAQMD provides a *Highway Screening Analysis Google Earth Map* tool to identify estimated risk and hazard impacts from highways throughout the Bay Area. Cumulative risk, hazard, and $PM_{2.5}$ impacts at various distances from the highway are estimated for different segments of the highways. The tool uses the average annual daily traffic (AADT) count, fleet mix and other modeling parameters specific to that segment of the highway. Impacts from Link 1232 (20ft elevation) for S.R. 82, in which the project site was approximately 800 feet west of S.R. 82, were identified using this tool.

The cancer risk identified using the BAAQMD tool was adjusted using a factor of 1.3744 to account for new Office of Environmental Health Hazard Assessment (OEHHA) guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.[9] Estimated cancer risk from the highway traffic would be 0.2 per million and $PM_{2.5}$ concentration would be less than 0.01 micrograms per cubic meter ($\mu g/m^3$). Chronic or acute hazard index (HI) for the roadway would be less than 0.01. The predicted impacts from S.R. 82 do not exceed the BAAQMD thresholds of greater than 10 chances per million for cancer risk, 0.3 $\mu g/m^3$ for $PM_{2.5}$ exposure, and 1.0 for HI.

Railroad: Caltrain

The project site is located about 1,500 feet south of the San José Diridon station that currently generates TAC and $PM_{2.5}$ emissions from locomotive exhaust. The rail line south of Diridon station is about 215 feet east of the project site and is used primarily for passenger service; however, there is some freight service by trains using diesel fueled locomotives. The San José Diridon station is one of the main passenger rail depots for the city.

Peninsula Corridor Electrification Project is a key component of the Caltrain Modernization Program that would electrify the Caltrain Corridor from San Francisco to San José. Under this program, diesel-locomotive hauled trains would be converted to Electric Multiple Unit (EMU) trains after 2020. Currently all of Caltrain's trains use diesel locomotives. As part of the program to modernize operation of the Caltrain rail corridor between San José and San Francisco, Caltrain is planning to switch from diesel locomotives to use of electric trains in the near future.[10] Nearly all of the trains in the future are planned to be EMU trains, which are self-propelled electric rail vehicles that can accelerate and decelerate at faster rates than diesel power trains, even with longer trains. As a result, Caltrain would be able to increase the number of trains during peak periods to accommodate service demand. This plan was formally adopted on January 8, 2015 and electrified service is anticipated to begin in 2020 or 2021.[11]

Passenger rail service long these rail lines includes diesel-fueled trains for Caltrain and the Amtrak Coast Starlight. Based on the current Caltrain schedule, there are 40 trains passing the project site during weekdays. Electrification of Caltrain would eliminate DPM emissions from most of these trains and would increase the number of weekday trains from 40 to 54. The Amtrak Coast Starlight operates between Seattle and Los Angles with 2 daily trains. In addition to the passenger trains, there are up to 6 freight trains that use the rail lines on a daily basis.[12]

Caltrain plans are that in 2021 service between San José and San Francisco would use a mixed fleet of EMUs and diesel locomotives, with approximately 75% of the service being electric and 25% being diesel. In 2021, some peak service trains would be diesel on weekdays. All other service, including off-peak periods, would be EMU-based. Off-peak periods include early morning, midday, and after 7:00 p.m. After 2021, diesel locomotives would be replaced with

[9] Correspondence with Alison Kirk, BAAQMD, November 23, 2015.
[10] Caltrain, 2014. *Peninsula Corridor Electrification Project. Final Environmental Impact Report*. December 2014.
[11] Caltrain, 2015. *Peninsula Corridor Electrification Fact Sheet*. May 2015.
[12] Metropolitan Transportation Commission, 2006. *Bay Area Regional Rail Plan, Technical Memorandum 4a, Conditions, Configuration & Traffic on Existing System*. November 15.

EMUs over time as they reach the end of their service life. Caltrain's diesel-powered locomotives would continue to be used to provide service between the San José Diridon Station and Gilroy. It is expected that all of the San José to San Francisco fleet would be EMUs by 2026 to 2029.[13]

Starting in 2021 when Caltrain electrification occurs there would be 18 daily weekday trips near the project site with trains using with diesel locomotives.[14] On an annual average basis there would be a total of 13 daily trains using diesel locomotives near the project site. From 2026 on it was conservatively assumed that there would be 6 daily weekday diesel trains on the rail line near the site. All trains used for freight service were 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[15] and CARB adjustment factors to account for fuels used in California[16]. 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.[17] The current fleet average locomotive engine size is about 3,285 hp. In estimating diesel exhaust emissions for 2022 and future years, the diesel locomotives that would still be operating were conservatively assumed to be the newer locomotives with the 3,600 hp engines.

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 the 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 duration used in calculating cancer risks is 30 years (in this case the period from 2022 through 2051), the Caltrain, Amtrak, and freight train average DPM emissions were calculated for the periods 2022-2025 and 2026-2051 based on EPA emission factors.

Dispersion modeling of locomotive emissions was conducted using the EPA's AERMOD dispersion model and five-year data set (2006-2010) of hourly meteorological data from the San José Airport prepared for use with the AERMOD model by the BAAQMD. Locomotive emissions from train travel within about 1,000 feet of the project site were modeled as two-line sources comprised of a series of volume sources along the rail line. Impacts to future residents on the second, third, and fourth floor levels were evaluated. The second floor is the first building level with residential units in it. The modeling used receptors placed in the proposed new residential areas with 5-meter (16 feet) spacing. Receptor heights of 7 meters (23 feet), 10 meters (33 feet), and 13.1 meters (43 feet) were used to represent the breathing heights of residents of the second, third, and fourth floor levels, respectively. Figure 2 shows the railroad segments used for the modeling and receptor locations where concentrations were calculated. The maximum modeled long-term DPM and $PM_{2.5}$ concentrations occurred at the second-floor level in the northeastern portion of the project site.

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[13] Ibid
[14] Caltrain 2015. *Short Range Transit Plan:FY2015-2024*. October 1, 2015.
[15] *Emission Factors for Locomotives*, USEPA 2009 (EPA-420-F-09-025)
[16] *Offroad Modeling, Change Technical Memo*, Changes to the Locomotive Inventory, CARB July 2006.
[17] Caltrain *Commute Fleets*. Available at: http://www.caltrain.com/about/statsandreports.html. Accessed March 4, 2016.

The maximum increased lifetime cancer risk and annual $PM_{2.5}$ concentrations for new residents at the project site are shown in Table 4 and were computed using modeled DPM and $PM_{2.5}$ concentrations and the BAAQMD recommended methods and exposure parameters described in *Attachment 1*. The maximum cancer risks, $PM_{2.5}$ concentration, and non-cancer health impacts (hazard index) are below their respective BAAQMD significance thresholds. The location of the MEI where the maximum TAC and $PM_{2.5}$ impacts from the rail line occurred is shown in Figure 2.

Table 4. Maximum Health Risk Impacts from Rail Line

Source/Receptor Location	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Chronic Hazard Index
Rail Line			
2nd Floor Maximum Impact:	4.56	0.01	<0.01
3rd Floor Maximum Impact:	3.42	0.01	<0.01
4th Floor Maximum Impact:	2.29	<0.01	<0.01
BAAQMD Thresholds	*10.0*	*0.3*	*1.0*

Note: **Bold** denotes levels above single-source thresholds.

The modeling results and health risk calculations for the receptor with the maximum cancer risk from the diesel locomotives using the rail line are also provided in *Attachment 4*.

Figure 2. Project Site, On-Site Sensitive Receptors, Rail Line Segments Modeled and Receptor with Maximum TAC Impacts

Local Roadway: W. San Carlos Street and Park Avenue

For local roadways, BAAQMD has provided the *Roadway Screening Analysis Calculator* to assess impacts on a proposed project. Two adjustments were made to the cancer risk predictions made by this calculator: (1) adjustment for latest vehicle emissions rates and (2) adjustment of cancer risk to reflect new OEHHA guidance (see *Attachment 1*).

The calculator uses EMFAC2011 emission rates for the year 2014. Overall, emission rates will decrease by the time the project is constructed and occupied. The project would not be occupied prior to at least 2018. In addition, 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.[18]

There are two local roadways with high traffic volumes near the project site, which include W. San Carlos Street and Park Avenue. Average daily traffic (ADT) volumes were assessed using project traffic volume data[19] for Background Plus Project Conditions, assuming the ADT was ten times the average AM and PM peak-hour volume. Using the *BAAQMD Roadway Screening Analysis Calculator* for Santa Clara County, W. San Carlos Street was evaluated for an east-west directional roadway and at a distance of approximately 30 feet north of the roadway and Park Avenue was evaluated for an east-west directional roadway and at a distance of approximately 530 feet south of the roadway. The cancer risk and annual average $PM_{2.5}$ concentrations were estimated for these roadways at the nearest project site receptor. The cancer risks and annual $PM_{2.5}$ concentrations associated with these roadways would be lower than the BAAQMD significance thresholds of greater than 10.0 in one million and the 0.3 $\mu g/m^3$, and would therefore be considered a *less-than-significant* impact. Concentration levels and community risk impacts from these sources upon the project are reported in Table 5.

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 identified the location of three stationary sources and their estimated risk and hazard impacts. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. They provided updated risk levels, emissions and adjustments to account for new OEHHA guidance.[20] The adjusted risk values were then adjusted with the appropriate distance multiplier values provided by BAAQMD or the emissions information was used in refined modeling.

Plant #G7956 (107956) and #G4113 (104113) are gas dispensing facilities. Screening provided by BAAQMD were used and adjusted for distance based on BAAQMD's *Distance Adjustment Multiplier Tool for Gasoline Dispensing Facilities*. Plant #21808, which is an emergency diesel generator, was evaluated using emissions data provided by BAAQMD and adjusted for distance based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines*. The cancer risks and annual $PM_{2.5}$ concentrations associated with each of these sources

[18] Correspondence with Alison Kirk, BAAQMD, November 23, 2015.
[19] Hexagon Transportation Consultants, Inc., "699 W. San Carlos Residential Development Traffic Impact Analysis", October 2018.
[20] Correspondence with Areana Flores, BAAQMD, July 17, 2018.

would be lower than the BAAQMD significance thresholds of greater than 10.0 in one million and the 0.3 µg/m^3, and would therefore be considered a *less-than-significant* impact. Concentration levels and community risk impacts from these sources upon the project are reported in Table 5.

Cumulative Community Risk at Project Site

Community risk impacts from combined sources upon the project site are reported in Table 5. As shown in Table 5, single and cumulative TAC sources within 1,000 feet of the project sites would be below the BAAQMD single and cumulative risk thresholds.

Table 5. Community Risk Impact to New Project Residences

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ (µg/m^3)	Hazard Index
S.R. 82 (S. Montgomery St) at 800 feet west Link 1232 (20ft elevation)	0.2	<0.01	<0.01
Railroad line at 215 feet	4.6	0.01	<0.01
W. San Carlos St (east-west) at 30 feet, 14,800 ADT	5.4	0.16	<0.01
Park Ave (east-west) at 530 feet, 13,015 ADT	1.0	0.04	<0.01
Plant #G7956 (107956) (Gas Station) at 700 feet	0.2	NA	<0.01
Plant #G4113 (104113) (Gas Station) at 775 feet	0.5	NA	<0.01
Plant #21808 (Generator) at 670 feet	0.3	<0.01	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Significant?	***No***	***No***	***No***
Cumulative Total	*12.2*	*<0.23*	*<0.07*
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Significant?	***No***	***No***	***No***

Project Construction Activity

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 community risks for sensitive receptors such as nearby residents. The primary community risk impact issues 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 community risk assessment of the project construction activities was conducted that evaluated potential health effects of sensitive receptors at these nearby residences from construction emissions of DPM and $PM_{2.5}$.[21] The closest sensitive receptors to the project site are the multi-family residences located south of the project site opposite W. San Carlos Street, with additional nearby residences to the west, north, south, of the project site. There is also a district community high school (Edge School) located on Sunol Street to the west of the project site. Emissions and dispersion modeling was conducted to predict the off-site DPM

[21] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

On-Site Construction TAC Emissions

Construction period emissions were computed using CalEEMod along with projected construction activity, as described above. The CalEEMod model provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment used for construction of the project and for the exhaust emissions from on-road vehicles (haul trucks, vendor trucks, and worker vehicles) of 0.0776 tons (155 pounds) over the construction period. A trip length of one mile was used to represent vehicle travel while at or near the construction site. For modeling purposes, it was assumed that these emissions from on-road vehicles would occur at the construction site. Fugitive dust $PM_{2.5}$ emissions were also computed and included in this analysis. The model predicts emissions of 0.0713 tons (142 pounds) of fugitive $PM_{2.5}$ over the construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences and school students) 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.[22] The modeling utilized two area sources to represent the on-site construction emissions, one for exhaust emissions and one for fugitive dust emissions. To represent the construction equipment exhaust emissions, an emission release height of 6 meters (19.7 feet) was used for the area source. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 2 meters (6.6 feet) was used for the area source. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources. Construction emissions were modeled as occurring daily between 7 a.m. to 4 p.m., when the majority of construction activity would occur.

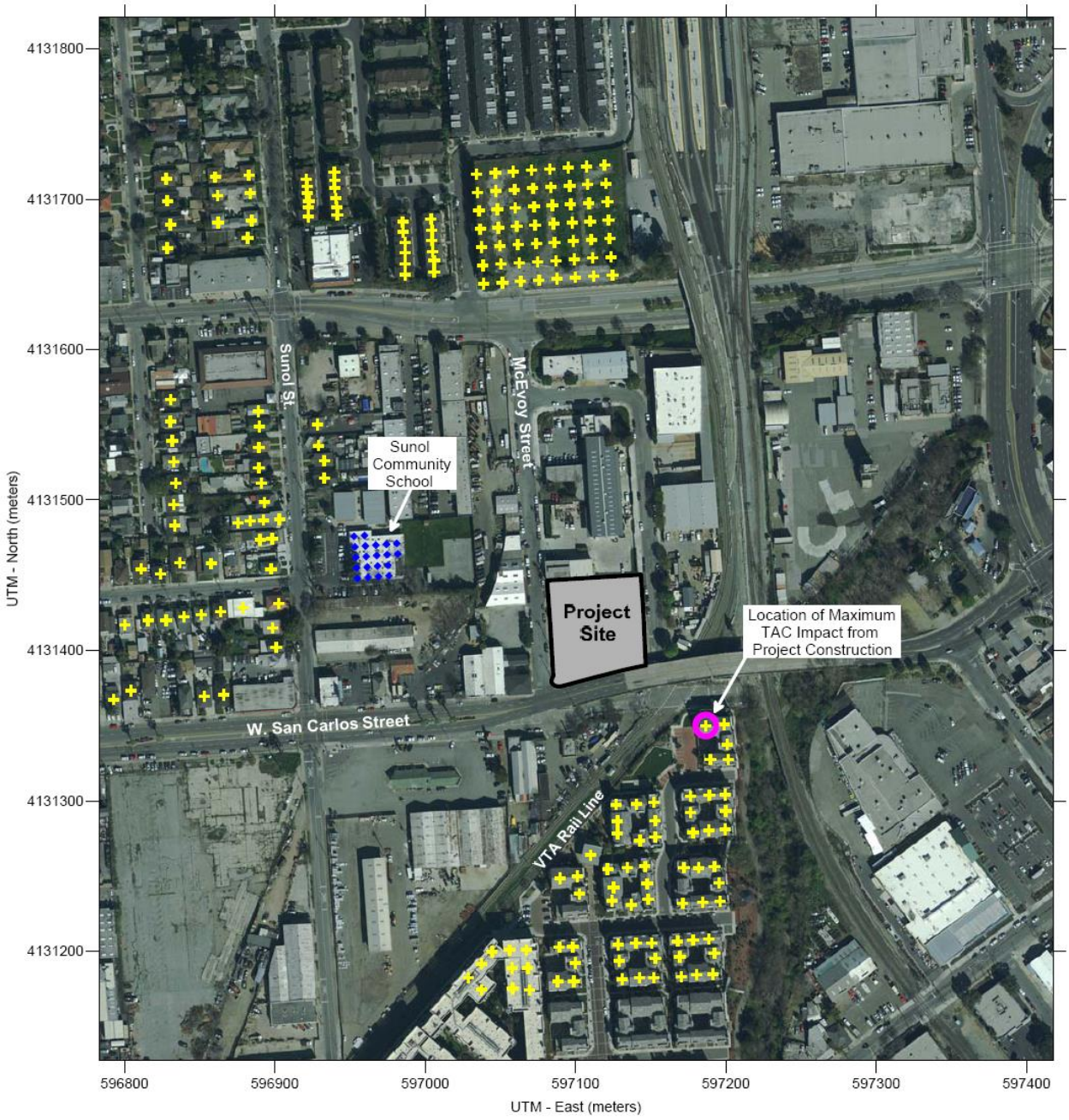
The modeling used a 5-year meteorological data set (2006-2010) from the San José Airport prepared for use with the AERMOD model by the BAAQMD. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2020-2022 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptor locations. Receptor heights of 1.5 meters (4.9 feet) and 4.5 meters (14.7 feet) were used to represent the breathing heights of residents in nearby apartments and for residences on the first and second-floor levels.

