MIDPEN DOWNTOWN SAN MATEO OPPORTUNITY SITES AIR QUALITY & GREENHOUSE GAS ASSESSMENT

San Mateo, California

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Introduction

The purpose of this report is to address air quality impacts and compute the greenhouse gas (GHG) emissions associated with the proposed residential building at 480 E. 4th Avenue and parking garage at 400 E. 5th Avenue in San Mateo, California. The air quality impacts and GHG emissions would be associated with the demolition of the existing uses at the site, construction of the new building and infrastructure, and operation of the project. Air pollutant and GHG emissions associated with the construction and operation of the project were predicted using models. In addition, the potential construction health risk impact to nearby sensitive receptors and the impact of existing toxic air contaminant (TAC) sources affecting the proposed residences were evaluated. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1] In addition, the project emissions are assessed against U.S. Department of Housing and Urban Development (HUD) thresholds for projects.

Project Description

The two project sites are currently developed with surface parking lots, containing a total of 235 parking spaces, and an approximate 2,000 square-foot (sf) industrial building. The project proposes to demolish the existing uses and construct a seven-story, 225-unit residential building at the 1.16-acre northern site (480 E. 4th Avenue) and a five-story, 700-space parking garage at the 1.25-acre southern site (400 E. 5th Avenue). In the parking garage, there would be 164 parking spaces dedicated for the residential building, 235 spaces to replace the existing surface parking, 193 ten-hour parking spaces, and 108 three-hour parking spaces. A residential pedestrian bridge on the fifth level would connect the proposed apartment building and parking garage.

Setting

The project is located in San Mateo 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 ($PM_{2.5}$).

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

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

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

Toxic air contaminants (TAC) 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.

Regulatory Agencies

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles.[3] The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

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

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

published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.[4] The detailed community risk modeling methodology used in this assessment is contained in *Attachment 1*.

City of San Mateo Vision 2030 General Plan

The Land Use Element of the City of San Mateo Vision 2030 General Plan includes goals, policies, and actions to reduce exposure of the City's sensitive population to exposure of air pollution, toxic air contaminants, and GHGs. The following goals, policies, and actions are applicable to the proposed project:

Climate Change Goals and Policies

Goal 8a Reduce greenhouse gas emissions each year consistent with the Climate Action Plan.

Policy LU 8.1 Carbon Footprint. The City shall prepare an updated greenhouse gas emissions inventory consistent with the Climate Action Plan.

Policy LU 8.2 Effects of Climate Change. Incorporate consideration of the effects of climate change in development of General Plan updates, disaster planning, City projects, infrastructure planning, future policies and long-term strategies. Explore voluntary adjustments of base flood elevation.

Policy LU 8.3 GHG Emission Reductions. Monitor and report progress toward the City's GHG emissions reduction target on an annual basis and regularly review emission reduction measures and new opportunities consistent with guidance of the City's Climate Action Plan.

Air Quality Goals and Policies

Policy LU 8.9 Air Quality Construction Impacts. The City shall mitigate air quality impacts generated during construction activities by requiring the following measures:

1. Use of appropriate dust control measures, based on project size and latest BAAQMD guidance, shall be applied to all construction activities within San Mateo.

2. Applicants seeking demolition permits shall demonstrate compliance with applicable BAAQMD requirements involving lead paint and asbestos containing materials (ACM's) designed to mitigate exposure to lead paint and asbestos.

3. Utilization of construction emission control measures recommended by BAAQMD as appropriate for the specifics of the project (e.g., length of time

[4] Bay Area Air Quality Management District. 2017. *BAAQMD CEQA Air Quality Guidelines.* May.

of construction and distance from sensitive receptors). This may include the utilization of low emission construction equipment, restrictions on the length of time of use of certain heavy-duty construction equipment, and utilization of methods to reduce emissions from construction equipment (alternative fuels, particulate matter traps and diesel particulate filters).

Policy LU 8.11 Toxic Air Contaminants. The City shall require that when new development that would be a source of TACs is proposed near residences or sensitive receptors, either adequate buffer distances shall be provided (based on recommendations and requirements of the California Air Resources Control Board and BAAQMD), or filters or other equipment/solutions shall be provided to reduce the potential exposure to acceptable levels.

When new residential or other sensitive receptors are proposed near existing sources of TAC's, either adequate buffer distances shall be provided (based on recommendations and requirements of the California Air Resources Control Board and BAAQMD), or filters or other equipment/solutions shall be provided to the source to reduce the potential exposure to acceptable levels.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. The closest sensitive receptors to the project sites are the single-family home opposite S. Claremont Street to the northeast and the fourth-floor multi-family apartments opposite E. 4th Avenue to the northwest of the northern residential site. There are additional residences at farther distances from the project sites. There is also a preschool (Safari Kids) to the northeast of the northern residential site with children ages 3 years and older. This project would also introduce new sensitive receptors to the area.

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. Community Risk Significance and GHG Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	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 $\mu g/m^3$	>0.8 $\mu g/m^3$	
Greenhouse Gas Emissions			
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020) 660 metric tons annually or 2.8 metric tons per capita (for 2030)*		

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

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

NEPA/HUD Significance Thresholds

The Federal Clean Air Act governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act. At the Federal level, the United States Environmental Protection Agency (USEPA) administers the Clean Air Act. The California Clean Air Act is administered by the CARB at the State level and by the Air Quality Management Districts at the regional and local levels. BAAQMD regulates air quality at the regional level, which includes the nine-county Bay Area.

The federal Clean Air Act requires each state to identify areas that have ambient air quality in violation of federal standards. States are required to develop, adopt, and implement a state implementation plan (SIP) to achieve, maintain, and enforce federal ambient air quality standards

in these nonattainment areas. SIP elements are developed on a pollutant-by-pollutant basis whenever one or more air quality standards are being violated. In California, local and regional air pollution control agencies have primary responsibility for developing SIPs, generally in coordination with local and regional land use and transportation planning agencies. BAAQMD is the responsible regional air pollution control agency in the San Francisco Bay Area.

An area's compliance with national ambient air quality standards under the Clean Air Act is categorized as nonattainment, attainment (better than national standards), unclassifiable, or attainment/cannot be classified. The unclassified designation includes attainment areas that comply with federal standards, as well as areas for which monitoring data are lacking. Unclassified areas are treated as attainment areas for most regulatory purposes. Simple attainment designations generally are used only for areas that transition from nonattainment status to attainment status. Areas that have been reclassified from nonattainment to attainment of federal air quality standards are automatically considered maintenance areas, although this designation is seldom noted in status listings. The San Francisco Bay Area is designated as nonattainment for the federal 8-hour ozone standard and the 24-hour $PM_{2.5}$ standard. The San Francisco Bay Area is designated as attainment or unclassified for the other national ambient air quality standards.

With respect to the state ambient air quality standards, California classifies areas as attainment, nonattainment, nonattainment-transitional, or unclassified. The San Francisco Bay Area is designated as nonattainment for the state ozone, inhalable particulate matter (PM_{10}), and $PM_{2.5}$ standards and as attainment or unclassified for the other state ambient air quality standards. The predominant regulation that guides assessment of air quality impacts of federal actions is the General Conformity Rule, established under the Clean Air Act (Section 176(c)(4)). The General Conformity Rule ensures that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plans to meet national standards for air quality. The project area is located within the San Francisco Bay Area Air Basin, which is designated as a nonattainment area for the federal 8-hour ozone standard and the federal $PM_{2.5}$ standard. The air basin is designated as a maintenance area with respect to the federal carbon monoxide (CO) standards.

In keeping with the General Conformity Rule process, this assessment applies the appropriate *de minimis* thresholds of the Rule as they apply to the San Francisco Bay Area Air Basin for ozone precursors, $PM_{2.5}$, and CO. The *de minimis* thresholds for these three pollutants in the San Francisco Bay Area Air Basin are 100 tons per year for each pollutant or precursor pollutant (i.e., NOx, ROG, PM_{10} and $PM_{2.5}$).

Air Quality Impacts and Mitigation Measures

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

BAAQMD is the regional agency responsible for overseeing compliance with State and Federal laws, regulations, and programs within the San Francisco Bay Area Air Basin (SFBAAB). BAAQMD, with assistance from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), has prepared and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2017 Clean Air Plan*.[5] The primary goals of the Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions and protect the climate. The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which in turn affects region-wide emissions of air pollutants and GHGs.

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

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

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

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 were input to CalEEMod. The model output from CalEEMod along with construction and operational inputs are included as *Attachment 2*.

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

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 hours used, was based a construction data sheet provided by the project applicant. The proposed project land uses and demolition/earthwork volumes were entered into CalEEMod as follows:

- 225 dwelling units, 226,354-sf, and 1.16 acres entered as "Apartments Mid Rise",
- 700 spaces, 228,918-sf, and 1.25 acres entered as "Unenclosed Parking with Elevator",
- 6,775 tons of existing uses demolition hauling,
- 2,865 cubic yards (cy) of soil export during site preparation,
- 600-cy of soil import and 6,182-cy of soil export during grading and trenching,
- 3,050 cement truck round trips during building construction, and
- 65 asphalt truck round trips during paving.

The CalEEMod construction schedule assumed that the project would be built out over a period of approximately 21 months, beginning in November 2021. Based on the estimated construction schedule and provided equipment usage assumptions, there were an estimated 457 construction workdays Average daily emissions were computed for each building 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. The calculated construction period emissions would not exceed the NEPA de minimis or BAAQMD significance thresholds.

Table 2. Construction Period Emissions

Scenario	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Total construction emissions (tons/year)	2.0 tons	3.2 tons	<0.1 tons	<0.1 tons
NEPA De Minimis Thresholds (tons/year)	*100 tons*	*100 tons*	*100 tons*	*100 tons*
Exceed Threshold?	No	No	No	No
Average daily emissions (pounds/day)[1]	8.5 lbs.	14.0 lbs.	0.3 lbs.	0.3 lbs.
BAAQMD Thresholds (pounds/day)	*54 lbs.*	*54 lbs.*	*82 lbs.*	*54 lbs.*
Exceed Threshold?	No	No	No	No
Notes: [1]Assumes 457 workdays.				

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

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

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

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

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

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

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

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

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

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

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

Effectiveness of Mitigation Measure AQ-1

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

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 also used to estimate emissions from operation of the proposed project assuming full build-out.

Land Uses

The project land uses for the operational period modeling were entered into CalEEMod differently than as the above construction period uses. The operational modeling still included 225 units entered as "Apartments Mid Rise", but the parking land use was reduced to 45 spaces entered as "Unenclosed Parking with Elevator". The mobile emissions from the residential parking (164 spaces) is captured in the modeling of the residential land use and the existing 235 surface parking spaces replaced by the new garage. The City were then able to account for 256 of the remaining 301 spaces through their in-lieu program and Central Parking and Improvement District lost on-street spaces. Therefore, the operational period modeling would only account for the remaining 45 spaces.

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 site could possibly be constructed and begin operating would be 2024. Emissions associated with build-out later than 2024 would be lower.

Trip Generation

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. 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 project traffic analysis provided project trip generation values for the proposed mixed-use development.[6] The *Mixed-Use Reduction* was applied. For the residential land use, the trip generation rates would be 4.57 trips per dwelling unit for the weekdays, 4.39 trips per dwelling unit for Saturday, and 4.03 trips per dwelling unit for Sunday. For the parking use, the trip generation rates would be 6.56 trips per space for weekdays and weekends. The default trip lengths and trip types specified by CalEEMod were used.

Energy

CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards. Indirect emissions from electricity were computed in CalEEMod. The model has a default rate of

[6] Hexagon Transportation Consultants. *408 E. 4th Avenue Residential Development Draft Traffic Impact Analysis*. January 2020.

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.[7] Peninsula Clean Energy (PCE) now provides electricity to 90-percent of Daly City, with 50 percent renewable and 90 percent being carbon free electricity. The 2018 rate provided by PCE was 129.77 pounds of CO_2 per megawatt of electricity delivered.[8] The CO_2 intensity rate input into CalEEMod was adjusted to account for 90 percent of PCE's rate and 10 percent of PG&E's rate. The computed rate is 146 pounds of CO_2 per megawatt of electricity delivered.

Other Inputs

Default model assumptions for emissions associated with solid waste generation use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions. All hearths were assumed to be gas powered.

Existing Uses

A CalEEMod model run was developed to compute emissions from use of the existing land uses as if they were operating in 2024. Inputs for this existing modeling scenario included 2,000-sf entered as "General Light Industry" and 235 spaces entered as "Parking Lot" on 2.41 acres. The default trip rate generation rate specified by CalEEMod for the existing industrial land use was used, and the 6.56 trips per space for weekdays and weekends specified by the project's traffic data for the existing parking land use was input into the model. These and other inputs were applied to the modeling in the same manner described for the proposed project. Historical energy usage rates were assigned by CalEEMod.

Project Operational Emissions

As shown in Table 3, operational emissions would not exceed the NEPA de minimis or BAAQMD significance thresholds.

[7] Pacific Gas & Electric, 2015. *Greenhouse Gas Emission Factors: Guidance for PG&E Customers*. November.
[8] Correspondence with Michael Totah, Peninsula Clean Energy, August 30, 2019.