The maximum-modeled annual $PM_{2.5}$ concentrations which includes both the DPM and fugitive $PM_{2.5}$ concentrations, occurred at the first-floor level of a residential building to the southeast of the site, as shown in Figure 3 for the maximally exposed individual (MEI). Using the maximum

[22] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

annual modeled DPM concentrations, the maximum increased cancer risks were calculated. The maximum cancer risks occurred at the first-floor level of the residential MEI. *Attachment 4* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

Figure 3. Project Construction Site and Locations of Off-Site Sensitive Receptors and Maximum TAC Impacts



Cancer Risks

Results of this assessment indicate that the maximum excess residential cancer risks would be 34.0 in one million for an infant exposure and 0.6 in one million for an adult exposure, occurring at the first-floor level of the residential MEI. The maximum residential excess cancer risk would exceed the BAAQMD significance threshold of 10.0 in one million. The maximum increased child (school student) cancer risk at the Edge School would be 1.2 in one million, which would not exceed the BAAQMD significance threshold.

Predicted Annual $PM_{2.5}$ Concentration

The maximum-modeled annual $PM_{2.5}$ concentration, which is based on combined exhaust and fugitive dust emissions, was 0.28 $\mu g/m^3$, occurring at the first-floor level of the residential MEI. The maximum annual $PM_{2.5}$ concentration at the MEI receptor location would not exceed the BAAQMD significance threshold of 0.3 $\mu g/m^3$.

Non-Cancer Hazards

The maximum modeled annual residential DPM concentration (i.e., from construction exhaust) was 0.1199 $\mu g/m^3$. The maximum computed HI based on this DPM concentration is 0.02, which would not exceed the BAAQMD significance criterion of a HI greater than 1.0.

Summary of Construction Health Risks

As shown in Table 6, construction of the project would result in temporary emissions of TACs and PM2.5 that would exceed the single-source cancer risk threshold, assuming infant exposure. This would be considered a *significant* impact.

Cumulative Impact on Construction MEI

The cumulative impacts of TAC emissions from construction of the project, the stationary sources, rail emission, and traffic on S.R. 82, W. Santa Clara Street, and Park Avenue on the construction MEI have been summarized in Table 6. As shown in Table 6, the sum of impacts from combined sources at the construction MEI would not exceed the cumulative thresholds.

Table 6. Impacts from Combined Sources at Construction MEI

Source		Maximum Cancer Risk (per million)	$PM_{2.5}$ concentration ($\mu g/m^3$)	Hazard Index
Project Construction	Unmitigated	**34.0 (infant)**	0.28	0.02
	Mitigated	5.5 (infant)	0.08	<0.01
BAAQMD Threshold - Single Source		*10.0*	*0.3*	*1.0*
Exceed threshold?		**Yes (Unmitigated) No (Mitigated)**	**No**	**No**
S.R. 82 (S. Montgomery St) at 750 feet west Link 1232 (20ft elevation)		0.2	<0.01	<0.01
Railroad line at 120 feet		8.9	0.02	<0.01
W. San Carlos St (east-west) at 90 feet, 14,800 ADT		3.7	0.14	<0.01
Park Ave (east-west) at 850 feet, 13,015 ADT		0.6	0.02	<0.01
Plant #G7956 (107956) (Gas Station) at 840 feet		0.2	NA	<0.01
Plant #G4113 (104113) (Gas Station) at 600 feet		0.7	NA	<0.01
Plant #21808 (Generator) at 770 feet		0.2	<0.01	<0.01
Combined Sources	*Unmitigated*	48.5	<0.48	<0.09
	Mitigated	20.0	<0.28	<0.08
BAAQMD Threshold – Combined Sources		*100*	*0.8*	*10.0*
Exceed threshold?		**No**	**No**	**No**

Mitigation Measure: See Mitigation Measure 1 described above.

Effectiveness of Mitigation Measure AQ-1

Implementation of Mitigation Measure AQ-1 is considered to reduce fugitive dust emissions by over 58 percent and reduce on-site diesel exhaust emissions by 84 percent. This would reduce the infant cancer risk such that the mitigated risk would be less than 5.5 in one million and the maximum annual $PM_{2.5}$ concentration would be reduced to less than 0.08 $\mu g/m^3$, which are less than the BAAQMD significance thresholds. After implementation of these mitigation measures, the project would have a *less-than-significant* impact with respect to community risk caused by construction activities.

Greenhouse Gases

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

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.

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.

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.

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 (note that new
- 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.

Significance Thresholds

The BAAQMD's CEQA Air Quality Guidelines recommended a GHG threshold of 1,100 metric tons or 4.6 metric tons (MT) per capita. These thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of the project would occur beyond 2020, so a threshold that addresses a future target is appropriate. Although BAAQMD has not published a quantified threshold for 2030 yet, this assessment uses a "Substantial Progress" efficiency metric of 2.6 MT CO_2e/year/service population and a bright-line threshold of 660 MT CO_{2e}/year based on the GHG reduction goals of EO B-30-15. The service population metric of 2.6 is calculated for 2030 based on the 1990 inventory and the projected 2030 statewide population and employment levels[23]. The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_{2e}/year threshold.

Impact 4: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.

CalEEMod Modeling

CalEEMod was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model, as described above. CalEEMod output is included in *Attachment 2*.

[23] Association of Environmental Professionals, 2016. *Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California*. April.

Service Population Emissions

The project service population efficiency rate is based on the number of future residents. Based on the project's proposed 381 residential units and using the latest population data from the California Department of Finance which reports the average persons per household in San José is 3.20 persons,[24] the number of future residents is estimated to be 1,220.

Construction Emissions

GHG emissions associated with construction were computed to be 1,392 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. Best management practices assumed to be incorporated into construction of the proposed project include but are not limited to: using local building materials of at least 10 percent and recycling or reusing at least 50 percent of construction waste or demolition materials.

Operational Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with operation of the fully-developed site under the proposed project. As shown in Table 7, annual emissions resulting from operation of the proposed project in 2023 are predicted to be 1,524 MT of CO_2e. The annual emissions from operation of the existing buildings in 2023 are computed as 75 MT of CO_2e. The net emissions resulting from the project would be 1,449 MT of CO_2e. The net emission increase would exceed the BAAQMD threshold for 2020 and the bright-line threshold for 2030 and, therefore, the service population threshold was used to determine the significance of this project. As shown in Table 7, service population emissions would not exceed the BAAQMD threshold for 2020 and the "Substantial Progress" efficiency metric threshold for 2030 and, therefore, this would be considered a *less-than-significant* impact.

[24] State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2011-2018*. Sacramento, California, May 2018.

Table 7. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	Existing in 2023	Proposed Project in 2023	Proposed Project in 2030
Area	<1	20	20
Energy Consumption	27	398	398
Mobile	38	978	811
Solid Waste Generation	6	88	88
Water Usage	3	40	40
Total	75	1,524	1,357
Net New Emissions		*1,449*	*1,282*
Bright-Line Significance Threshold		**1,100**	**660**
Service Population Emissions		*1.2*	*1.1*
Significance Threshold / Significant?		**4.6**	**2.6**
Significant?		***No***	***No***

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 and operational criteria air pollutant and GHG emissions. The operational output for existing uses is also included in this attachment. Also included are any modeling assumptions.

Attachment 3 includes the screening community risk calculations from sources affecting the project and MEI.

Attachment 4 are the emissions and calculations for the health risk evaluations of project construction and for operational impacts from the nearby rail line. AERMOD dispersion modeling files for this assessment, 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.[25] 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.[26] This HRA used the recent 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.[27] 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 of exposure, and the exposure duration. 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, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways).

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[25] 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.

[26] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

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

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)*		361	1,090	631	572	261
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

* 95th percentile breathing rates for 3rd trimester and infants and 80th percentile for children and adults

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 Output

18-052 699 W. San Carlos, San Jose - Santa Clara County, Annual

18-052 699 W. San Carlos, 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	104.00	Space	0.00	15,950.00	0
Apartments High Rise	381.00	Dwelling Unit	1.20	287,583.00	1090

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 Rate

Land Use - Applicant provided PD

Construction Phase - Applicant provided construction schedule

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Trips and VMT - 40,000sf asphalt demo = 89 one way trips + 45 = 134, 8001cy concrete import = 1,600 one way trips, 1.2m lbs rebar = 60 one way trips

Demolition - Applicant provided existing building demo 10,000sf

Grading - Applicant provided export 8,600cy

Vehicle Trips - Trip Rate = 3.09, 3.66, 2.69

Woodstoves - No Wood Fireplaces, Wood to Gas

Water And Wastewater - WTP Treatment 100% Aerboic

Construction Off-road Equipment Mitigation - BMPs, Tier 2 DPF 3 Mitigation

Energy Mitigation - LEED Platinum Efficiency

Water Mitigation - Water Efficient Systems

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	4.00	32.00
tblConstructionPhase	NumDays	200.00	262.00
tblConstructionPhase	NumDays	10.00	196.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	57.15	121.92

tblFireplaces	NumberWood	64.77	0.00
tblGrading	MaterialExported	0.00	8,600.00
tblLandUse	LandUseSquareFeet	41,600.00	15,950.00
tblLandUse	LandUseSquareFeet	381,000.00	287,583.00
tblLandUse	LotAcreage	0.94	0.00
tblLandUse	LotAcreage	6.15	1.20
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	45.00	134.00
tblTripsAndVMT	VendorTripNumber	0.00	1,600.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblVehicleTrips	ST_TR	4.98	3.66
tblVehicleTrips	SU_TR	3.65	2.69
tblVehicleTrips	WD_TR	4.20	3.09
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					
2020	0.1849	3.9326	1.3507	9.0100e-003	0.3241	0.0460	0.3701	0.1172	0.0432	0.1604	0.0000	856.8075	856.8075	0.0531	0.0000	858.1344
2021	1.8184	1.6428	1.6754	5.6300e-003	0.3343	0.0441	0.3785	0.0897	0.0411	0.1308	0.0000	512.4439	512.4439	0.0495	0.0000	513.6822
2022	0.4451	0.0816	0.0885	2.2000e-004	9.3300e-003	3.2300e-003	0.0126	2.4800e-003	3.0200e-003	5.5000e-003	0.0000	19.5697	19.5697	3.4400e-003	0.0000	19.6557
Maximum	**1.8184**	**3.9326**	**1.6754**	**9.0100e-003**	**0.3343**	**0.0460**	**0.3785**	**0.1172**	**0.0432**	**0.1604**	**0.0000**	**856.8075**	**856.8075**	**0.0531**	**0.0000**	**858.1344**

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					
2020	0.1503	3.9324	1.4013	9.0100e-003	0.2681	0.0190	0.2871	0.0756	0.0183	0.0939	0.0000	856.8074	856.8074	0.0531	0.0000	858.1343
2021	1.7738	1.9047	1.8941	5.6300e-003	0.3343	8.6300e-003	0.3430	0.0897	8.4200e-003	0.0981	0.0000	512.4438	512.4438	0.0495	0.0000	513.6820
2022	0.4425	0.1229	0.1089	2.2000e-004	9.3300e-003	6.0000e-004	9.9300e-003	2.4800e-003	6.0000e-004	3.0800e-003	0.0000	19.5697	19.5697	3.4400e-003	0.0000	19.6557

Maximum	**1.7738**	**3.9324**	**1.8941**	**9.0100e-003**	**0.3343**	**0.0190**	**0.3430**	**0.0897**	**0.0183**	**0.0981**	**0.0000**	**856.8074**	**856.8074**	**0.0531**	**0.0000**	**858.1343**

	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	**3.35**	**-5.36**	**-9.30**	**0.00**	**8.38**	**69.74**	**15.91**	**19.90**	**68.71**	**34.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2020**	**9-30-2020**	3.7451	3.7058
2	**10-1-2020**	**12-31-2020**	0.3402	0.3444
3	**1-1-2021**	**3-31-2021**	0.4047	0.4362
4	**4-1-2021**	**6-30-2021**	0.6766	0.7224
5	**7-1-2021**	**9-30-2021**	1.2487	1.3237
6	**10-1-2021**	**12-31-2021**	1.1223	1.1868
7	**1-1-2022**	**3-31-2022**	0.5380	0.5775
		Highest	3.7451	3.7058

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	1.4138	0.0458	2.8362	2.3000e-004		0.0167	0.0167		0.0167	0.0167	0.0000	19.8433	19.8433	4.7400e-003	2.8000e-004	20.0450
Energy	0.0178	0.1517	0.0645	9.7000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	394.8510	394.8510	0.0253	7.7600e-003	397.7943
Mobile	0.2526	0.9510	2.9683	0.0107	1.0190	8.2900e-003	1.0273	0.2728	7.7200e-003	0.2805	0.0000	977.0071	977.0071	0.0312	0.0000	977.7858
Waste						0.0000	0.0000		0.0000	0.0000	35.5762	0.0000	35.5762	2.1025	0.0000	88.1385
Water						0.0000	0.0000		0.0000	0.0000	8.7827	24.8739	33.6566	0.0327	0.0196	40.3194
Total	**1.6842**	**1.1484**	**5.8690**	**0.0119**	**1.0190**	**0.0373**	**1.0563**	**0.2728**	**0.0367**	**0.3095**	**44.3589**	**1,416.5753**	**1,460.9342**	**2.1964**	**0.0277**	**1,524.0830**

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	1.4138	0.0458	2.8362	2.3000e-004		0.0167	0.0167		0.0167	0.0167	0.0000	19.8433	19.8433	4.7400e-003	2.8000e-004	20.0450
Energy	0.0155	0.1324	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	354.0821	354.0821	0.0230	6.9600e-003	356.7329
Mobile	0.2526	0.9510	2.9683	0.0107	1.0190	8.2900e-003	1.0273	0.2728	7.7200e-003	0.2805	0.0000	977.0071	977.0071	0.0312	0.0000	977.7858
Waste						0.0000	0.0000		0.0000	0.0000	35.5762	0.0000	35.5762	2.1025	0.0000	88.1385
Water						0.0000	0.0000		0.0000	0.0000	7.0261	20.9006	27.9267	0.0263	0.0157	33.2657
Total	**1.6819**	**1.1292**	**5.8608**	**0.0117**	**1.0190**	**0.0357**	**1.0548**	**0.2728**	**0.0352**	**0.3079**	**42.6023**	**1,371.8332**	**1,414.4355**	**2.1877**	**0.0230**	**1,475.9679**