Table 3. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2024 Project Operational Emissions (tons/year)	1.3 tons	0.7 tons	0.9 tons	0.3 tons
2024 Existing Site Operational Emissions (tons/year)	<0.1 tons	<0.1 tons	<0.1 tons	<0.1 tons
Net Annual Emissions (*tons/year*)	1.3 tons	0.7 tons	0.9 tons	0.3 tons
NEPA De Minimis Thresholds (tons/year)	*100 tons*	*100 tons*	*100 tons*	*100 tons*
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Thresholds?	*No*	*No*	*No*	*No*
2043 Project Operational Emissions (*pounds/day*)[1]	7.2 lbs.	3.9 lbs.	4.8 lbs.	1.4 lbs.
BAAQMD Thresholds (pounds/day)	*54 lbs.*	*54 lbs.*	*82 lbs.*	*54 lbs.*
Exceed Threshold?	*No*	*No*	*No*	*No*
Notes: [1] Assumes 365-day operation.				

Impact: Expose sensitive receptors to substantial pollutant concentrations?

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

Temporary project construction activity would also generate dust and equipment exhaust on a temporary basis that could affect nearby sensitive receptors. A construction community health risk assessment was prepared to address project construction impacts on the surrounding off-site sensitive receptors. Operation of the project is not expected to be a source of TAC or localized air pollutant emissions, as the project would not generate substantial truck traffic or include stationary sources of emissions, such as generators powered by diesel engines. Auto traffic generated by the project would be spread out over a broad geographical area and not localized.

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

Community risk impacts are addressed by predicting increased 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*.

Construction Community Health Risk Impacts

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations as show in Table 2. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The

primary community risk impact issue associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$.[9] This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod model provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.0595 tons (119 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.0537 tons (107 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[10] 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 7:00 a.m. to 7:00 p.m., when the majority of construction activity would occur according to the provided construction worksheet.

The modeling used a five-year data set (2013-2017) of hourly meteorological data from the San Francisco International Airport that was prepared for use with the AERMOD model by BAAQMD. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2021-2023 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 1.5 meters (4.9 feet), 4.5 meters (14.8 feet), and 10.7 meters (35.1 feet) were used to represent the breathing height on the first, second, and fourth floors of nearby single- and multi-family residences. A third-floor height was not modeled

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

because the adjacent mixed-use building to the north of the project site would have sensitive receptors starting on the fourth floor. A receptor height of 1.0 meter was used for modeling impacts to children at the nearby preschool.

Construction Impacts

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

Results of this assessment indicated that the construction MEI was located on the first floor (1.5 meters) of the single-family residence to the northeast of the residential project site opposite S. Claremont Street (as seen in Figure 1). The maximum increased cancer risks, maximum $PM_{2.5}$ concentration, and HI from construction does not exceed their respective BAAQMD single-source thresholds of greater than 10.0 per million for cancer risk, greater than 0.3 $\mu g/m^3$ for $PM_{2.5}$ concentration, and greater than 1.0 for HI. Table 4 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and HI for project related construction activities affecting the MEI.

Table 4. Construction Risk Impacts at the Construction MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction	Unmitigated	6.1 (infant)	0.05	<0.01
	BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Significant?	Unmitigated	*No*	*No*	*No*

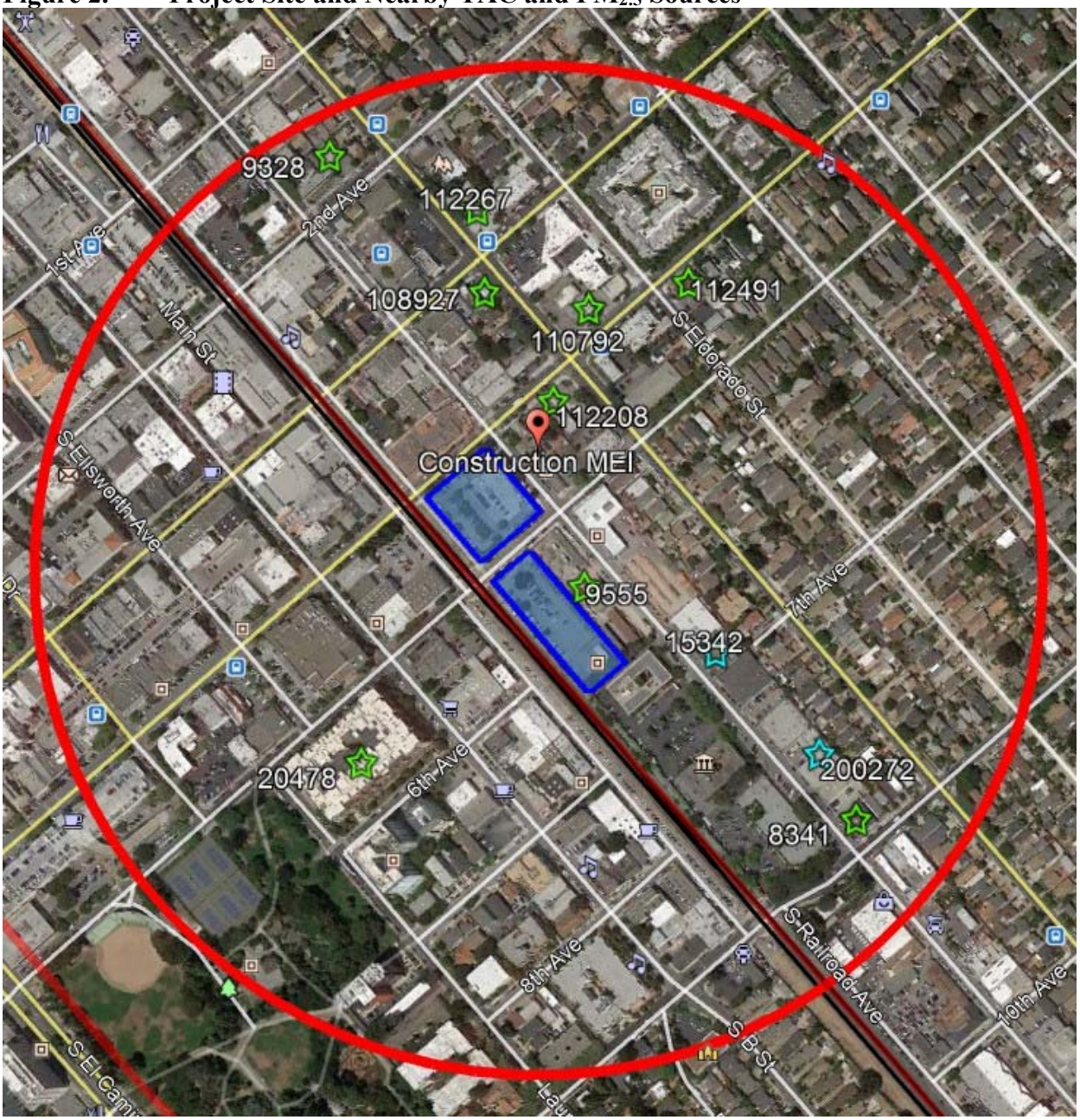
Additionally, modeling was conducted to predict the cancer risks, non-cancer health hazards, and maximum $PM_{2.5}$ associated with a nearby preschool. Safari Kids is a preschool program that is approximately 200 feet northeast of the residential project site. It offers programs for children 3-years and older. The maximum increased cancer risks were adjusted using child exposure parameters. Results of this assessment indicated that the maximum cancer risks (without any mitigation or construction emission controls) would be 1.4 per million for child exposure. The maximum-modeled annual $PM_{2.5}$ concentration, which is based on combined exhausted and fugitive dust emissions, would be 0.03 $\mu g/m^3$ and the HI based on the DPM concentration would be less than 0.01. These risk values do not exceed the BAAQMD single-source significance threshold for annual cancer risk, $PM_{2.5}$ concentration, or HI.