	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	**0.13**	**1.68**	**0.14**	**1.01**	**0.00**	**4.16**	**0.15**	**0.00**	**4.22**	**0.50**	**3.96**	**3.16**	**3.18**	**0.40**	**17.00**	**3.16**

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 & Site Prep	Demolition	7/1/2020	8/1/2020	5	23	
2	Earthwork	Grading	8/2/2020	9/15/2020	5	32	
3	Foundation	Trenching	9/16/2020	12/1/2020	5	55	
4	Erection & Modules	Building Construction	12/1/2020	12/1/2021	5	262	
5	Finishing	Architectural Coating	6/1/2021	3/1/2022	5	196	Overlap

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 582,356; Residential Outdoor: 194,119; 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 & Site Prep	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition & Site Prep	Excavators	1	8.00	158	0.38
Demolition & Site Prep	Rubber Tired Dozers	1	8.00	247	0.40
Demolition & Site Prep	Skid Steer Loaders	1	8.00	65	0.37
Demolition & Site Prep	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Earthwork	Excavators	1	8.00	158	0.38
Earthwork	Graders	0	8.00	187	0.41
Earthwork	Rubber Tired Dozers	1	8.00	247	0.40
Earthwork	Skid Steer Loaders	1	8.00	65	0.37
Earthwork	Sweepers/Scrubbers	1	8.00	64	0.46
Earthwork	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Foundation	Cement and Mortar Mixers	1	1.00	9	0.56
Foundation	Cranes	1	1.00	231	0.29
Foundation	Graders	0	6.00	187	0.41
Foundation	Pumps	1	1.00	84	0.74
Foundation	Rubber Tired Dozers	0	6.00	247	0.40
Foundation	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Erection & Modules	Aerial Lifts	1	8.00	63	0.31
Erection & Modules	Air Compressors	1	1.00	78	0.48
Erection & Modules	Cranes	1	8.00	231	0.29
Erection & Modules	Forklifts	0	6.00	89	0.20
Erection & Modules	Generator Sets	0	8.00	84	0.74
Erection & Modules	Tractors/Loaders/Backhoes	0	6.00	97	0.37

Erection & Modules	Welders	1	1.00	46	0.45
Finishing	Aerial Lifts	1	8.00	63	0.31
Finishing	Air Compressors	1	1.00	78	0.48
Finishing	Cranes	1	5.00	231	0.29
Finishing	Generator Sets	1	1.00	84	0.74

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 & Site Prep	4	10.00	0.00	134.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Earthwork	4	10.00	1,600.00	1,075.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundation	3	8.00	60.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Erection & Modules	4	281.00	43.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Finishing	4	56.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition & Site Prep - 2020

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					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0210	0.2082	0.1435	2.5000e-004		0.0105	0.0105		9.8700e-003	9.8700e-003	0.0000	22.1202	22.1202	5.5500e-003	0.0000	22.2589
Total	**0.0210**	**0.2082**	**0.1435**	**2.5000e-004**	**4.9200e-003**	**0.0105**	**0.0155**	**7.5000e-004**	**9.8700e-003**	**0.0106**	**0.0000**	**22.1202**	**22.1202**	**5.5500e-003**	**0.0000**	**22.2589**

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	5.6000e-004	0.0194	3.9800e-003	5.0000e-005	1.1400e-003	6.0000e-005	1.2000e-003	3.1000e-004	6.0000e-005	3.7000e-004	0.0000	5.1101	5.1101	2.3000e-004	0.0000	5.1160
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	3.8000e-004	2.7000e-004	2.8800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.7822	0.7822	2.0000e-005	0.0000	0.7827
Total	**9.4000e-004**	**0.0197**	**6.8600e-003**	**6.0000e-005**	**2.0500e-003**	**7.0000e-005**	**2.1200e-003**	**5.5000e-004**	**7.0000e-005**	**6.2000e-004**	**0.0000**	**5.8923**	**5.8923**	**2.5000e-004**	**0.0000**	**5.8986**

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					2.2100e-003	0.0000	2.2100e-003	1.7000e-004	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-003	0.2141	0.1596	2.5000e-004		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	22.1202	22.1202	5.5500e-003	0.0000	22.2589
Total	**8.6000e-003**	**0.2141**	**0.1596**	**2.5000e-004**	**2.2100e-003**	**9.8000e-004**	**3.1900e-003**	**1.7000e-004**	**9.8000e-004**	**1.1500e-003**	**0.0000**	**22.1202**	**22.1202**	**5.5500e-003**	**0.0000**	**22.2589**

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	5.6000e-004	0.0194	3.9800e-003	5.0000e-005	1.1400e-003	6.0000e-005	1.2000e-003	3.1000e-004	6.0000e-005	3.7000e-004	0.0000	5.1101	5.1101	2.3000e-004	0.0000	5.1160
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	3.8000e-004	2.7000e-004	2.8800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.7822	0.7822	2.0000e-005	0.0000	0.7827
Total	**9.4000e-004**	**0.0197**	**6.8600e-003**	**6.0000e-005**	**2.0500e-003**	**7.0000e-005**	**2.1200e-003**	**5.5000e-004**	**7.0000e-005**	**6.2000e-004**	**0.0000**	**5.8923**	**5.8923**	**2.5000e-004**	**0.0000**	**5.8986**

3.3 Earthwork - 2020

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					0.0968	0.0000	0.0968	0.0530	0.0000	0.0530	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0268	0.2742	0.1724	2.9000e-004		0.0145	0.0145		0.0133	0.0133	0.0000	25.7467	25.7467	8.3300e-003	0.0000	25.9549
Total	**0.0268**	**0.2742**	**0.1724**	**2.9000e-004**	**0.0968**	**0.0145**	**0.1113**	**0.0530**	**0.0133**	**0.0664**	**0.0000**	**25.7467**	**25.7467**	**8.3300e-003**	**0.0000**	**25.9549**

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	4.4700e-003	0.1560	0.0319	4.2000e-004	9.1100e-003	5.1000e-004	9.6200e-003	2.5100e-003	4.8000e-004	2.9900e-003	0.0000	40.9956	40.9956	1.8800e-003	0.0000	41.0424
Vendor	0.1015	2.9149	0.7763	6.9800e-003	0.1684	0.0144	0.1828	0.0487	0.0138	0.0625	0.0000	669.2935	669.2935	0.0307	0.0000	670.0609
Worker	5.3000e-004	3.8000e-004	4.0000e-003	1.0000e-005	1.2700e-003	1.0000e-005	1.2800e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0882	1.0882	3.0000e-005	0.0000	1.0889
Total	**0.1065**	**3.0713**	**0.8123**	**7.4100e-003**	**0.1788**	**0.0150**	**0.1937**	**0.0515**	**0.0143**	**0.0658**	**0.0000**	**711.3773**	**711.3773**	**0.0326**	**0.0000**	**712.1922**

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					0.0436	0.0000	0.0436	0.0119	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0100	0.2581	0.1910	2.9000e-004		1.1300e-003	1.1300e-003		1.1300e-003	1.1300e-003	0.0000	25.7467	25.7467	8.3300e-003	0.0000	25.9549
Total	**0.0100**	**0.2581**	**0.1910**	**2.9000e-004**	**0.0436**	**1.1300e-003**	**0.0447**	**0.0119**	**1.1300e-003**	**0.0131**	**0.0000**	**25.7467**	**25.7467**	**8.3300e-003**	**0.0000**	**25.9549**

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	4.4700e-003	0.1560	0.0319	4.2000e-004	9.1100e-003	5.1000e-004	9.6200e-003	2.5100e-003	4.8000e-004	2.9900e-003	0.0000	40.9956	40.9956	1.8800e-003	0.0000	41.0424

Vendor	0.1015	2.9149	0.7763	6.9800e-003	0.1684	0.0144	0.1828	0.0487	0.0138	0.0625	0.0000	669.2935	669.2935	0.0307	0.0000	670.0609
Worker	5.3000e-004	3.8000e-004	4.0000e-003	1.0000e-005	1.2700e-003	1.0000e-005	1.2800e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0882	1.0882	3.0000e-005	0.0000	1.0889
Total	**0.1065**	**3.0713**	**0.8123**	**7.4100e-003**	**0.1788**	**0.0150**	**0.1937**	**0.0515**	**0.0143**	**0.0658**	**0.0000**	**711.3773**	**711.3773**	**0.0326**	**0.0000**	**712.1922**

3.4 Foundation - 2020

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	3.2200e-003	0.0319	0.0213	4.0000e-005		1.5300e-003	1.5300e-003		1.4600e-003	1.4600e-003	0.0000	3.8430	3.8430	7.0000e-004	0.0000	3.8604
Total	**3.2200e-003**	**0.0319**	**0.0213**	**4.0000e-005**		**1.5300e-003**	**1.5300e-003**		**1.4600e-003**	**1.4600e-003**	**0.0000**	**3.8430**	**3.8430**	**7.0000e-004**	**0.0000**	**3.8604**

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	6.5400e-003	0.1879	0.0500	4.5000e-004	0.0109	9.3000e-004	0.0118	3.1400e-003	8.9000e-004	4.0300e-003	0.0000	43.1381	43.1381	1.9800e-003	0.0000	43.1875
Worker	7.3000e-004	5.3000e-004	5.5100e-003	2.0000e-005	1.7400e-003	1.0000e-005	1.7600e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.4963	1.4963	4.0000e-005	0.0000	1.4973
Total	**7.2700e-003**	**0.1884**	**0.0556**	**4.7000e-004**	**0.0126**	**9.4000e-004**	**0.0135**	**3.6000e-003**	**9.0000e-004**	**4.5000e-003**	**0.0000**	**44.6344**	**44.6344**	**2.0200e-003**	**0.0000**	**44.6848**

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	1.3500e-003	0.0348	0.0245	4.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	3.8430	3.8430	7.0000e-004	0.0000	3.8604
Total	**1.3500e-003**	**0.0348**	**0.0245**	**4.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**	**0.0000**	**3.8430**	**3.8430**	**7.0000e-004**	**0.0000**	**3.8604**

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	6.5400e-003	0.1879	0.0500	4.5000e-004	0.0109	9.3000e-004	0.0118	3.1400e-003	8.9000e-004	4.0300e-003	0.0000	43.1381	43.1381	1.9800e-003	0.0000	43.1875
Worker	7.3000e-004	5.3000e-004	5.5100e-003	2.0000e-005	1.7400e-003	1.0000e-005	1.7600e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.4963	1.4963	4.0000e-005	0.0000	1.4973
Total	**7.2700e-003**	**0.1884**	**0.0556**	**4.7000e-004**	**0.0126**	**9.4000e-004**	**0.0135**	**3.6000e-003**	**9.0000e-004**	**4.5000e-003**	**0.0000**	**44.6344**	**44.6344**	**2.0200e-003**	**0.0000**	**44.6848**

3.5 Erection & Modules - 2020

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	6.6300e-003	0.0749	0.0430	1.0000e-004		3.0600e-003	3.0600e-003		2.8400e-003	2.8400e-003	0.0000	8.2861	8.2861	2.5100e-003	0.0000	8.3489
Total	**6.6300e-003**	**0.0749**	**0.0430**	**1.0000e-004**		**3.0600e-003**	**3.0600e-003**		**2.8400e-003**	**2.8400e-003**	**0.0000**	**8.2861**	**8.2861**	**2.5100e-003**	**0.0000**	**8.3489**

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	1.9600e-003	0.0563	0.0150	1.3000e-004	3.2500e-003	2.8000e-004	3.5300e-003	9.4000e-004	2.7000e-004	1.2100e-003	0.0000	12.9284	12.9284	5.9000e-004	0.0000	12.9432
Worker	0.0107	7.7100e-003	0.0809	2.4000e-004	0.0256	1.7000e-004	0.0258	6.8200e-003	1.5000e-004	6.9700e-003	0.0000	21.9790	21.9790	5.4000e-004	0.0000	21.9925
Total	**0.0127**	**0.0640**	**0.0959**	**3.7000e-004**	**0.0289**	**4.5000e-004**	**0.0293**	**7.7600e-003**	**4.2000e-004**	**8.1800e-003**	**0.0000**	**34.9074**	**34.9074**	**1.1300e-003**	**0.0000**	**34.9357**

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	2.9100e-003	0.0821	0.0557	1.0000e-004		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	8.2861	8.2861	2.5100e-003	0.0000	8.3489

Total	**2.9100e-003**	**0.0821**	**0.0557**	**1.0000e-004**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**8.2861**	**8.2861**	**2.5100e-003**	**0.0000**	**8.3489**

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	1.9600e-003	0.0563	0.0150	1.3000e-004	3.2500e-003	2.8000e-004	3.5300e-003	9.4000e-004	2.7000e-004	1.2100e-003	0.0000	12.9284	12.9284	5.9000e-004	0.0000	12.9432
Worker	0.0107	7.7100e-003	0.0809	2.4000e-004	0.0256	1.7000e-004	0.0258	6.8200e-003	1.5000e-004	6.9700e-003	0.0000	21.9790	21.9790	5.4000e-004	0.0000	21.9925
Total	**0.0127**	**0.0640**	**0.0959**	**3.7000e-004**	**0.0289**	**4.5000e-004**	**0.0293**	**7.7600e-003**	**4.2000e-004**	**8.1800e-003**	**0.0000**	**34.9074**	**34.9074**	**1.1300e-003**	**0.0000**	**34.9357**

3.5 Erection & Modules - 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	0.0627	0.7042	0.4296	9.9000e-004		0.0279	0.0279		0.0259	0.0259	0.0000	86.0982	86.0982	0.0260	0.0000	86.7484
Total	**0.0627**	**0.7042**	**0.4296**	**9.9000e-004**		**0.0279**	**0.0279**		**0.0259**	**0.0259**	**0.0000**	**86.0982**	**86.0982**	**0.0260**	**0.0000**	**86.7484**

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	0.0168	0.5280	0.1406	1.3900e-003	0.0338	1.1700e-003	0.0350	9.7700e-003	1.1200e-003	0.0109	0.0000	133.1023	133.1023	5.8000e-003	0.0000	133.2473
Worker	0.1035	0.0716	0.7682	2.4400e-003	0.2663	1.6800e-003	0.2680	0.0708	1.5400e-003	0.0724	0.0000	220.4635	220.4635	5.0100e-003	0.0000	220.5888
Total	**0.1202**	**0.5997**	**0.9087**	**3.8300e-003**	**0.3001**	**2.8500e-003**	**0.3030**	**0.0806**	**2.6600e-003**	**0.0833**	**0.0000**	**353.5657**	**353.5657**	**0.0108**	**0.0000**	**353.8361**

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	0.0303	0.8536	0.5783	9.9000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003	0.0000	86.0981	86.0981	0.0260	0.0000	86.7483
Total	**0.0303**	**0.8536**	**0.5783**	**9.9000e-004**		**3.5600e-003**	**3.5600e-003**		**3.5600e-003**	**3.5600e-003**	**0.0000**	**86.0981**	**86.0981**	**0.0260**	**0.0000**	**86.7483**

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	0.0168	0.5280	0.1406	1.3900e-003	0.0338	1.1700e-003	0.0350	9.7700e-003	1.1200e-003	0.0109	0.0000	133.1023	133.1023	5.8000e-003	0.0000	133.2473
Worker	0.1035	0.0716	0.7682	2.4400e-003	0.2663	1.6800e-003	0.2680	0.0708	1.5400e-003	0.0724	0.0000	220.4635	220.4635	5.0100e-003	0.0000	220.5888
Total	**0.1202**	**0.5997**	**0.9087**	**3.8300e-003**	**0.3001**	**2.8500e-003**	**0.3030**	**0.0806**	**2.6600e-003**	**0.0833**	**0.0000**	**353.5657**	**353.5657**	**0.0108**	**0.0000**	**353.8361**

3.6 Finishing - 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					
Archit. Coating	1.5932					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0290	0.3297	0.2385	5.1000e-004		0.0132	0.0132		0.0124	0.0124	0.0000	44.4699	44.4699	0.0121	0.0000	44.7715
Total	**1.6222**	**0.3297**	**0.2385**	**5.1000e-004**		**0.0132**	**0.0132**		**0.0124**	**0.0124**	**0.0000**	**44.4699**	**44.4699**	**0.0121**	**0.0000**	**44.7715**

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	0.0133	9.2000e-003	0.0986	3.1000e-004	0.0342	2.2000e-004	0.0344	9.1000e-003	2.0000e-004	9.2900e-003	0.0000	28.3101	28.3101	6.4000e-004	0.0000	28.3262
Total	**0.0133**	**9.2000e-003**	**0.0986**	**3.1000e-004**	**0.0342**	**2.2000e-004**	**0.0344**	**9.1000e-003**	**2.0000e-004**	**9.2900e-003**	**0.0000**	**28.3101**	**28.3101**	**6.4000e-004**	**0.0000**	**28.3262**

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	1.5932					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0168	0.4423	0.3085	5.1000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	44.4698	44.4698	0.0121	0.0000	44.7715
Total	**1.6100**	**0.4423**	**0.3085**	**5.1000e-004**		**2.0000e-003**	**2.0000e-003**		**2.0000e-003**	**2.0000e-003**	**0.0000**	**44.4698**	**44.4698**	**0.0121**	**0.0000**	**44.7715**

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	0.0133	9.2000e-003	0.0986	3.1000e-004	0.0342	2.2000e-004	0.0344	9.1000e-003	2.0000e-004	9.2900e-003	0.0000	28.3101	28.3101	6.4000e-004	0.0000	28.3262
Total	**0.0133**	**9.2000e-003**	**0.0986**	**3.1000e-004**	**0.0342**	**2.2000e-004**	**0.0344**	**9.1000e-003**	**2.0000e-004**	**9.2900e-003**	**0.0000**	**28.3101**	**28.3101**	**6.4000e-004**	**0.0000**	**28.3262**

3.6 Finishing - 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	0.4345					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2300e-003	0.0793	0.0638	1.4000e-004		3.1700e-003	3.1700e-003		2.9700e-003	2.9700e-003	0.0000	12.1292	12.1292	3.2800e-003	0.0000	12.2113
Total	**0.4418**	**0.0793**	**0.0638**	**1.4000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9700e-003**	**2.9700e-003**	**0.0000**	**12.1292**	**12.1292**	**3.2800e-003**	**0.0000**	**12.2113**

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	3.3800e-003	2.2500e-003	0.0247	8.0000e-005	9.3300e-003	6.0000e-005	9.3800e-003	2.4800e-003	5.0000e-005	2.5300e-003	0.0000	7.4405	7.4405	1.6000e-004	0.0000	7.4444
Total	**3.3800e-003**	**2.2500e-003**	**0.0247**	**8.0000e-005**	**9.3300e-003**	**6.0000e-005**	**9.3800e-003**	**2.4800e-003**	**5.0000e-005**	**2.5300e-003**	**0.0000**	**7.4405**	**7.4405**	**1.6000e-004**	**0.0000**	**7.4444**

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	0.4345					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5900e-003	0.1206	0.0841	1.4000e-004		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	12.1292	12.1292	3.2800e-003	0.0000	12.2113
Total	**0.4391**	**0.1206**	**0.0841**	**1.4000e-004**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**12.1292**	**12.1292**	**3.2800e-003**	**0.0000**	**12.2113**

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	3.3800e-003	2.2500e-003	0.0247	8.0000e-005	9.3300e-003	6.0000e-005	9.3800e-003	2.4800e-003	5.0000e-005	2.5300e-003	0.0000	7.4405	7.4405	1.6000e-004	0.0000	7.4444
Total	**3.3800e-003**	**2.2500e-003**	**0.0247**	**8.0000e-005**	**9.3300e-003**	**6.0000e-005**	**9.3800e-003**	**2.4800e-003**	**5.0000e-005**	**2.5300e-003**	**0.0000**	**7.4405**	**7.4405**	**1.6000e-004**	**0.0000**	**7.4444**

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	0.2526	0.9510	2.9683	0.0107	1.0190	8.2900e-003	1.0273	0.2728	7.7200e-003	0.2805	0.0000	977.0071	977.0071	0.0312	0.0000	977.7858
Unmitigated	0.2526	0.9510	2.9683	0.0107	1.0190	8.2900e-003	1.0273	0.2728	7.7200e-003	0.2805	0.0000	977.0071	977.0071	0.0312	0.0000	977.7858

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	1,177.29	1,394.46	1024.89	2,740,448	2,740,448
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	1,177.29	1,394.46	1,024.89	2,740,448	2,740,448

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 High 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 High 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

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	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	200.7297	200.7297	0.0201	4.1500e-003	202.4692
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	219.1971	219.1971	0.0219	4.5400e-003	221.0965
NaturalGas Mitigated	0.0155	0.1324	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.3524	153.3524	2.9400e-003	2.8100e-003	154.2637
NaturalGas Unmitigated	0.0178	0.1517	0.0645	9.7000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	175.6539	175.6539	3.3700e-003	3.2200e-003	176.6978

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 High Rise	3.29163e+006	0.0178	0.1517	0.0645	9.7000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	175.6539	175.6539	3.3700e-003	3.2200e-003	176.6978
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		**0.0178**	**0.1517**	**0.0645**	**9.7000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**175.6539**	**175.6539**	**3.3700e-003**	**3.2200e-003**	**176.6978**

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 High Rise	2.87372e+006	0.0155	0.1324	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.3524	153.3524	2.9400e-003	2.8100e-003	154.2637
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		**0.0155**	**0.1324**	**0.0564**	**8.5000e-004**		**0.0107**	**0.0107**		**0.0107**	**0.0107**	**0.0000**	**153.3524**	**153.3524**	**2.9400e-003**	**2.8100e-003**	**154.2637**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	1.5729e+006	206.9023	0.0207	4.2800e-003	208.6952
Enclosed Parking with Elevator	93467	12.2948	1.2300e-003	2.5000e-004	12.4014
Total		**219.1971**	**0.0219**	**4.5300e-003**	**221.0965**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	1.4506e+006	190.8142	0.0191	3.9500e-003	192.4677
Enclosed Parking with Elevator	75379.7	9.9156	9.9000e-004	2.1000e-004	10.0015
Total		**200.7297**	**0.0201**	**4.1600e-003**	**202.4692**

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					
Mitigated	1.4138	0.0458	2.8362	2.3000e-004		0.0167	0.0167		0.0167	0.0167	0.0000	19.8433	19.8433	4.7400e-003	2.8000e-004	20.0450
Unmitigated	1.4138	0.0458	2.8362	2.3000e-004		0.0167	0.0167		0.0167	0.0167	0.0000	19.8433	19.8433	4.7400e-003	2.8000e-004	20.0450

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	0.2028					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1242					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5400e-003	0.0131	5.5900e-003	8.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003	0.0000	15.2204	15.2204	2.9000e-004	2.8000e-004	15.3109
Landscaping	0.0853	0.0326	2.8306	1.5000e-004		0.0157	0.0157		0.0157	0.0157	0.0000	4.6229	4.6229	4.4500e-003	0.0000	4.7341
Total	**1.4138**	**0.0458**	**2.8361**	**2.3000e-004**		**0.0167**	**0.0167**		**0.0167**	**0.0167**	**0.0000**	**19.8433**	**19.8433**	**4.7400e-003**	**2.8000e-004**	**20.0450**

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	0.2028					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1242					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5400e-003	0.0131	5.5900e-003	8.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003	0.0000	15.2204	15.2204	2.9000e-004	2.8000e-004	15.3109
Landscaping	0.0853	0.0326	2.8306	1.5000e-004		0.0157	0.0157		0.0157	0.0157	0.0000	4.6229	4.6229	4.4500e-003	0.0000	4.7341
Total	**1.4138**	**0.0458**	**2.8361**	**2.3000e-004**		**0.0167**	**0.0167**		**0.0167**	**0.0167**	**0.0000**	**19.8433**	**19.8433**	**4.7400e-003**	**2.8000e-004**	**20.0450**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Mitigated	27.9267	0.0263	0.0157	33.2657
Unmitigated	33.6566	0.0327	0.0196	40.3194

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	24.8237 / 15.6497	33.6566	0.0327	0.0196	40.3194
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**33.6566**	**0.0327**	**0.0196**	**40.3194**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	19.8589 / 14.6951	27.9267	0.0263	0.0157	33.2657
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**27.9267**	**0.0263**	**0.0157**	**33.2657**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	35.5762	2.1025	0.0000	88.1385
Unmitigated	35.5762	2.1025	0.0000	88.1385

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	175.26	35.5762	2.1025	0.0000	88.1385
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**35.5762**	**2.1025**	**0.0000**	**88.1385**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	175.26	35.5762	2.1025	0.0000	88.1385
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**35.5762**	**2.1025**	**0.0000**	**88.1385**

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

699 W. San Carlos Existing

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	10.00	1000sqft	0.23	10,000.00	0
Parking Lot	0.80	Acre	0.80	34,848.00	0

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 existing rate, 2020 rate

Land Use - Site Area from Traffic = 10,000 sqft, parking lot acre = Total Acres - building acres

Construction Phase - Exisiting Land Use

Off-road Equipment - Existing no equipment

Trips and VMT - Existing land use, no trips

Grading - No grading

Vehicle Trips - Existing trip rate, 4.96, 0.94 for sat, 0.48 for sun

Energy Use -

Water And Wastewater - 100% aerobic

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	ST_TR	1.32	0.94
tblVehicleTrips	SU_TR	0.68	0.48
tblVehicleTrips	WD_TR	6.97	4.96
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

2.0 Emissions Summary

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	0.0473	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9000e-004	1.9000e-004	0.0000	0.0000	2.1000e-004
Energy	1.4200e-003	0.0129	0.0109	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	26.5471	26.5471	1.5200e-003	5.2000e-004	26.7388
Mobile	8.6800e-003	0.0340	0.1120	4.2000e-004	0.0407	3.2000e-004	0.0410	0.0109	3.0000e-004	0.0112	0.0000	38.4102	38.4102	1.1800e-003	0.0000	38.4396

Waste						0.0000	0.0000		0.0000	0.0000	2.5171	0.0000	2.5171	0.1488	0.0000	6.2360
Water						0.0000	0.0000		0.0000	0.0000	0.8182	1.6460	2.4641	2.9800e-003	1.8100e-003	3.0790
Total	**0.0574**	**0.0469**	**0.1230**	**5.0000e-004**	**0.0407**	**1.3000e-003**	**0.0420**	**0.0109**	**1.2800e-003**	**0.0122**	**3.3353**	**66.6034**	**69.9387**	**0.1544**	**2.3300e-003**	**74.4936**

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	0.0473	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9000e-004	1.9000e-004	0.0000	0.0000	2.1000e-004
Energy	1.4200e-003	0.0129	0.0109	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	26.5471	26.5471	1.5200e-003	5.2000e-004	26.7388
Mobile	8.6800e-003	0.0340	0.1120	4.2000e-004	0.0407	3.2000e-004	0.0410	0.0109	3.0000e-004	0.0112	0.0000	38.4102	38.4102	1.1800e-003	0.0000	38.4396
Waste						0.0000	0.0000		0.0000	0.0000	2.5171	0.0000	2.5171	0.1488	0.0000	6.2360
Water						0.0000	0.0000		0.0000	0.0000	0.8182	1.6460	2.4641	2.9800e-003	1.8100e-003	3.0790
Total	**0.0574**	**0.0469**	**0.1230**	**5.0000e-004**	**0.0407**	**1.3000e-003**	**0.0420**	**0.0109**	**1.2800e-003**	**0.0122**	**3.3353**	**66.6034**	**69.9387**	**0.1544**	**2.3300e-003**	**74.4936**

	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**

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	8.6800e-003	0.0340	0.1120	4.2000e-004	0.0407	3.2000e-004	0.0410	0.0109	3.0000e-004	0.0112	0.0000	38.4102	38.4102	1.1800e-003	0.0000	38.4396
Unmitigated	8.6800e-003	0.0340	0.1120	4.2000e-004	0.0407	3.2000e-004	0.0410	0.0109	3.0000e-004	0.0112	0.0000	38.4102	38.4102	1.1800e-003	0.0000	38.4396

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	49.60	9.40	4.80	109,357	109,357
Parking Lot	0.00	0.00	0.00		
Total	49.60	9.40	4.80	109,357	109,357

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
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Parking Lot	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
General Light Industry	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
Parking Lot	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	12.4697	12.4697	1.2500e-003	2.6000e-004	12.5778
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12.4697	12.4697	1.2500e-003	2.6000e-004	12.5778
NaturalGas Mitigated	1.4200e-003	0.0129	0.0109	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	14.0774	14.0774	2.7000e-004	2.6000e-004	14.1610
NaturalGas Unmitigated	1.4200e-003	0.0129	0.0109	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	14.0774	14.0774	2.7000e-004	2.6000e-004	14.1610

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					
General Light Industry	263800	1.4200e-003	0.0129	0.0109	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	14.0774	14.0774	2.7000e-004	2.6000e-004	14.1610
Parking Lot	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		**1.4200e-003**	**0.0129**	**0.0109**	**8.0000e-005**		**9.8000e-004**	**9.8000e-004**		**9.8000e-004**	**9.8000e-004**	**0.0000**	**14.0774**	**14.0774**	**2.7000e-004**	**2.6000e-004**	**14.1610**

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					
General Light Industry	263800	1.4200e-003	0.0129	0.0109	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	14.0774	14.0774	2.7000e-004	2.6000e-004	14.1610
Parking Lot	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		**1.4200e-003**	**0.0129**	**0.0109**	**8.0000e-005**		**9.8000e-004**	**9.8000e-004**		**9.8000e-004**	**9.8000e-004**	**0.0000**	**14.0774**	**14.0774**	**2.7000e-004**	**2.6000e-004**	**14.1610**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	82600	10.8654	1.0900e-003	2.2000e-004	10.9595
Parking Lot	12196.8	1.6044	1.6000e-004	3.0000e-005	1.6183
Total		**12.4697**	**1.2500e-003**	**2.5000e-004**	**12.5778**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	82600	10.8654	1.0900e-003	2.2000e-004	10.9595

Parking Lot	12196.8	1.6044	1.6000e-004	3.0000e-005	1.6183
Total		**12.4697**	**1.2500e-003**	**2.5000e-004**	**12.5778**

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					
Mitigated	0.0473	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9000e-004	1.9000e-004	0.0000	0.0000	2.1000e-004
Unmitigated	0.0473	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9000e-004	1.9000e-004	0.0000	0.0000	2.1000e-004

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	5.9400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0413					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9000e-004	1.9000e-004	0.0000	0.0000	2.1000e-004