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

Combined Impact of All TAC Sources on the Off-Site Construction MEI

Community health risk assessments typically look at all substantial sources of TACs located within 1,000 feet of the project site and at new TAC sources that would be introduced by the project. These sources include highways, rail lines, busy surface streets, and stationary sources identified by BAAQMD. A review of the project area indicates that traffic on S. Delaware Street has an average daily traffic (ADT) of over 10,000 vehicles. All other roadways within the area are assumed to have an ADT that is less than 10,000 vehicles. The southwestern project site boundaries are adjacent to the Caltrain rail lines. Eleven stationary sources were identified within the 1,000-foot influence area using BAAQMD's stationary source stationary source website map and Google Earth map. This project would not introduce any new TAC sources, such as substantial truck traffic or generators powered by diesel engines. Figure 2 shows the sources affecting the project site. Details of the screening, modeling, and community risk calculations are included in *Attachment 4.*

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



Railroad: Caltrain

The construction MEI is located 350 feet northeast of the Caltrain rail lines. Rail activity on these lines currently generates TAC and $PM_{2.5}$ emissions from locomotive exhaust. These rail lines are used for passenger (Caltrain) and freight service by trains using diesel fueled locomotives. The Peninsula Corridor Electrification Project is a key component of the Caltrain Modernization Program that would electrify the Caltrain Corridor from San Francisco to San Jose. 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 Jose and San Francisco, Caltrain is planning to switch from diesel locomotives to use of electric trains in the near future.[11] 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.[12]

Based on the current Caltrain schedule, there are 92 trains passing the project site during the weekdays, 32 trains during the weekend, and 4 trains that only run on Saturday. On an annual average basis there would be a total of 75 daily trains using diesel locomotives. Electrification of Caltrain would eliminate DPM emissions from most of these trains and would increase the total number of weekday trains from 92 to 114. In addition to the Caltrain trains, there are about four freight trains that also use this rail line on a daily basis.[13]

Caltrain plans are that in 2021 service between San Jose 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 2020, diesel locomotives would be replaced with 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 Jose Diridon Station and Gilroy. It is expected that all of the San Jose to San Francisco fleet would be EMUs by 2026 to 2029.[14]

For this evaluation it was assumed that occupancy of the occupancy of the project's residential units would begin in 2024 or thereafter. In calculating cancer risks from DPM emissions from rail line diesel locomotives a 30-year exposure period is used. In this case the exposure period would be from 2024 to 2053. Rail line DPM emissions were calculated for two periods, 2022-2025 and 2026-2053. Modeled concentrations from the rail lines for these periods were used to calculate potential increased cancer risks for the construction MEI and new project residents assuming almost continual exposure (350 days per year for 24 hours per day) over a 30-year period.

With Caltrain electrification, during 2024 through 2025 it was assumed that there would be 24 daily weekday trips and 4 daily weekend trips with 4 additional trips on Saturdays using trains with diesel locomotives[15]. On an annual average basis this would be a total of 19 daily trains using diesel locomotives. From 2026 through 2053 it was conservatively assumed that there would be 4 daily weekday diesel trains or, on an annual basis, an average of 3 trains per day. All trains used for freight service were assumed to use diesel powered locomotives.

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[11] Caltrain, 2014. *Peninsula Corridor Electrification Project. Final Environmental Impact Report*. December 2014.
[12] Caltrain, 2015. *Peninsula Corridor Electrification Fact Sheet*. May 2015.
[13] *Bay Area Regional Rail Plan, Technical Memorandum 4a, Conditions, Configuration & Traffic on Existing System*, Metropolitan Transportation Commission, November 15, 2006.
[14] Ibid
[15] Caltrain 2015. *Short Range Transit Plan:FY2015-2024*. October 1, 2015.

DPM and $PM_{2.5}$ emissions from trains on the rail line were calculated using EPA emission factors for locomotives[16] and CARB adjustment factors to account for fuels used in California.[17] Caltrain's current locomotive fleet consists of twenty 3,200 horsepower (hp) locomotives of model year or overhaul date of 1999 or later, three 3,200 hp locomotives of model year 1998, and six 3,600 hp locomotives of model year 2003.[18] When electrification occurs, Caltrain will retain the six 3,600 hp locomotives and the three-model year 1998 3,200 hp locomotives.[19] In estimating diesel locomotive emissions for Caltrain a fleet average locomotive horsepower of 3,467 hp was used. 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.

Dispersion modeling of locomotive emissions was conducted using the EPA's AERMOD dispersion model and five-year data set (2013-2017) of hourly meteorological data from the San Francisco 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 a line sources comprised of a series of volume sources along the centerline of the rail tracks.

Impacts at the location of the MEI from construction activities were evaluated. DPM and $PM_{2.5}$ concentrations were calculated at single receptor placed at the location of the construction MEI, discussed previously. The maximum increased lifetime cancer risk and annual $PM_{2.5}$ concentrations for the construction MEI was computed using modeled DPM and $PM_{2.5}$ concentrations and BAAQMD recommended methods and exposure parameters described in *Attachment 1*. The maximum increased cancer risk was computed from this concentration as 2.3 in one million and the annual average $PM_{2.5}$ concentration was 0.01 $\mu g/m^3$. Potential non-cancer health effects due to chronic exposure to DPM were computed as a HI of less than 0.01. Details of the emission calculations, dispersion modeling and cancer risk calculations are contained in *Attachment 4.* The maximum cancer risks, $PM_{2.5}$ concentration, and non-cancer health impacts (hazard index) are below their respective BAAQMD significance thresholds

Local Roadways – Meridian Avenue and Southwest Expressway

For local roadways, BAAQMD has provided the *Roadway Screening Analysis Calculator* to assess whether roadways with traffic volumes of over 10,000 vehicles per day may have a potentially significant effect on a proposed project. Note this is a screening model and more refined modeling could be conducted if potentially significant impacts are identified. Two adjustments were made to the cancer risk predictions made by this calculator: (1) adjustment for latest vehicle emissions rates predicted using EMFAC2014 and (2) adjustment of cancer risk to reflect OEHHA guidance (see *Attachment 1*).