Total	**0.0473**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.9000e-004**	**1.9000e-004**	**0.0000**	**0.0000**	**2.1000e-004**

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	5.9400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0413					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9000e-004	1.9000e-004	0.0000	0.0000	2.1000e-004
Total	**0.0473**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.9000e-004**	**1.9000e-004**	**0.0000**	**0.0000**	**2.1000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.4641	2.9800e-003	1.8100e-003	3.0790
Unmitigated	2.4641	2.9800e-003	1.8100e-003	3.0790

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	2.3125 / 0	2.4641	2.9800e-003	1.8100e-003	3.0790
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.4641**	**2.9800e-003**	**1.8100e-003**	**3.0790**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	2.3125 / 0	2.4641	2.9800e-003	1.8100e-003	3.0790
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.4641**	**2.9800e-003**	**1.8100e-003**	**3.0790**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.5171	0.1488	0.0000	6.2360
Unmitigated	2.5171	0.1488	0.0000	6.2360

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	12.4	2.5171	0.1488	0.0000	6.2360
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.5171**	**0.1488**	**0.0000**	**6.2360**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	12.4	2.5171	0.1488	0.0000	6.2360

Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.5171**	**0.1488**	**0.0000**	**6.2360**

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

18-052 699 W. San Carlos, San Jose - Santa Clara County, Annual

18-052 699 W. San Carlos, San Jose - 2030

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	104.00	Space	0.00	15,950.00	0
Apartments High Rise	381.00	Dwelling Unit	1.20	287,583.00	1090

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2030
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 Rate

Land Use - Applicant provided PD

Construction Phase - Applicant provided construction schedule

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Trips and VMT - 40,000sf asphalt demo = 89 one way trips + 45 = 134, 8001cy concrete import = 1,600 one way trips, 1.2m lbs rebar = 60 one way trips

Demolition - Applicant provided existing building demo 10,000sf

Grading - Applicant provided export 8,600cy

Vehicle Trips - Trip Rate = 3.09, 3.66, 2.69

Woodstoves - No Wood Fireplaces, Wood to Gas

Water And Wastewater - WTP Treatment 100% Aerboic

Construction Off-road Equipment Mitigation - BMPs, Tier 2 DPF 3 Mitigation

Energy Mitigation - LEED Platinum Efficiency

Water Mitigation - Water Efficient Systems

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	4.00	32.00
tblConstructionPhase	NumDays	200.00	262.00
tblConstructionPhase	NumDays	10.00	196.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	57.15	121.92

tblFireplaces	NumberWood	64.77	0.00
tblGrading	MaterialExported	0.00	8,600.00
tblLandUse	LandUseSquareFeet	41,600.00	15,950.00
tblLandUse	LandUseSquareFeet	381,000.00	287,583.00
tblLandUse	LotAcreage	0.94	0.00
tblLandUse	LotAcreage	6.15	1.20
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	45.00	134.00
tblTripsAndVMT	VendorTripNumber	0.00	1,600.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblVehicleTrips	ST_TR	4.98	3.66
tblVehicleTrips	SU_TR	3.65	2.69
tblVehicleTrips	WD_TR	4.20	3.09
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

2.2 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	1.4130	0.0457	2.8280	2.3000e-004		0.0168	0.0168		0.0168	0.0168	0.0000	19.8433	19.8433	4.7000e-003	2.8000e-004	20.0440
Energy	0.0178	0.1517	0.0645	9.7000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	394.8510	394.8510	0.0253	7.7600e-003	397.7943
Mobile	0.1775	0.7665	2.0435	8.8100e-003	1.0188	5.9000e-003	1.0247	0.2727	5.4900e-003	0.2781	0.0000	810.2599	810.2599	0.0233	0.0000	810.8425
Waste						0.0000	0.0000		0.0000	0.0000	35.5762	0.0000	35.5762	2.1025	0.0000	88.1385
Water						0.0000	0.0000		0.0000	0.0000	8.7827	24.8739	33.6566	0.0327	0.0196	40.3194
Total	**1.6083**	**0.9639**	**4.9361**	**0.0100**	**1.0188**	**0.0349**	**1.0537**	**0.2727**	**0.0345**	**0.3072**	**44.3589**	**1,249.8281**	**1,294.1870**	**2.1885**	**0.0277**	**1,357.1387**

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	1.4130	0.0457	2.8280	2.3000e-004		0.0168	0.0168		0.0168	0.0168	0.0000	19.8433	19.8433	4.7000e-003	2.8000e-004	20.0440

Energy	0.0155	0.1324	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	354.0821	354.0821	0.0230	6.9600e-003	356.7329
Mobile	0.1775	0.7665	2.0435	8.8100e-003	1.0188	5.9000e-003	1.0247	0.2727	5.4900e-003	0.2781	0.0000	810.2599	810.2599	0.0233	0.0000	810.8425
Waste						0.0000	0.0000		0.0000	0.0000	35.5762	0.0000	35.5762	2.1025	0.0000	88.1385
Water						0.0000	0.0000		0.0000	0.0000	7.0261	20.9006	27.9267	0.0263	0.0157	33.2657
Total	**1.6060**	**0.9446**	**4.9279**	**9.8900e-003**	**1.0188**	**0.0334**	**1.0522**	**0.2727**	**0.0330**	**0.3056**	**42.6023**	**1,205.0860**	**1,247.6883**	**2.1798**	**0.0230**	**1,309.0236**

	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	**0.14**	**2.00**	**0.17**	**1.20**	**0.00**	**4.44**	**0.15**	**0.00**	**4.49**	**0.50**	**3.96**	**3.58**	**3.59**	**0.40**	**17.00**	**3.55**

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	0.1775	0.7665	2.0435	8.8100e-003	1.0188	5.9000e-003	1.0247	0.2727	5.4900e-003	0.2781	0.0000	810.2599	810.2599	0.0233	0.0000	810.8425
Unmitigated	0.1775	0.7665	2.0435	8.8100e-003	1.0188	5.9000e-003	1.0247	0.2727	5.4900e-003	0.2781	0.0000	810.2599	810.2599	0.0233	0.0000	810.8425

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	1,177.29	1,394.46	1024.89	2,740,448	2,740,448

Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	1,177.29	1,394.46	1,024.89	2,740,448	2,740,448

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-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High 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 High Rise	0.621541	0.034056	0.180136	0.101248	0.011859	0.005060	0.013110	0.022881	0.002221	0.001470	0.005122	0.000646	0.000651
Enclosed Parking with Elevator	0.621541	0.034056	0.180136	0.101248	0.011859	0.005060	0.013110	0.022881	0.002221	0.001470	0.005122	0.000646	0.000651

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	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	200.7297	200.7297	0.0201	4.1500e-003	202.4692
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	219.1971	219.1971	0.0219	4.5400e-003	221.0965

NaturalGas Mitigated	0.0155	0.1324	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.3524	153.3524	2.9400e-003	2.8100e-003	154.2637
NaturalGas Unmitigated	0.0178	0.1517	0.0645	9.7000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	175.6539	175.6539	3.3700e-003	3.2200e-003	176.6978

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 High Rise	3.29163e+006	0.0178	0.1517	0.0645	9.7000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	175.6539	175.6539	3.3700e-003	3.2200e-003	176.6978
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		**0.0178**	**0.1517**	**0.0645**	**9.7000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**175.6539**	**175.6539**	**3.3700e-003**	**3.2200e-003**	**176.6978**

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 High Rise	2.87372e+006	0.0155	0.1324	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.3524	153.3524	2.9400e-003	2.8100e-003	154.2637
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		**0.0155**	**0.1324**	**0.0564**	**8.5000e-004**		**0.0107**	**0.0107**		**0.0107**	**0.0107**	**0.0000**	**153.3524**	**153.3524**	**2.9400e-003**	**2.8100e-003**	**154.2637**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	1.5729e+006	206.9023	0.0207	4.2800e-003	208.6952
Enclosed Parking with Elevator	93467	12.2948	1.2300e-003	2.5000e-004	12.4014
Total		**219.1971**	**0.0219**	**4.5300e-003**	**221.0965**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	1.4506e+006	190.8142	0.0191	3.9500e-003	192.4677
Enclosed Parking with Elevator	75379.7	9.9156	9.9000e-004	2.1000e-004	10.0015
Total		**200.7297**	**0.0201**	**4.1600e-003**	**202.4692**

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					
Mitigated	1.4130	0.0457	2.8280	2.3000e-004		0.0168	0.0168		0.0168	0.0168	0.0000	19.8433	19.8433	4.7000e-003	2.8000e-004	20.0440
Unmitigated	1.4130	0.0457	2.8280	2.3000e-004		0.0168	0.0168		0.0168	0.0168	0.0000	19.8433	19.8433	4.7000e-003	2.8000e-004	20.0440

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	0.2028					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1242					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5400e-003	0.0131	5.5900e-003	8.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003	0.0000	15.2204	15.2204	2.9000e-004	2.8000e-004	15.3109
Landscaping	0.0845	0.0325	2.8224	1.5000e-004		0.0157	0.0157		0.0157	0.0157	0.0000	4.6229	4.6229	4.4100e-003	0.0000	4.7331
Total	**1.4130**	**0.0457**	**2.8280**	**2.3000e-004**		**0.0168**	**0.0168**		**0.0168**	**0.0168**	**0.0000**	**19.8433**	**19.8433**	**4.7000e-003**	**2.8000e-004**	**20.0440**

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	0.2028					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1242					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5400e-003	0.0131	5.5900e-003	8.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003	0.0000	15.2204	15.2204	2.9000e-004	2.8000e-004	15.3109	
Landscaping	0.0845	0.0325	2.8224	1.5000e-004		0.0157	0.0157		0.0157	0.0157	0.0000	4.6229	4.6229	4.4100e-003	0.0000	4.7331	
Total	**1.4130**	**0.0457**	**2.8280**	**2.3000e-004**		**0.0168**	**0.0168**		**0.0168**	**0.0168**	**0.0000**	**19.8433**	**19.8433**	**4.7000e-003**	**2.8000e-004**	**20.0440**	

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	27.9267	0.0263	0.0157	33.2657
Unmitigated	33.6566	0.0327	0.0196	40.3194

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	24.8237 / 15.6497	33.6566	0.0327	0.0196	40.3194
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**33.6566**	**0.0327**	**0.0196**	**40.3194**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	19.8589 / 14.6951	27.9267	0.0263	0.0157	33.2657
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**27.9267**	**0.0263**	**0.0157**	**33.2657**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	35.5762	2.1025	0.0000	88.1385
Unmitigated	35.5762	2.1025	0.0000	88.1385

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	175.26	35.5762	2.1025	0.0000	88.1385
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**35.5762**	**2.1025**	**0.0000**	**88.1385**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	175.26	35.5762	2.1025	0.0000	88.1385
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000

Total		**35.5762**	**2.1025**	**0.0000**	**88.1385**

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

18-052 699 W. San Carlos, 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
Apartments High Rise	381.00	Dwelling Unit	1.20	287,583.00	1090
Enclosed Parking with Elevator	104.00	Space	0.00	15,950.00	0

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 Rate

Land Use - Applicant provided PD

Construction Phase - Applicant provided construction schedule

Off-road Equipment - Applicant provided construction equipment & hours

Grading - Applicant provided export 8,600cy

Demolition - Applicant provided existing building demo 10,000sf

Trips and VMT - 1 Mile Trips, 40,000sf asphalt demo = 89 one way trips + 45 = 134, 8001cy concrete import = 1,600 one way trips, 1.2m lbs rebar = 60 one way trips

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Off-road Equipment - Applicant provided construction equipment & hours

Vehicle Trips - Trip Rate = 3.09, 3.66, 2.69

Woodstoves - No Wood Fireplaces, Wood to Gas

Water And Wastewater - WTP Treatment 100% Aerboic

Construction Off-road Equipment Mitigation - BMPs, Tier 2 DPF 3 Mitigation

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	10.00	196.00
tblConstructionPhase	NumDays	200.00	262.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	4.00	32.00
tblConstructionPhase	PhaseEndDate	6/9/2021	3/1/2022
tblConstructionPhase	PhaseEndDate	5/12/2021	12/1/2021
tblConstructionPhase	PhaseEndDate	7/28/2020	8/1/2020
tblConstructionPhase	PhaseEndDate	8/5/2020	12/1/2020

tblConstructionPhase	PhaseEndDate	7/30/2020	9/15/2020
tblConstructionPhase	PhaseStartDate	5/27/2021	6/1/2021
tblConstructionPhase	PhaseStartDate	8/6/2020	12/1/2020
tblConstructionPhase	PhaseStartDate	7/31/2020	9/16/2020
tblConstructionPhase	PhaseStartDate	7/29/2020	8/2/2020
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	57.15	121.92
tblFireplaces	NumberWood	64.77	0.00
tblGrading	MaterialExported	0.00	8,600.00
tblLandUse	LandUseSquareFeet	381,000.00	287,583.00
tblLandUse	LandUseSquareFeet	41,600.00	15,950.00
tblLandUse	LotAcreage	6.15	1.20
tblLandUse	LotAcreage	0.94	0.00
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.00
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	HaulingTripNumber	45.00	134.00
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	VendorTripNumber	0.00	1,600.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
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	4.98	3.66
tblVehicleTrips	SU_TR	3.65	2.69

tblVehicleTrips	WD_TR	4.20	3.09
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					
2020	0.1154	2.5090	0.9298	3.1200e-003	0.1307	0.0327	0.1634	0.0621	0.0305	0.0926	0.0000	293.6042	293.6042	0.0398	0.0000	294.5987
2021	1.7320	1.3775	0.9799	2.2500e-003	0.0329	0.0417	0.0746	8.9200e-003	0.0389	0.0478	0.0000	201.1929	201.1929	0.0430	0.0000	202.2687
2022	0.4428	0.0798	0.0701	1.5000e-004	8.7000e-004	3.1800e-003	4.0600e-003	2.3000e-004	2.9800e-003	3.2100e-003	0.0000	13.0201	13.0201	3.3100e-003	0.0000	13.1030
Maximum	**1.7320**	**2.5090**	**0.9799**	**3.1200e-003**	**0.1307**	**0.0417**	**0.1634**	**0.0621**	**0.0389**	**0.0926**	**0.0000**	**293.6042**	**293.6042**	**0.0430**	**0.0000**	**294.5987**

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					
2020	0.0807	2.5088	0.9804	3.1200e-003	0.0747	5.7100e-003	0.0804	0.0205	5.5700e-003	0.0260	0.0000	293.6042	293.6042	0.0398	0.0000	294.5987
2021	1.6873	1.6394	1.1987	2.2500e-003	0.0329	6.2200e-003	0.0391	8.9200e-003	6.1700e-003	0.0151	0.0000	201.1927	201.1927	0.0430	0.0000	202.2686
2022	0.4402	0.1211	0.0904	1.5000e-004	8.7000e-004	5.6000e-004	1.4300e-003	2.3000e-004	5.6000e-004	7.9000e-004	0.0000	13.0201	13.0201	3.3100e-003	0.0000	13.1030
Maximum	**1.6873**	**2.5088**	**1.1987**	**3.1200e-003**	**0.0747**	**6.2200e-003**	**0.0804**	**0.0205**	**6.1700e-003**	**0.0260**	**0.0000**	**293.6042**	**293.6042**	**0.0430**	**0.0000**	**294.5987**

	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	**3.58**	**-7.64**	**-14.63**	**0.00**	**34.03**	**83.90**	**50.01**	**58.47**	**82.98**	**70.80**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2020**	**9-30-2020**	2.4006	2.3614
2	**10-1-2020**	**12-31-2020**	0.2349	0.2391
3	**1-1-2021**	**3-31-2021**	0.3089	0.3404
4	**4-1-2021**	**6-30-2021**	0.5878	0.6336
5	**7-1-2021**	**9-30-2021**	1.1546	1.2296
6	**10-1-2021**	**12-31-2021**	1.0485	1.1130
7	**1-1-2022**	**3-31-2022**	0.5333	0.5728
		Highest	2.4006	2.3614

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 & Site Prep	Demolition	7/1/2020	8/1/2020	5	23	
2	Earthwork	Grading	8/2/2020	9/15/2020	5	32	
3	Foundation	Trenching	9/16/2020	12/1/2020	5	55	
4	Erection & Modules	Building Construction	12/1/2020	12/1/2021	5	262	
5	Finishing	Architectural Coating	6/1/2021	3/1/2022	5	196	Overlap

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 582,356; Residential Outdoor: 194,119; 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
Finishing	Air Compressors	1	1.00	78	0.48
Demolition & Site Prep	Excavators	1	8.00	158	0.38
Demolition & Site Prep	Concrete/Industrial Saws	1	8.00	81	0.73
Earthwork	Graders	0	8.00	187	0.41
Erection & Modules	Cranes	1	8.00	231	0.29
Erection & Modules	Forklifts	0	6.00	89	0.20
Erection & Modules	Generator Sets	0	8.00	84	0.74
Demolition & Site Prep	Skid Steer Loaders	1	8.00	65	0.37
Earthwork	Excavators	1	8.00	158	0.38
Demolition & Site Prep	Rubber Tired Dozers	1	8.00	247	0.40
Foundation	Rubber Tired Dozers	0	6.00	247	0.40
Erection & Modules	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Foundation	Graders	0	6.00	187	0.41
Foundation	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Earthwork	Sweepers/Scrubbers	1	8.00	64	0.46
Earthwork	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Earthwork	Rubber Tired Dozers	1	8.00	247	0.40
Erection & Modules	Welders	1	1.00	46	0.45
Demolition & Site Prep	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Earthwork	Skid Steer Loaders	1	8.00	65	0.37
Foundation	Pumps	1	1.00	84	0.74
Foundation	Cement and Mortar Mixers	1	1.00	9	0.56

Foundation	Cranes	1	1.00	231	0.29
Erection & Modules	Air Compressors	1	1.00	78	0.48
Erection & Modules	Aerial Lifts	1	8.00	63	0.31
Finishing	Cranes	1	5.00	231	0.29
Finishing	Generator Sets	1	1.00	84	0.74
Finishing	Aerial Lifts	1	8.00	63	0.31

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 & Site Prep	4	10.00	0.00	134.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Earthwork	4	10.00	1,600.00	1,075.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Foundation	3	8.00	60.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Erection & Modules	4	281.00	43.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Finishing	4	56.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition & Site Prep - 2020

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					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0210	0.2082	0.1435	2.5000e-004		0.0105	0.0105		9.8700e-003	9.8700e-003	0.0000	22.1202	22.1202	5.5500e-003	0.0000	22.2589
Total	**0.0210**	**0.2082**	**0.1435**	**2.5000e-004**	**4.9200e-003**	**0.0105**	**0.0155**	**7.5000e-004**	**9.8700e-003**	**0.0106**	**0.0000**	**22.1202**	**22.1202**	**5.5500e-003**	**0.0000**	**22.2589**

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	6.9100e-003	1.1300e-003	1.0000e-005	6.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.8702	0.8702	9.0000e-005	0.0000	0.8725
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	1.3000e-004	6.0000e-005	7.5000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0935	0.0935	0.0000	0.0000	0.0936
Total	**2.8000e-004**	**6.9700e-003**	**1.8800e-003**	**1.0000e-005**	**1.5000e-004**	**1.0000e-005**	**1.5000e-004**	**4.0000e-005**	**1.0000e-005**	**4.0000e-005**	**0.0000**	**0.9637**	**0.9637**	**9.0000e-005**	**0.0000**	**0.9661**

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					2.2100e-003	0.0000	2.2100e-003	1.7000e-004	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-003	0.2141	0.1596	2.5000e-004		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	22.1202	22.1202	5.5500e-003	0.0000	22.2589

Total	**8.6000e-003**	**0.2141**	**0.1596**	**2.5000e-004**	**2.2100e-003**	**9.8000e-004**	**3.1900e-003**	**1.7000e-004**	**9.8000e-004**	**1.1500e-003**	**0.0000**	**22.1202**	**22.1202**	**5.5500e-003**	**0.0000**	**22.2589**

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	6.9100e-003	1.1300e-003	1.0000e-005	6.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.8702	0.8702	9.0000e-005	0.0000	0.8725
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	1.3000e-004	6.0000e-005	7.5000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0935	0.0935	0.0000	0.0000	0.0936
Total	**2.8000e-004**	**6.9700e-003**	**1.8800e-003**	**1.0000e-005**	**1.5000e-004**	**1.0000e-005**	**1.5000e-004**	**4.0000e-005**	**1.0000e-005**	**4.0000e-005**	**0.0000**	**0.9637**	**0.9637**	**9.0000e-005**	**0.0000**	**0.9661**

3.3 Earthwork - 2020

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					0.0968	0.0000	0.0968	0.0530	0.0000	0.0530	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0268	0.2742	0.1724	2.9000e-004		0.0145	0.0145		0.0133	0.0133	0.0000	25.7467	25.7467	8.3300e-003	0.0000	25.9549
Total	**0.0268**	**0.2742**	**0.1724**	**2.9000e-004**	**0.0968**	**0.0145**	**0.1113**	**0.0530**	**0.0133**	**0.0664**	**0.0000**	**25.7467**	**25.7467**	**8.3300e-003**	**0.0000**	**25.9549**

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	1.1700e-003	0.0554	9.0500e-003	7.0000e-005	4.7000e-004	5.0000e-005	5.2000e-004	1.3000e-004	5.0000e-005	1.8000e-004	0.0000	6.9810	6.9810	7.4000e-004	0.0000	6.9996
Vendor	0.0483	1.7121	0.4752	2.1400e-003	0.0237	2.7600e-003	0.0264	6.9000e-003	2.6400e-003	9.5400e-003	0.0000	205.5110	205.5110	0.0201	0.0000	206.0123
Worker	1.8000e-004	8.0000e-005	1.0500e-003	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1301	0.1301	1.0000e-005	0.0000	0.1303
Total	**0.0497**	**1.7676**	**0.4853**	**2.2100e-003**	**0.0242**	**2.8100e-003**	**0.0271**	**7.0600e-003**	**2.6900e-003**	**9.7500e-003**	**0.0000**	**212.6221**	**212.6221**	**0.0208**	**0.0000**	**213.1422**

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					0.0436	0.0000	0.0436	0.0119	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0100	0.2581	0.1910	2.9000e-004		1.1300e-003	1.1300e-003		1.1300e-003	1.1300e-003	0.0000	25.7467	25.7467	8.3300e-003	0.0000	25.9549
Total	**0.0100**	**0.2581**	**0.1910**	**2.9000e-004**	**0.0436**	**1.1300e-003**	**0.0447**	**0.0119**	**1.1300e-003**	**0.0131**	**0.0000**	**25.7467**	**25.7467**	**8.3300e-003**	**0.0000**	**25.9549**

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	1.1700e-003	0.0554	9.0500e-003	7.0000e-005	4.7000e-004	5.0000e-005	5.2000e-004	1.3000e-004	5.0000e-005	1.8000e-004	0.0000	6.9810	6.9810	7.4000e-004	0.0000	6.9996
Vendor	0.0483	1.7121	0.4752	2.1400e-003	0.0237	2.7600e-003	0.0264	6.9000e-003	2.6400e-003	9.5400e-003	0.0000	205.5110	205.5110	0.0201	0.0000	206.0123
Worker	1.8000e-004	8.0000e-005	1.0500e-003	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1301	0.1301	1.0000e-005	0.0000	0.1303
Total	**0.0497**	**1.7676**	**0.4853**	**2.2100e-003**	**0.0242**	**2.8100e-003**	**0.0271**	**7.0600e-003**	**2.6900e-003**	**9.7500e-003**	**0.0000**	**212.6221**	**212.6221**	**0.0208**	**0.0000**	**213.1422**

3.4 Foundation - 2020

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	3.2200e-003	0.0319	0.0213	4.0000e-005		1.5300e-003	1.5300e-003		1.4600e-003	1.4600e-003	0.0000	3.8430	3.8430	7.0000e-004	0.0000	3.8604
Total	**3.2200e-003**	**0.0319**	**0.0213**	**4.0000e-005**		**1.5300e-003**	**1.5300e-003**		**1.4600e-003**	**1.4600e-003**	**0.0000**	**3.8430**	**3.8430**	**7.0000e-004**	**0.0000**	**3.8604**

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	3.1200e-003	0.1104	0.0306	1.4000e-004	1.5200e-003	1.8000e-004	1.7000e-003	4.4000e-004	1.7000e-004	6.1000e-004	0.0000	13.2458	13.2458	1.2900e-003	0.0000	13.2781
Worker	2.4000e-004	1.1000e-004	1.4400e-003	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1789	0.1789	1.0000e-005	0.0000	0.1791

Total	**3.3600e-003**	**0.1105**	**0.0321**	**1.4000e-004**	**1.6800e-003**	**1.8000e-004**	**1.8700e-003**	**4.8000e-004**	**1.7000e-004**	**6.6000e-004**	**0.0000**	**13.4247**	**13.4247**	**1.3000e-003**	**0.0000**	**13.4572**

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	1.3500e-003	0.0348	0.0245	4.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	3.8430	3.8430	7.0000e-004	0.0000	3.8604
Total	**1.3500e-003**	**0.0348**	**0.0245**	**4.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**	**0.0000**	**3.8430**	**3.8430**	**7.0000e-004**	**0.0000**	**3.8604**

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	3.1200e-003	0.1104	0.0306	1.4000e-004	1.5200e-003	1.8000e-004	1.7000e-003	4.4000e-004	1.7000e-004	6.1000e-004	0.0000	13.2458	13.2458	1.2900e-003	0.0000	13.2781
Worker	2.4000e-004	1.1000e-004	1.4400e-003	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1789	0.1789	1.0000e-005	0.0000	0.1791
Total	**3.3600e-003**	**0.1105**	**0.0321**	**1.4000e-004**	**1.6800e-003**	**1.8000e-004**	**1.8700e-003**	**4.8000e-004**	**1.7000e-004**	**6.6000e-004**	**0.0000**	**13.4247**	**13.4247**	**1.3000e-003**	**0.0000**	**13.4572**

3.5 Erection & Modules - 2020

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	6.6300e-003	0.0749	0.0430	1.0000e-004		3.0600e-003	3.0600e-003		2.8400e-003	2.8400e-003	0.0000	8.2861	8.2861	2.5100e-003	0.0000	8.3489
Total	**6.6300e-003**	**0.0749**	**0.0430**	**1.0000e-004**		**3.0600e-003**	**3.0600e-003**		**2.8400e-003**	**2.8400e-003**	**0.0000**	**8.2861**	**8.2861**	**2.5100e-003**	**0.0000**	**8.3489**

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	9.3000e-004	0.0331	9.1800e-003	4.0000e-005	4.6000e-004	5.0000e-005	5.1000e-004	1.3000e-004	5.0000e-005	1.8000e-004	0.0000	3.9697	3.9697	3.9000e-004	0.0000	3.9794
Worker	3.5800e-003	1.6400e-003	0.0212	3.0000e-005	2.4000e-003	3.0000e-005	2.4300e-003	6.4000e-004	3.0000e-005	6.7000e-004	0.0000	2.6279	2.6279	1.1000e-004	0.0000	2.6307
Total	**4.5100e-003**	**0.0347**	**0.0304**	**7.0000e-005**	**2.8600e-003**	**8.0000e-005**	**2.9400e-003**	**7.7000e-004**	**8.0000e-005**	**8.5000e-004**	**0.0000**	**6.5976**	**6.5976**	**5.0000e-004**	**0.0000**	**6.6101**

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	2.9100e-003	0.0821	0.0557	1.0000e-004		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	8.2861	8.2861	2.5100e-003	0.0000	8.3489
Total	**2.9100e-003**	**0.0821**	**0.0557**	**1.0000e-004**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**8.2861**	**8.2861**	**2.5100e-003**	**0.0000**	**8.3489**

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	9.3000e-004	0.0331	9.1800e-003	4.0000e-005	4.6000e-004	5.0000e-005	5.1000e-004	1.3000e-004	5.0000e-005	1.8000e-004	0.0000	3.9697	3.9697	3.9000e-004	0.0000	3.9794
Worker	3.5800e-003	1.6400e-003	0.0212	3.0000e-005	2.4000e-003	3.0000e-005	2.4300e-003	6.4000e-004	3.0000e-005	6.7000e-004	0.0000	2.6279	2.6279	1.1000e-004	0.0000	2.6307
Total	**4.5100e-003**	**0.0347**	**0.0304**	**7.0000e-005**	**2.8600e-003**	**8.0000e-005**	**2.9400e-003**	**7.7000e-004**	**8.0000e-005**	**8.5000e-004**	**0.0000**	**6.5976**	**6.5976**	**5.0000e-004**	**0.0000**	**6.6101**

3.5 Erection & Modules - 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	0.0627	0.7042	0.4296	9.9000e-004		0.0279	0.0279		0.0259	0.0259	0.0000	86.0982	86.0982	0.0260	0.0000	86.7484
Total	**0.0627**	**0.7042**	**0.4296**	**9.9000e-004**		**0.0279**	**0.0279**		**0.0259**	**0.0259**	**0.0000**	**86.0982**	**86.0982**	**0.0260**	**0.0000**	**86.7484**

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	8.6700e-003	0.3267	0.0880	4.3000e-004	4.7500e-003	2.7000e-004	5.0200e-003	1.3800e-003	2.6000e-004	1.6500e-003	0.0000	40.8574	40.8574	3.7900e-003	0.0000	40.9522
Worker	0.0340	0.0150	0.1984	2.9000e-004	0.0250	3.3000e-004	0.0253	6.6800e-003	3.1000e-004	6.9900e-003	0.0000	26.3799	26.3799	1.0400e-003	0.0000	26.4058
Total	**0.0427**	**0.3417**	**0.2864**	**7.2000e-004**	**0.0297**	**6.0000e-004**	**0.0303**	**8.0600e-003**	**5.7000e-004**	**8.6400e-003**	**0.0000**	**67.2373**	**67.2373**	**4.8300e-003**	**0.0000**	**67.3580**

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	0.0303	0.8536	0.5783	9.9000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003	0.0000	86.0981	86.0981	0.0260	0.0000	86.7483
Total	**0.0303**	**0.8536**	**0.5783**	**9.9000e-004**		**3.5600e-003**	**3.5600e-003**		**3.5600e-003**	**3.5600e-003**	**0.0000**	**86.0981**	**86.0981**	**0.0260**	**0.0000**	**86.7483**

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	8.6700e-003	0.3267	0.0880	4.3000e-004	4.7500e-003	2.7000e-004	5.0200e-003	1.3800e-003	2.6000e-004	1.6500e-003	0.0000	40.8574	40.8574	3.7900e-003	0.0000	40.9522
Worker	0.0340	0.0150	0.1984	2.9000e-004	0.0250	3.3000e-004	0.0253	6.6800e-003	3.1000e-004	6.9900e-003	0.0000	26.3799	26.3799	1.0400e-003	0.0000	26.4058
Total	**0.0427**	**0.3417**	**0.2864**	**7.2000e-004**	**0.0297**	**6.0000e-004**	**0.0303**	**8.0600e-003**	**5.7000e-004**	**8.6400e-003**	**0.0000**	**67.2373**	**67.2373**	**4.8300e-003**	**0.0000**	**67.3580**