The calculator uses EMFAC2011 emission rates for the year 2014. However, a new version of the emissions factor model, EMFAC2014 is available. This version predicts lower emission rates. An

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

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.[20]

The ADT on S. Delaware Street was estimated to be 11,165 vehicles. These estimates were based on traffic volumes included in the project's traffic analysis for cumulative plus project conditions.[21] The AM and PM peak-hour volumes were averaged and then multiplied by 10 to estimate the ADT.

The BAAQMD *Roadway Screening Analysis Calculator* for San Mateo County was used for this roadway. S. Delaware Street was identified as a north-south directional roadway with the construction MEI located approximately 175 feet west of the roadway. Estimated risk values for this roadway at the MEI are listed in Table 5. Note that BAAQMD has found that non-cancer hazards from all local roadways would be well below the BAAQMD thresholds. Chronic or acute HI for the roadway would be below 0.03.

Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth and identifies the location of nearby stationary sources and their estimated risk and hazard impacts. In addition, *BAAQMD's Permitted Stationary Sources 2017* GIS website[22] was used to locate updated nearby permitted stationary sources. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. BAAQMD provided updated emissions data.[23] Those data were input into BAAQMD's *Risk and Hazards Emissions Screening Calculator* which computes the cancer risk, annual $PM_{2.5}$ concentrations, and HI using adjustments to account for new OEHHA guidance and distance from the sources.

Eleven stationary sources were identified; Plant #112267, #108927, 112491, #110792, and #112208 are gas dispensing facilities, Plant #9328, #8341, #15342, and #200272 are coating operations, Plant #20478 is a diesel-powered generator, and Plant #9555 is wood working equipment. Estimated risk values for these stationary sources at the MEI are listed in Table 5.

The screening values for Plant #9555 indicated that the wood working equipment would have total $PM_{2.5}$ concentration exceeding the cumulative-source significant threshold of 0.8 $\mu g/m^3$. Therefore, refined modeling for this source was conducted. There were no cancer risks or hazard risks associated with this source.

[20] Correspondence with Alison Kirk, BAAQMD, November 23, 2015.
[21] Hexagon Transportation Consultants. *408 E. 4th Avenue Residential Development Draft Traffic Impact Analysis*. January 2020.
[22] BAAQMD, https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65
[23] Correspondence with Areana Flores, BAAQMD, October 4, 2019.

Based on the source's total $PM_{2.5}$ concentration screening value and using BAAQMD's *Risk and Hazards Emissions Screening Calculator,* the $PM_{2.5}$ concentration or fugitive dust emissions rate was calculated. Then the California Air Resources Board's $PM_{2.5}$ speciation profile fraction for "Wood Operation-Sanding" was applied to the calculated fugitive dust emissions rate.[24] In AERMOD, the modeling utilized one area source to represent the source's fugitive dust emissions. To represent the source's fugitive dust 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 source's wood working equipment exhaust point. Emissions from the wood working equipment were distributed throughout the modeled area source. The emissions were modeled as occurring 24 hours a day.

Dispersion modeling of Plant #9555 emissions was conducted using the EPA's AERMOD dispersion model and the five-year data set (2013-2017) of hourly meteorological data from the San Francisco Airport. The annual $PM_{2.5}$ concentration was modeled at the construction MEI. Receptor heights of 1.5 meters (4.9 feet) and 4.5 meters (14.8 feet) were used to represent the breathing height on the first and second floors of the construction MEI. Maximum $PM_{2.5}$ concentrations were then calculated and identified. *Attachment 4* to this report includes the emission calculations used for Plant #9555 area source modeling and calculations.

The modeled maximum $PM_{2.5}$ concentration from Plant #9555 on the first-floor of the construction MEI, as shown in Table 5, does not exceed its respective BAAQMD single-source thresholds of greater than 0.3 $\mu g/m^3$

Cumulative Community Health Risk at Off-site Construction MEI

Table 5 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e. the construction MEI). Without mitigation, the project construction activity would not exceed the single-source BAAQMD community risk thresholds. In addition, the combined annual cancer risk, $PM_{2.5}$ concentration, and Hazard risk values would also not exceed their respective cumulative thresholds.

[24] https://ww3.arb.ca.gov/ei/speciate/pmsizeprofile14dec18.zip

Table 5. Impacts from Combined Sources at Off-Site Construction MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Single-Source Risk				
Project Construction	Unmitigated	6.1 (infant)	0.05	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
Cumulative-Source Risks				
Caltrain Line at 350 feet		2.3	0.01	<0.01
S. Delaware St (north-south) at 175 feet west, ADT 11,165		1.1	0.04	<0.03
Plant #9328 (Coating Operation) at 965 feet		--	--	<0.01
Plant #112267 (GDF) at 605 feet		<0.1	--	<0.01
Plant #108927 (GDF) at 405 feet		<0.1	--	<0.01
Plant #112491 (GDF) at 530 feet		<0.1	--	<0.01
Plant #110792 (GDF) at 340 feet		0.1	--	<0.01
Plant #112208 (GDF) at 70 feet		0.7	--	<0.01
Plant #9555 (Wood Working Equipment) at 355 feet		--	0.16	--
Plant #20478 (Generator) at 755 feet		0.5	<0.01	<0.01
Plant #8341 (Coating Operation) at 1,000 feet		--	--	<0.01
Plant #15342 (Coating Operation) at 665 feet		--	--	<0.01
Plant #200272 (Coating Operation) at 1,000 feet		--	--	<0.01
Cumulative Total	Unmitigated	<11.1 (infant)	<0.27	<0.15
BAAQMD Cumulative Source Threshold		***>100***	***>0.8***	***>10.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

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

Operational Community Health Risk Impacts – New Project Residences

In addition to evaluating health impact from project construction, a health risk assessment was completed to assess the impact that existing TAC sources would have on the new proposed sensitive receptors that the project would introduce. The same TAC sources identified above were used in this health risk assessment.[25]

Railroad: Caltrain

The Caltrain rail line analysis was conducted in the same manner for the new project sensitive receptors as described above for the construction MEI. The project site is located adjacent to the Caltrain rail lines.

DPM concentrations were calculated at receptor locations placed within the proposed residential areas of the project on the first through fourth floor levels. Impacts above the fourth-floor level would be lower than those on the fourth floor and were not included in the modeling. Receptors heights of 1.5 meters (5 feet), 5.2 meters (17 feet), 8.2 meters (27 feet) and 12.2 meters (37 feet), representative of breathing heights on the first through fourth floor levels of the proposed residential buildings, were used in the modeling. Figure 3 shows the railroad line segment used for the modeling and receptor locations at the project site where concentrations were calculated and the receptor where maximum health impacts would occur.

The maximum modeled long-term DPM and $PM_{2.5}$ concentrations for the new on-site residential receptors occurred at the second-floor level in the northwest corner of the project residential area.