3.6 Finishing - 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					
Archit. Coating	1.5932					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0290	0.3297	0.2385	5.1000e-004		0.0132	0.0132		0.0124	0.0124	0.0000	44.4699	44.4699	0.0121	0.0000	44.7715
Total	**1.6222**	**0.3297**	**0.2385**	**5.1000e-004**		**0.0132**	**0.0132**		**0.0124**	**0.0124**	**0.0000**	**44.4699**	**44.4699**	**0.0121**	**0.0000**	**44.7715**

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	4.3600e-003	1.9300e-003	0.0255	4.0000e-005	3.2100e-003	4.0000e-005	3.2500e-003	8.6000e-004	4.0000e-005	9.0000e-004	0.0000	3.3875	3.3875	1.3000e-004	0.0000	3.3908
Total	**4.3600e-003**	**1.9300e-003**	**0.0255**	**4.0000e-005**	**3.2100e-003**	**4.0000e-005**	**3.2500e-003**	**8.6000e-004**	**4.0000e-005**	**9.0000e-004**	**0.0000**	**3.3875**	**3.3875**	**1.3000e-004**	**0.0000**	**3.3908**

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	1.5932					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0168	0.4423	0.3085	5.1000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	44.4698	44.4698	0.0121	0.0000	44.7715
Total	**1.6100**	**0.4423**	**0.3085**	**5.1000e-004**		**2.0000e-003**	**2.0000e-003**		**2.0000e-003**	**2.0000e-003**	**0.0000**	**44.4698**	**44.4698**	**0.0121**	**0.0000**	**44.7715**

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	4.3600e-003	1.9300e-003	0.0255	4.0000e-005	3.2100e-003	4.0000e-005	3.2500e-003	8.6000e-004	4.0000e-005	9.0000e-004	0.0000	3.3875	3.3875	1.3000e-004	0.0000	3.3908
Total	**4.3600e-003**	**1.9300e-003**	**0.0255**	**4.0000e-005**	**3.2100e-003**	**4.0000e-005**	**3.2500e-003**	**8.6000e-004**	**4.0000e-005**	**9.0000e-004**	**0.0000**	**3.3875**	**3.3875**	**1.3000e-004**	**0.0000**	**3.3908**

3.6 Finishing - 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	0.4345					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2300e-003	0.0793	0.0638	1.4000e-004		3.1700e-003	3.1700e-003		2.9700e-003	2.9700e-003	0.0000	12.1292	12.1292	3.2800e-003	0.0000	12.2113
Total	**0.4418**	**0.0793**	**0.0638**	**1.4000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9700e-003**	**2.9700e-003**	**0.0000**	**12.1292**	**12.1292**	**3.2800e-003**	**0.0000**	**12.2113**

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	1.0900e-003	4.7000e-004	6.3000e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.9000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8909	0.8909	3.0000e-005	0.0000	0.8917
Total	**1.0900e-003**	**4.7000e-004**	**6.3000e-003**	**1.0000e-005**	**8.7000e-004**	**1.0000e-005**	**8.9000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.8909**	**0.8909**	**3.0000e-005**	**0.0000**	**0.8917**

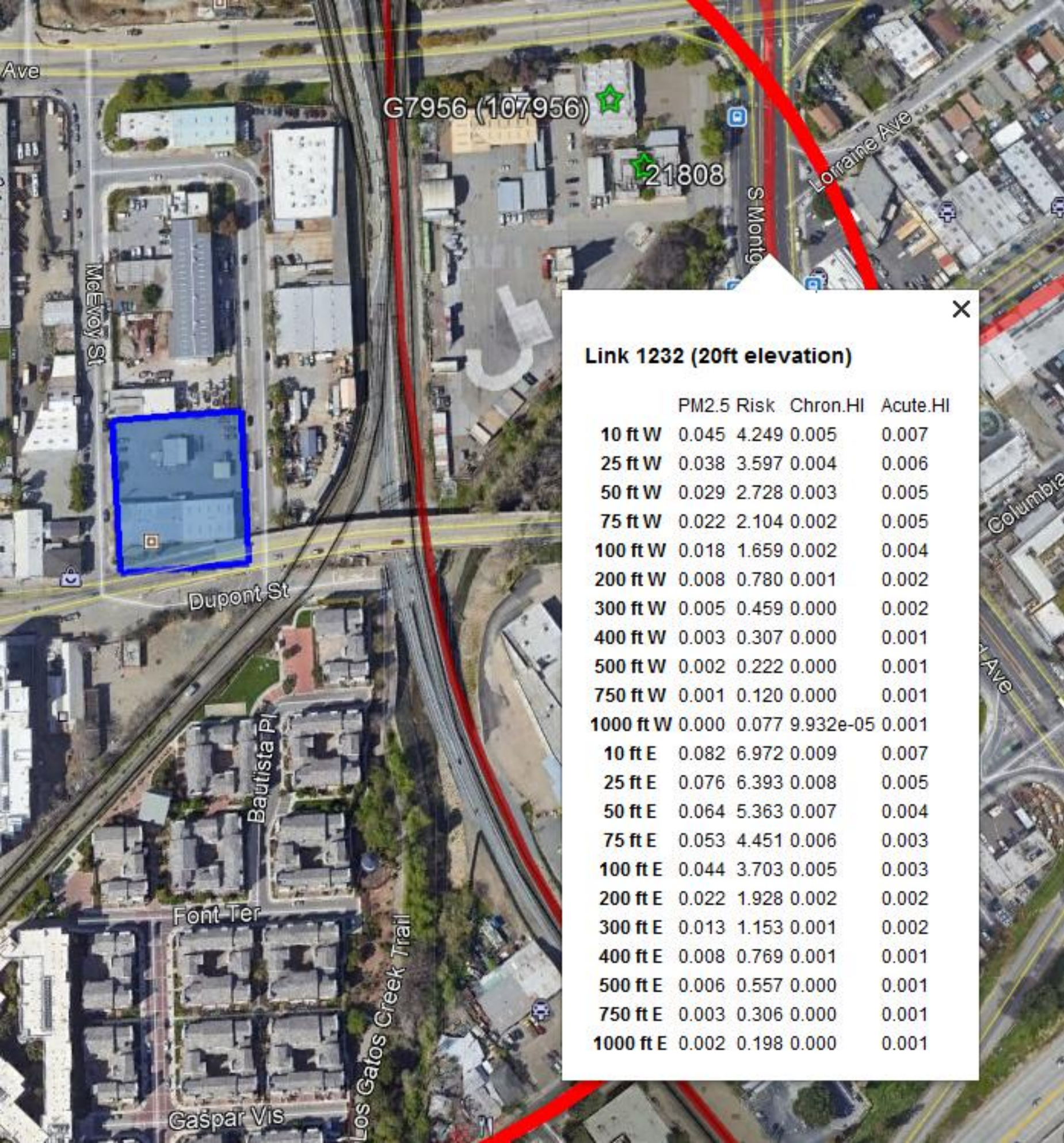
Mitigated Construction On-Site

	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	0.4345					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5900e-003	0.1206	0.0841	1.4000e-004		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	12.1292	12.1292	3.2800e-003	0.0000	12.2113
Total	**0.4391**	**0.1206**	**0.0841**	**1.4000e-004**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**12.1292**	**12.1292**	**3.2800e-003**	**0.0000**	**12.2113**

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	1.0900e-003	4.7000e-004	6.3000e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.9000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8909	0.8909	3.0000e-005	0.0000	0.8917
Total	**1.0900e-003**	**4.7000e-004**	**6.3000e-003**	**1.0000e-005**	**8.7000e-004**	**1.0000e-005**	**8.9000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.8909**	**0.8909**	**3.0000e-005**	**0.0000**	**0.8917**

Attachment 3: Operational Community Risk



Link 1232 (20ft elevation)

	PM2.5 Risk	Chron.HI	Acute.HI
10 ft W	0.045 4.249	0.005	0.007
25 ft W	0.038 3.597	0.004	0.006
50 ft W	0.029 2.728	0.003	0.005
75 ft W	0.022 2.104	0.002	0.005
100 ft W	0.018 1.659	0.002	0.004
200 ft W	0.008 0.780	0.001	0.002
300 ft W	0.005 0.459	0.000	0.002
400 ft W	0.003 0.307	0.000	0.001
500 ft W	0.002 0.222	0.000	0.001
750 ft W	0.001 0.120	0.000	0.001
1000 ft W	0.000 0.077	9.932e-05	0.001
10 ft E	0.082 6.972	0.009	0.007
25 ft E	0.076 6.393	0.008	0.005
50 ft E	0.064 5.363	0.007	0.004
75 ft E	0.053 4.451	0.006	0.003
100 ft E	0.044 3.703	0.005	0.003
200 ft E	0.022 1.928	0.002	0.002
300 ft E	0.013 1.153	0.001	0.002
400 ft E	0.008 0.769	0.001	0.001
500 ft E	0.006 0.557	0.000	0.001
750 ft E	0.003 0.306	0.000	0.001
1000 ft E	0.002 0.198	0.000	0.001

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	East-West
Side of the Roadway	North
Distance from Roadway	30 feet
	Project Site
Annual Average Daily Traffic (ADT)	14,800

Results

Santa Clara County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

7.86 (per million)

W. San Carlos Street

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

5.40
(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	East-West
Side of the Roadway	South
Distance from Roadway	530 feet
	Project Site
Annual Average Daily Traffic (ADT)	13,015

Results

Santa Clara County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

1.43 (per million)

Park Avenue

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

0.98

(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	East-West
Side of the Roadway	South
Distance from Roadway	90 feet
	Const MEI
Annual Average Daily Traffic (ADT)	14,800

Results

Santa Clara County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

5.41 (per million)

W. San Carlos Street

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

3.72
(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	East-West
Side of the Roadway	South
Distance from Roadway	850 feet
	Const MEI
Annual Average Daily Traffic (ADT)	13,015

Results

Santa Clara County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

0.92 (per million)

Park Avenue

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

0.63

(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

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	**7/16/2018**
Contact Name	Casey Zaglin
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x23
Email	czaglin@illingworthrodkin.com
Project Name	699 West San Carlos
Address	699 West San Carlos
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	320DU, 353,395 SQFT
Comments:	

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 (feet) or MEI[1]	Facility Name	Address	Plant No.	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
700	City of San Jose Fire Training Center	245 So Montgomery St	107956	9.103	0.0449	na	1	Gas Dispensing		Updated to include OEHHA factor. Use GDF Multiplier.	0.03	0.23	0.00	#VALUE!
775	Polanco Enterprises Inc	602 W San Carlos Ave	104113	21.207	0.1047	na	1	Gas Dispensing		Updated to include OEHHA factor. Use GDF Multiplier.	0.02	0.47	0.00	#VALUE!
670	San Jose Fire Dept	255 So Montgomery St	21808	3.223	0.0037	0.00413	1	Generator		Updated to include OEHHA factor. Updated emissions file attached.	0.08	0.26	0.00	0.00

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
    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,
    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.

Const MEI

Distance from Receptor (feet) or MEI[1]	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
840	0.02	0.18	0.00	#VALUE!
600	0.03	0.73	0.00	#VALUE!
770	0.07	0.23	0.00	0.00

Date last updated:
03/13/2018

699 W. San Carlos Residential Development VMT Trip Generation Estimates

Land Use	ITE Land Use Code	Location	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 Use																				
Multifamily Housing (High-Rise)[1]	222					381 Dwelling Units	4.450	1,695	0.310	24%	76%	28	90	118	0.360	61%	39%	84	53	137
Location Based Reduction[2]		*Urban Low-Transit*			*13%*			*-220*				*-4*	*-12*	*-16*				*-11*	*-7*	*-18*
VMT Reduction[3]			*6.9*	*5.51*	*20%*			*-297*				*-4*	*-16*	*-20*				*-15*	*-9*	*-24*
Project Trips After Reductions								**1,178**				**20**	**62**	**82**				**58**	**37**	**95**
Existing Land Use																				
General Light Industrial[1]	110					10,000 Square Feet	4.960	-50	0.700	88%	12%	-6	-1	-7	0.630	13%	87%	-1	-5	-6
Net Project Trips								**1,128**				**14**	**61**	**75**				**57**	**32**	**89**

Notes:

[1] Source: ITE *Trip Generation Manual*, 10th Edition 2017

[2] The project site is located within an urban low-transit area based on the City of San Jose VMT Evaluation Tool (March 14, 2018). The trip reductions are based on the percent of mode share for all of the other modes of travel beside vehicle.

[3] VMT per capita for residential use. Existing and project VMTs were estimated using the City of San Jose VMT Evaluation Tool (March 14, 2018). It is assumed that every percent reduction in VMT per-capita is equivalent to one percent reduction in peak hour vehicle-trips.

Attachment 4: Rail Line and Construction Health Risk Calculations

Rail Line Emissions and Health Risks Calculations

699 W. San Carlos, San Jose, CA
DPM Modeling - Rail Line Information and DPM Emission Rates
Caltrain Electrification and Diesel-Powered Freight and Passenger Trains

Year	Description	Modeled No. Lines	Link Width (ft)	Link Width (m)	Link Length (ft)	Link Length (miles)	Link Length (m)	Release Height (m)	No. Trains per Day	Train Travel Speed (mph)	DPM Emission Rates: Average Daily Emission Rate (g/mi/day)	DPM Emission Rates: Average Daily Emission Rate (g/day)	DPM Emission Rates: Link Emission Rate (g/s)	DPM Emission Rates: Link Emission Rate (lb/hr)
2022-2025	Caltrain	1	12	3.7	2,144	0.41	653	5.0	13	40	62.9	25.6	2.96E-04	2.35E-03
	Passenger - Amtrak	1	12	3.7	2,120	0.40	646	5.0	2	40	8.7	3.5	4.04E-05	3.21E-04
	Freight Trains	1	12	3.7	2,120	0.40	646	5.0	6	40	25.1	10.1	1.17E-04	9.25E-04
	Total	**2**	**-**	**-**	**2,379**	**0.45**	**725**	**-**	**21**	**-**	**96.7**	**39.1**	**4.53E-04**	**3.59E-03**
2026+	Caltrain	1	12	3.7	2,144	0.41	653	5.0	4	40	6.8	2.7	3.18E-05	2.52E-04
	Passenger - Amtrak	1	12	3.7	2,120	0.40	646	5.0	2	40	2.8	1.1	1.30E-05	1.03E-04
	Freight Trains	1	12	3.7	2,120	0.40	646	5.0	6	40	9.3	3.7	4.33E-05	3.44E-04
	Total	**2**	**-**	**-**	**2,379**	**0.45**	**725**	**-**	**12**	**-**	**18.9**	**7.6**	**8.81E-05**	**6.99E-04**

Notes: Emission based on Emission Factors for Locomotives, USEPA 2009 (EPA-420-F-09-025)
Average emissions calculated for periods 2021-2024, and 2025-2047.
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)
25% of Caltrain trains assumed to be diesel in 2020. This represents about 7 or 8 trains of the current rolling stock of 29 trains. These will be operated only during weekday peak periods.
Passenger trains assumed to operate for 24 hours per day Diesel Caltrain 2020+
Passenger trains assumed to operate for 24 hours per day Amtrak
Freight trains assumed to operate for 24 hours per day

Caltrain - with electrification	***2022 - 2025***			***2026+***		
Arrive/Depart Station	*Diesel*	*Electric*	*Total*	*Diesel*	*Electric*	*Total*
Passenger trains - weekday =	18	36	54	6	48	54
Passenger trains - weekend =	0	0	0	0	0	0
Passenger trains - Sat only =	0	0	0	0	0	0
Total Trains =	18	36	54	6	48	54
Annual average daily trains =	13	26	38	4	34	38
Locomotive horsepower =	3600	(2020 and later)		3600	(2020 and later)	
Locomotives per train =	1			1		
Engine load =	1			1		

Other Passenger Trains	
Arrive/Depart Station	*Diesel*
Passenger trains - weekday =	2
Passenger trains - weekend =	2
Passenger trains - Sat only =	0
Total Trains =	4
Annual average daily trains =	2
Locomotive horsepower =	3200
Locomotives per train =	1
Locomotive engine load =	1

Freight

Freight trains per day =	6	7	days/week
Locomotive horsepower =	2300	(note: average hp for UPRR locomotive in CA in 2009 was 2,200 hp)	
Locomotives per train =	2		
Total horsepower =	4600		
Locomotive engine load =	0.5		

PM2.5 Locomotive Emission Factors (g/hp-hr)

Train Type	2022-2025	2026+
Passenger	0.077	0.025
Freight	0.087	0.032

2026+ emissions are average for 2026-2051.