The maximum increased lifetime cancer risk and annual $PM_{2.5}$ concentrations for new residents at the project site are shown in Table 6 and were computed using modeled DPM and $PM_{2.5}$ concentrations and BAAQMD recommended methods and exposure parameters described in *Attachment 1*. The maximum increased cancer risk was computed from this concentration as 5.6 in one million and the annual average $PM_{2.5}$ concentration was 0.02 $\mu g/m^3$. Potential non-cancer health effects due to chronic exposure to DPM were computed as a HI of less than 0.01. Details of the emission calculations, dispersion modeling and cancer risk calculations are contained in *Attachment 4.*

The maximum cancer risks, $PM_{2.5}$ concentration, and non-cancer health impacts (hazard index) do not exceed their respective BAAQMD significance thresholds. The location of the receptor where the maximum TAC and $PM_{2.5}$ impacts from the rail line occurred is shown in Figure 3.

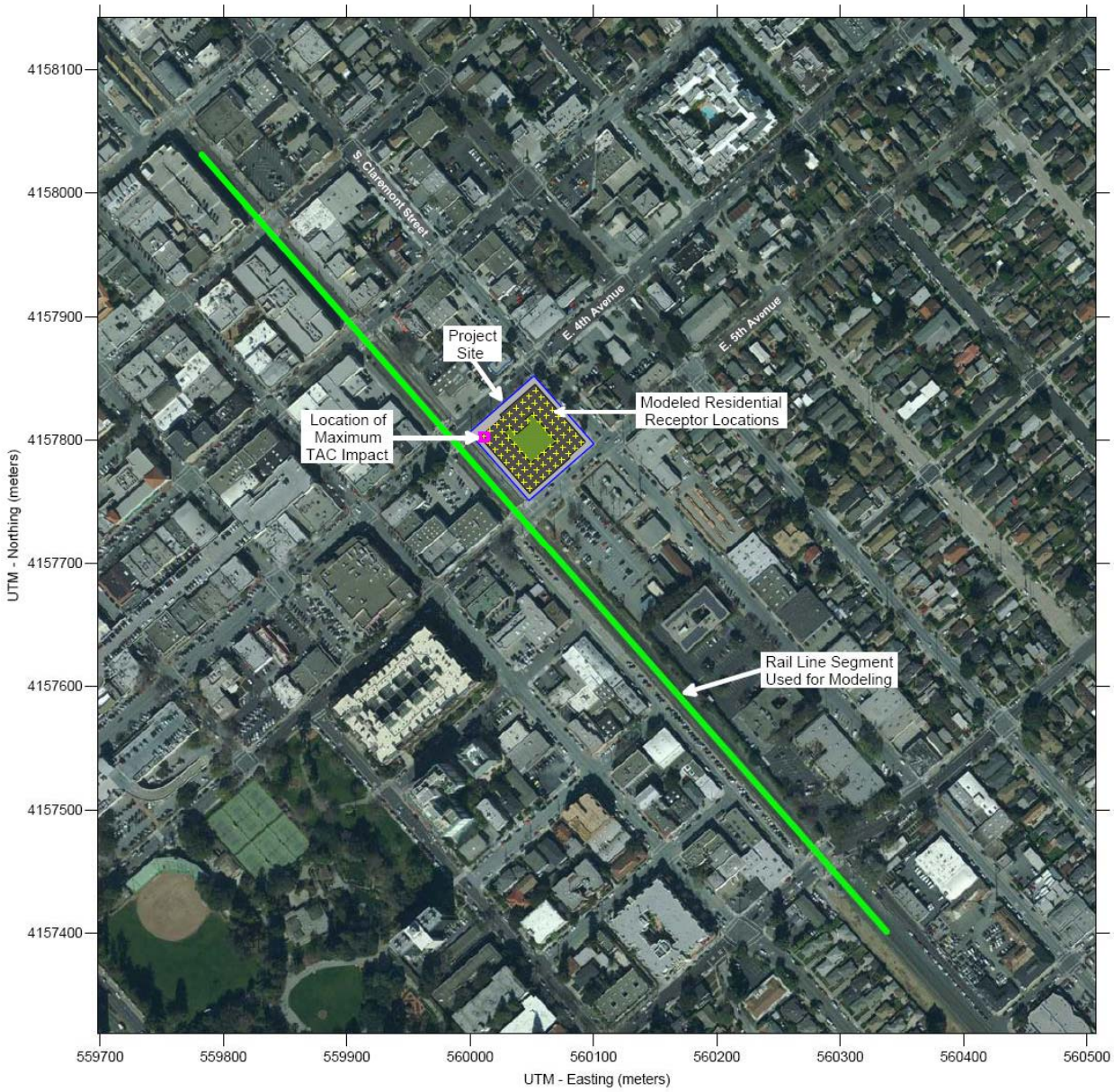
[25] We note that to the extent this analysis considers *existing* air quality issues in relation to the impact on *future residents* of the Project, it does so for informational purposes only pursuant to the judicial decisions in *CBIA v. BAAQMD* (2015) 62 Cal.4th 369, 386 and *Ballona Wetlands Land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

Table 6. Maximum Health Risk Impacts from Rail Line

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Chronic Hazard Index
Rail Line			
1st Floor Maximum Impact	4.9	0.02	<0.01
2nd Floor Maximum Impact	5.6	0.02	<0.01
3rd Floor Maximum Impact	3.3	0.01	<0.01
4th Floor Maximum Impact	1.4	0.01	<0.01
BAAQMD Thresholds	*10.0*	*0.3*	*1.0*

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

Figure 3. Project Site, On-site Residential Receptors, Rail Line Segments Evaluated, and Locations of Maximum TAC Impact



Local Roadways – Meridian Avenue and Southwest Expressway

The roadway analysis was conducted in the same manner for the new project sensitive receptors as described above for the construction MEI. The project receptors would be 300 feet west of S. Delaware Street. The health risk results are listed in Table 7.

Stationary Sources

The stationary source screening analysis, as well as the refined analysis for Plant #9555, for the project site receptors was conducted in the same manner as described above for the construction MEI. Table 7 shows the health risk results.

For Plant #9555, the $PM_{2.5}$ concentration was modeled at the new project receptors. Receptor heights of 1.5 meters (4.9 feet) and 4.5 meters (14.8 feet) were used to represent the breathing height on the first and second floors of the on-site receptors. A third-floor height was not modeled because the second-floor receptors concentrations were less than the first floor's concentrations and would continue to decrease above the second floor. The maximum modeled $PM_{2.5}$ concentration for the new on-site residential receptors occurred at the first-floor level in the east corner of the project residential area.

The modeled maximum $PM_{2.5}$ concentration from Plant #9555, as shown in Table 7, does not exceed its respective BAAQMD significance threshold. The location of the receptor where the maximum $PM_{2.5}$ impact from the Plant #9555 occurred is shown in Figure 4.

Figure 4. Project Site, On-site Residential and Construction MEI Receptors, Plant #9555 Area Source Evaluated, and Locations of Maximum $PM_{2.5}$ Impact

Combined Community Health Risk at Project Site

Community risk impacts from the single and combined TAC sources upon the project site are reported in Table 7. The TAC sources are compared against the BAAQMD single-source threshold and then combined are compared against the BAAQMD cumulative-source threshold. As shown in Table 7, the sources do not exceed the single-source or cumulative source thresholds.