699 W. San Carlos St. - 2nd Floor - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
Caltrain Electrification and Diesel-Powered Freight Trains

Receptor Information	2nd Floor Receptors
Number of Receptors	46
Receptor Height =	7.0 meters above ground level
Receptor distances =	5 meter spacing in project residential areas

Meteorological Conditions

BAAQMD San Jose Airport Met Data	2006-2010
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Meteorological Data Years	**Period Average DPM Concentration ($\mu g/m^3$)**	
	2022-2025	**2026-2051**
2006-2010	0.0099	0.00189
Meteorological Data Years	**2022-2025**	**2026-2051**
2006-2010	0.0091	0.0017

699 W. San Carlos St. - 2nd Floor Receptors (7.0 meter receptor heights)
AERMOD Railroad DPM Risk Modeling - Maximum Cancer Risk at Project Site
Caltrain Electrification and Diesel-Powered 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 Receptor Location

Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	2022	0.25	-0.25 - 0*	10	0.0099	0.135
1	2022	1	1	10	0.0099	1.626
2	2023	1	2	10	0.0099	1.626
3	2024	1	3	3	0.0099	0.256
4	2025	1	4	3	0.0099	0.256
5	2026	1	5	3	0.0019	0.049
6	2027	1	6	3	0.0019	0.049
7	2028	1	7	3	0.0019	0.049
8	2029	1	8	3	0.0019	0.049
9	2030	1	9	3	0.0019	0.049
10	2031	1	10	3	0.0019	0.049
11	2032	1	11	3	0.0019	0.049
12	2033	1	12	3	0.0019	0.049
13	2034	1	13	3	0.0019	0.049
14	2035	1	14	3	0.0019	0.049
15	2036	1	15	3	0.0019	0.049
16	2037	1	16	3	0.0019	0.049
17	2038	1	17	1	0.0019	0.005
18	2039	1	18	1	0.0019	0.005
19	2040	1	19	1	0.0019	0.005
20	2041	1	20	1	0.0019	0.005
21	2042	1	21	1	0.0019	0.005
22	2043	1	22	1	0.0019	0.005
23	2044	1	23	1	0.0019	0.005
24	2045	1	24	1	0.0019	0.005
25	2046	1	25	1	0.0019	0.005
26	2047	1	26	1	0.0019	0.005
27	2048	1	27	1	0.0019	0.005
28	2049	1	28	1	0.0019	0.005
29	2050	1	29	1	0.0019	0.005
30	2051	1	30	1	0.0019	0.005
Total Increased Cancer Risk						**4.56**

* Third trimester of pregnancy

699 W. San Carlos St. - 3rd Floor - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
Caltrain Electrification and Diesel-Powered Freight Trains

Receptor Information	3rd Floor Receptors
Number of Receptors	46
Receptor Height =	10.0 meters above ground level
Receptor distances =	5 meter spacing in project residential areas

Meteorological Conditions

BAAQMD San Jose Airport Met Data	2006-2010
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Meteorological Data Years	**Period Average DPM Concentration ($\mu g/m^3$)**	
	2022-2025	**2026-2051**
2006-2010	0.0074	0.00142
Meteorological Data Years		
	2022-2025	**2026-2051**
2006-2010	0.0068	0.0013

699 W. San Carlos St. - 3rd Floor Receptors (10.0 meter receptor heights)
AERMOD Railroad DPM Risk Modeling - Maximum Cancer Risk at Project Site
Caltrain Electrification and Diesel-Powered 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 Receptor Location

Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	2022	0.25	-0.25 - 0*	10	0.0074	0.101
1	2022	1	1	10	0.0074	1.219
2	2023	1	2	10	0.0074	1.219
3	2024	1	3	3	0.0074	0.192
4	2025	1	4	3	0.0074	0.192
5	2026	1	5	3	0.0014	0.037
6	2027	1	6	3	0.0014	0.037
7	2028	1	7	3	0.0014	0.037
8	2029	1	8	3	0.0014	0.037
9	2030	1	9	3	0.0014	0.037
10	2031	1	10	3	0.0014	0.037
11	2032	1	11	3	0.0014	0.037
12	2033	1	12	3	0.0014	0.037
13	2034	1	13	3	0.0014	0.037
14	2035	1	14	3	0.0014	0.037
15	2036	1	15	3	0.0014	0.037
16	2037	1	16	3	0.0014	0.037
17	2038	1	17	1	0.0014	0.004
18	2039	1	18	1	0.0014	0.004
19	2040	1	19	1	0.0014	0.004
20	2041	1	20	1	0.0014	0.004
21	2042	1	21	1	0.0014	0.004
22	2043	1	22	1	0.0014	0.004
23	2044	1	23	1	0.0014	0.004
24	2045	1	24	1	0.0014	0.004
25	2046	1	25	1	0.0014	0.004
26	2047	1	26	1	0.0014	0.004
27	2048	1	27	1	0.0014	0.004
28	2049	1	28	1	0.0014	0.004
29	2050	1	29	1	0.0014	0.004
30	2051	1	30	1	0.0014	0.004
Total Increased Cancer Risk						**3.42**

* Third trimester of pregnancy

699 W. San Carlos St. - 4th Floor - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
Caltrain Electrification and Diesel-Powered Freight Trains

Receptor Information	4th Floor Receptors
Number of Receptors	46
Receptor Height =	13.1 meters above ground level
Receptor distances =	5 meter spacing in project residential areas

Meteorological Conditions

BAAQMD San Jose Airport Met Data	2006-2010
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Meteorological Data Years	**Period Average DPM Concentration ($\mu g/m^3$)**	
	2022-2025	**2026-2051**
2006-2010	0.00496	0.00095
Meteorological Data Years	**2022-2025**	**2026-2051**
2006-2010	0.0046	0.0009

699 W. San Carlos St. - 4th Floor Receptors (13.1 meter receptor heights)
AERMOD Railroad DPM Risk Modeling - Maximum Cancer Risk at Project Site
Caltrain Electrification and Diesel-Powered 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 Receptor Location

Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	2022	0.25	-0.25 - 0*	10	0.0050	0.067
1	2022	1	1	10	0.0050	0.815
2	2023	1	2	10	0.0050	0.815
3	2024	1	3	3	0.0050	0.128
4	2025	1	4	3	0.0050	0.128
5	2026	1	5	3	0.0010	0.025
6	2027	1	6	3	0.0010	0.025
7	2028	1	7	3	0.0010	0.025
8	2029	1	8	3	0.0010	0.025
9	2030	1	9	3	0.0010	0.025
10	2031	1	10	3	0.0010	0.025
11	2032	1	11	3	0.0010	0.025
12	2033	1	12	3	0.0010	0.025
13	2034	1	13	3	0.0010	0.025
14	2035	1	14	3	0.0010	0.025
15	2036	1	15	3	0.0010	0.025
16	2037	1	16	3	0.0010	0.025
17	2038	1	17	1	0.0010	0.003
18	2039	1	18	1	0.0010	0.003
19	2040	1	19	1	0.0010	0.003
20	2041	1	20	1	0.0010	0.003
21	2042	1	21	1	0.0010	0.003
22	2043	1	22	1	0.0010	0.003
23	2044	1	23	1	0.0010	0.003
24	2045	1	24	1	0.0010	0.003
25	2046	1	25	1	0.0010	0.003
26	2047	1	26	1	0.0010	0.003
27	2048	1	27	1	0.0010	0.003
28	2049	1	28	1	0.0010	0.003
29	2050	1	29	1	0.0010	0.003
30	2051	1	30	1	0.0010	0.003
Total Increased Cancer Risk						**2.29**

* Third trimester of pregnancy

Construction Emissions and Health Risk Calculations

699 W. San Carlos Ave, San Jose, CA

DPM Emissions and Modeling Emission Rates - Unmitigated

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2020	Construction	0.0327	DPM	65.4	0.01991	2.51E-03	4,078	**6.15E-07**
2021-2022	Construction	0.0449	DPM	89.8	0.02732	3.44E-03	4,078	**8.44E-07**
Total		***0.0776***		***155.2***	***0.0472***	***0.0060***		

Operation Hours
hr/day = 9 (7am - 4pm)
days/yr = 365
hours/year = 3285

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2020	Construction	FUG	0.0621	124.2	0.03781	4.76E-03	4,078	**1.17E-06**
2021-2022	Construction	FUG	0.00915	18.3	0.00557	7.02E-04	4,078	**1.72E-07**
Total			***0.0713***	***142.5***	***0.0434***	***0.0055***		

Operation Hours
hr/day = 9 (7am - 4pm)
days/yr = 365
hours/year = 3285

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2020	Construction	0.0057	DPM	11.4	0.00348	4.38E-04	4,078	**1.07E-07**
2021-2022	Construction	0.0068	DPM	13.6	0.00413	5.20E-04	4,078	**1.28E-07**
Total		***0.0125***		***25.0***	***0.0076***	***0.0010***		

Operation Hours
hr/day = 9 (7am - 4pm)
days/yr = 365
hours/year = 3285

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

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2020	Construction	FUG	0.02050	41.0	0.01248	1.57E-03	4,078	**3.86E-07**
2021-2022	Construction	FUG	0.00915	18.3	0.00557	7.02E-04	4,078	**1.72E-07**
Total			***0.0297***	***59.3***	***0.0181***	***0.0023***		

Operation Hours
hr/day = 9 (7am - 4pm)
days/yr = 365
hours/year = 3285

699 W. San Carlos Ave, San Jose, CA - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors - 1.5 meter

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 Cancer	Adult - Exposure Information			Adult Cancer	Maximum	
			DPM Conc (ug/m3)		Age		Modeled DPM Conc (ug/m3)		Age			
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Sensitivity Factor**	**Risk (per million)**	**Year**	**Annual**	**Sensitivity Factor**	**Risk (per million)**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2020	0.0874	10	14.35	2020	0.0874	1	0.25	0.1882	0.276
2	1	1 - 2	2021	0.1199	10	19.70	2021	0.1199	1	0.34	0.0277	0.148
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						**34.05**				**0.60**		

* Third trimester of pregnancy

699 W. San Carlos Ave, San Jose, CA - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors - 4.5 meter

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	Maximum	
					Age	Cancer	Modeled		Age	Cancer		
Exposure	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	2020	0.0760	10	12.47	2020	0.0760	1	0.22	0.1636	0.240
2	1	1 - 2	2021	0.1042	10	17.12	2021	0.1042	1	0.30	0.0241	0.128
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						**29.59**				**0.52**		

* Third trimester of pregnancy

699 W. San Carlos Ave, San Jose, CA - With Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors - 1.5 meter

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 Cancer Risk	Adult - Exposure Information			Adult Cancer Risk	Maximum	
			DPM Conc (ug/m3)		Age Sensitivity		Modeled DPM Conc (ug/m3)		Age Sensitivity			
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Factor**	**(per million)**	**Year**	**Annual**	**Factor**	**(per million)**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2020	0.0152	10	2.50	2020	0.0152	1	0.04	0.0621	0.077
2	1	1 - 2	2021	0.0182	10	2.99	2021	0.0182	1	0.05	0.0277	0.046
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						**5.48**				**0.10**		

* Third trimester of pregnancy

699 W. San Carlos Ave, San Jose, CA - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Sunol Community School (EDGE) - Child Exposure

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

		Student - Exposure Information			Child	Maximum	
Exposure Year	**Exposure Duration (years)**	**DPM Conc (ug/m3) Year**	**Annual**	**Age* Sensitivity Factor**	**Cancer Risk (per million)**	**Fugitive PM2.5**	**Total PM2.5**
1	1	2020	0.0127	3	0.33	0.0271	0.040
2	1	2021	0.0174	3	0.86	0.0040	0.021
Total Increased Cancer Risk					**1.2**		

* Child exposure assumed

Project Name:	699 W San Carlos, San Jose							Complete ALL Portions in Yellow
	See Equipment Type TAB for type, horsepower and load factor							
	Project Size	381	Dwelling Units	1.2	total project acres disturbed			
		265392	s.f. residential					
		0	s.f. retail					
		0	s.f. office/commercial					
		22191	s.f. other, specify: Amenity / BOH					
		15950	s.f. parking garage	104	spaces			
		0	s.f. parking lot	0	spaces			
	Construction Hours	7:30	am to	5:00	pm			
Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Demolition and Site Prep	Start Date:	7/1/2020	Total phase:	20			Overall Import/Export Volumes
		End Date:	08/01/202					
1	Concrete/Industrial Saws	81	0.73	8	20	8.0	160	Demolition Volume
1	Excavators	162	0.38	8	20	8.0	160	Existing 10,000 SF building on site.
1	Rubber-Tired Dozers	255	0.4	8	20	8.0	160	40,000 SF of asphalt
1	Skid Steer Loaders	64	0.37	8	20	8.0	160	
	Earthwork	Start Date:	8/2/2020	Total phase:	30			
		End Date:	9/15/2020					
1	Excavator	162	0.38	8	30	8.0	240	Export 8600 CY of dirt
1	Rubber - Tired Dozer	225	0.4	8	30	8.0	240	
1	Sweepers	64	0.46	8	30	8.0	240	
1	Skid Steer Loaders	64	0.37	8	30	8.0	240	
	Foundation	Start Date:	9/16/2020	Total phase:	30			
		End Date:	12/1/2020					
1	Pumps	84	0.74	8	5	1.3	40	Concrete Import: 8001 CY
1	Cement Mixer	9	0.56	8	5	1.3	40	Import: 1.2M lbs of rebar
1	Mobile Crane	226	0.29	8	5	1.3	40	
	Steel Erection and Module Set	Start Date:	12/1/2020	Total phase:	240			
		End Date:	12/1/2021					
1	Crane	226	0.29	8	240	8.0	1920	
1	Welding Machines	46	0.45	1	240	1.0	240	
1	Air Compressors	78	0.48	1	240	1.0	240	
1	Const manlift	167	0.4	8	160	8.0	1280	
	Finish Modules and Roofing	Start Date:	6/1/2021	Total phase:	160			
		End Date:	3/1/2022					
1	Cranes	226	0.29	8	100	5.0	800	
1	Air Compressors	78	0.48	0.5	160	0.5	80	
1	Generator Sets	84	0.74	0.5	160	0.5	80	
1	Const manlift	167	0.4	8	160	8.0	1280	
						1.0		
Building -	Close Out	Start Date:	3/2/2022	Total phase:	40			Mostly commissioning and clean up
		End Date:	5/1/2022					