Table 7. Community Risk Impact to New Project Residences

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Caltrain Line at 40 feet	5.6	0.02	<0.01
S. Delaware St (north-south) at 300 feet west, ADT 11,165	0.6	0.02	<0.03
Plant #9328 (Coating Operation) at 885 feet	--	--	<0.01
Plant #112267 (GDF) at 600 feet	<0.1	--	<0.01
Plant #108927 (GDF) at 360 feet	0.1	--	<0.01
Plant #112491 (GDF) at 660 feet	<0.1	--	<0.01
Plant #110792 (GDF) at 425 feet	<0.1	--	<0.01
Plant #112208 (GDF) at 190 feet	0.1	--	<0.01
Plant #9555 (Wood Working Equipment) at 230 feet	--	0.21	--
Plant #20478 (Generator) at 425 feet	1.1	<0.01	<0.01
Plant #8341 (Coating Operation) at 1,000 feet	--	--	<0.01
Plant #15342 (Coating Operation) at 560 feet	--	--	<0.01
Plant #200272 (Coating Operation) at 935 feet	--	--	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Total	<7.8	<0.26	<0.14
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?	*No*	*No*	*No*

Greenhouse Gas Emissions

Setting

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

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

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

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

Recent Regulatory Actions

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.

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

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

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

SB 350 Renewable Portfolio Standards

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

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

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

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

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

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

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

GHG Emissions

The U.S. EPA reported that in 2017, total gross nationwide GHG emissions were 6,457 MMT. These emissions were lower than peak levels of 7,370 MMT that were emitted in 2008. Relative to 1990 levels, these emissions were CARB updates the statewide GHG emission inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.[26] In 2017, GHG emissions from statewide emitting activities were 424 MMT. The 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 MT per person to 10.7 MT per person in 2017. The most recent Bay Area emission inventory was completed for the year 2011.[27] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011.

City of San Mateo Climate Action Plan

The City of San Mateo Climate Action Plan (CAP),[28] adopted in April 2015, is a qualified GHG reduction strategy that was developed by the City to not only reduce their GHG Emissions but also improve the quality of life in San Mateo. The City has a GHG reduction target of reducing GHG levels by 15 percent from 2005 levels by 2020 and progress towards 80 percent below 1990 levels by 2050. To reach their 2020 goal, the City of Sunnyvale must reduce emissions by a minimum of 253,660 MTCO2e or 17 percent of total baseline emissions. The CAP does not have a specific metric ton GHG threshold for project-level construction or operation., However, the City of San Mateo CAP provides several GHG emission reduction strategies to reduce construction GHG emissions. The CAP includes a checklist that identifies the minimum criteria a project must demonstrate to use the City's CAP for purposes of streamlining the analysis of GHG emissions under CEQA.

BAAQMD Significance Thresholds

The BAAQMD's CEQA Air Quality Guidelines do not use quantified thresholds for projects that are in a jurisdiction with a qualified GHG reductions plan (i.e., a Climate Action Plan). The plan has to address emissions associated with the period that the project would operate (e.g., beyond year 2020). For quantified emissions, the 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. San Mateo has adopted a CAP that addresses requirements recommended in the BAAQMD CEQA Guidelines; however, the currently adopted CAP does not address recent State goals to reduce emissions 40 percent below

[26] CARB. 2019. *2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017*. Available at https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf accessed on Nov. 26, 2019.

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

[28] PMC, 2015. *City of San Mateo Climate Action Plan.* April. https://www.cityofsanmateo.org/DocumentCenter/View/65426/San-Mateo-CAP---Adopted?bidId=

1990 levels by 2030. Operation 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 2.8 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 2.8 is calculated for 2030 based predictions from BAAQMD.[29] The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_2e/year threshold.

Impact: 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 within the operational period emissions. CalEEMod output is included in *Attachment 2*.

Service Population Emissions

The project service population efficiency rate is based on the number of future residents. For this project, the number of future residents was estimated by multiplying the total number of units (e.g. 225 units) by the persons per household rate for the City of San Mateo found in the California Department of Finance Population and Housing Estimate report.[30] Using the 2.62 person per household 2019 rate, the number of futures residents and the project's service population is estimated to be 590 residents.

Construction Emissions

GHG emissions associated with construction were computed to be 1,060 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.

[29] Bay Area Air Quality Management District, 2016. *CLE International 12th Annual Super-Conference CEQA Guidelines, Case Law and Policy Update*. December.
[30] State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2011-2019*. Sacramento, California, May 2019.

BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

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 8, the net annual emissions resulting from operation of the proposed project are predicted to be 1,071 MT of CO_2e for the year 2024 and 974 MT of CO_{2e} for the year 2030. The Service Population Emissions for the year 2024 would be 1.8 and 1.7 MT CO_{2e}/year/service population for the year 2030.

To be considered significant, the project must exceed both the GHG significance threshold in metric tons per year and the service population significance threshold. The 2024 and 2030 emissions do exceed the 2030 "bright-line" threshold of 660 MT of CO_{2e}/year. However, the 2024 and 2030 per capita emissions do not exceed the "Substantial Progress" efficiency metric of 2.8 MT CO_2e/year/service population.

Table 8. Annual Project GHG Emissions (CO_2e) in Metric Tons and Per Capita

Source Category	Existing Project		Proposed Project	
	2024	**2030**	**2024**	**2030**
Area	<1	<1	12	12
Energy Consumption	18	18	199	199
Mobile	10	9	791	694
Solid Waste Generation	1	1	52	52
Water Usage	1	1	17	17
Total (MT CO_2e/yr)	31	29	1,071	974
Net Emissions			**1,040** MT CO_{2e}/year	**945** MT CO_{2e}/year
Significance Threshold			***660 MT CO_2e/year***	
Service Population Emissions (MT CO2e/year/service population)			1.8	1.7
Significance Threshold			***2.8 in 2030***	
Exceed both thresholds?			*No*	*No*

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

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

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 outputs for existing and 2030 uses are also included in this attachment. Also included are any modeling assumptions.

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

Attachment 4 includes the screening community risk calculations, modeling results, and health risk calculations from sources affecting the project and construction MEI. The refined Caltrain modeling and refined stationary source modeling are also included in this attachment. AERMOD dispersion modeling files for these assessments, which are quite voluminous, are available upon request and would be provided in digital format

Attachment 1: Health Risk Calculation Methodology

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.[31] 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.[32] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[33] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

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

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[31] 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.

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

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

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). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD.

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

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

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

Where:

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

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

Where:

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

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

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

Non-Cancer Hazards

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

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

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: CalEEMod Modeling Inputs and Outputs

Project Name: Downtown San Mateo Opportunity Sites

Project Size	225	dwelling units	2.41	total project acres disturbed
	226,354	s.f. residential		s.f. retail
		s.f. office/commercial		s.f. other, specify:
		s.f. other, specify:		
	228,918	s.f. parking garage	up to 700	spaces
		s.f. parking lot		spaces
Construction Hours	7AM	am to	7PM	pm

Estimated Project Start is Fall 2021 with 21 month construction duration

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hrs per day	Comments
	Demolition	**Start Date:**	**11/1/2021**	**Total phase:**	**20**		**Overall Import / Export Volumes**
		End Date:	**11/26/2021**				
1	Concrete/Industrial Saws	81	0.73	8	3	1.2	**Demolition Volume**
1	Excavators	162	0.38	8	10	4.0	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	255	0.4	8	10	4.0	(*or* total tons to be hauled)
1	Tractors/Loaders/Backhoes	97	0.37	8	10	4.0	298,000 square feet *or*
							6,775 Hauling volume (tons)
	Site Preperation	**Start Date:**	**11/27/2021**	**Total phase:**	**10**		Any pavement demolished and hauled? **?** **tons**
		End Date:	**12/10/2021**				**Soil Hauling Volume**
1	Graders	174	0.41	8	5	4.0	
1	Rubber Tired Dozers	255	0.4	8	5	4.0	Export volume = 2,865 cubic yards
1	Tractors/Loaders/Backhoes	97	0.37	8	5	4.0	Import volume = **TBD** cubic yards
	Grading / Excavation	**Start Date:**	**12/11/2021**	**Total phase:**	**24**		
		End Date:	**1/13/2022**				**Soil Hauling Volume**
1	Scrapers	361	0.48	8	12	4.0	
1	Excavators	162	0.38	8	12	4.0	Export volume = 5,520 cubic yards
1	Graders	174	0.41	8	12	4.0	Import volume = 600 cubic yards
1	Rubber Tired Dozers	255	0.4	8	12	4.0	
1	Tractors/Loaders/Backhoes	97	0.37	8	12	4.0	
	Other Equipment?						
	Trenching	**Start Date:**	**12/11/2021**	**Total phase:**	**96**		
		End Date:	**4/25/2022**				
1	Tractor/Loader/Backhoe	97	0.37	8	24	2.0	West Valley Construction (Joint Trench / Dry Utilities)
1	Excavators	162	0.38	8	24	2.0	Export volume = 305 cubic yards
1	Skid Steer Loader	64	0.37	8	25	2.1	
1	Rollers	80	0.38	8	4	0.4	
1	Concrete/Industrial Saws	81	0.73	8	3	0.3	
1	Tractor/Loader/Backhoe	97	0.37	8	18	1.5	Preston Pipelines (Wet Utilities)
1	Excavators	162	0.38	8	55	4.6	Export volume = 357 cubic yards
1	Rubber Tired Loader	199	0.36	8	37	3.1	
1	Generator Sets	84	0.74	8	37	3.1	
1	Air Compressors	78	0.48	8	37	3.1	
1	Concrete/Industrial Saws	81	0.73	8	16	1.3	
	Building - Exterior	**Start Date:**	**4/26/2022**	**Total phase:**	**325**		**Cement Trucks?** 3050 **Total Round-Trips**
		End Date:	**7/24/2023**				
1	Cranes	226	0.29	8	138	3.4	Electric? (Y/N) Y Otherwise assumed diesel
1	Forklifts	89	0.2	8	111	2.7	Liquid Propane (LPG)? (Y/N) N Otherwise Assumed diesel
	Generator Sets	84	0.74				Or temporary line power? (Y/N) Y
1	Tractors/Loaders/Backhoes	97	0.37	8	56	1.4	otherwise, assume diesel generator
1	Welders	46	0.45	8	130	3.2	
	Other Equipment?						
	Building - Interior/Architectural Coating	**Start Date:**	**10/13/2022**	**Total phase:**	**203**		
		End Date:	**7/24/2023**				
1	Air Compressors	78	0.48	8	167	6.6	
	Aerial Lift	62	0.31				
	Other Equipment?						
	Paving	**Start Date:**	**7/25/2023**	**Total phase:**	**6**		**Asphalt** 650 **cubic yards or** 65 **round trips**
		End Date:	**8/1/2023**				
	Cement and Mortar Mixers	9	0.56				
1	Pavers	125	0.42	8	3	3.3	
1	Paving Equipment	130	0.36	8	3	3.3	
1	Rollers	80	0.38	8	3	3.3	
1	Tractors/Loaders/Backhoes	97	0.37	8	3	3.3	
	Other Equipment?						

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

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horepower or load factor, as appropriate

Typical Equipment Type & Load Factors

OFFROAD Equipment Type	HP	Load Factor
Aerial Lifts	62	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	205	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	226	0.29
Crawler Tractors	208	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	162	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	174	0.41
Off-Highway Tractors	122	0.44
Off-Highway Trucks	400	0.38
Other Construction Equipment	171	0.42
Other General Industrial Equipment	150	0.34
Other Material Handling Equipment	167	0.4
Pavers	125	0.42
Paving Equipment	130	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.2
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.4
Rubber Tired Dozers	255	0.4
Rubber Tired Loaders	199	0.36
Scrapers	361	0.48
Signal Boards	6	0.82
Skid Steer Loaders	64	0.37
Surfacing Equipment	253	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	80	0.5
Welders	46	0.45

Net Project Trip Generation Estimates on External Roadway Network

Land Use	Size	Unit	Daily		AM Peak Hour					PM Peak Hour				
			Rate	Total	Rate	% In	In	Out	Total	Rate	% In	In	Out	Total
Proposed Uses														
Residential [1]	225	d.u.	5.44	1224	0.36	26%	21	60	81	0.44	61%	60	39	99
Mixed-Use Reduction [2]				(196)			(3)	(7)	(10)			(9)	(6)	(15)
Residential Trips				1,028			18	53	71			51	33	84
Public Parking Garage														
New Parking Spaces - 10-hr Spaces [3]	193	spaces	3.95	762	0.14	92%	25	2	27	0.31	27%	16	44	60
New Parking Spaces - 3-hr Spaces [3]	108	spaces	6.56	708	0.18	64%	12	7	19	0.50	66%	36	18	54
Replacement of Existing Parking Lot [4]	235	spaces	6.56	1,542			60	13	73			15	57	72
Garage Trips				3,012			97	22	119			67	119	186
Project Trips				**4,040**			**115**	**75**	**190**			**118**	**152**	**270**
Existing Use														
Existing Parking Lot	235	spaces	6.56	1,542			60	13	73			15	57	72
Net Project Trip Generation				**2,498**			**55**	**62**	**117**			**103**	**95**	**198**

Notes:

All rates are from: Institute of Transportation Engineers, *Trip Generation, 10th Edition*

1. Land Use Code 221: Multifamily Housing (Mid-Rise), General Urban/Suburban (average rates, expressed in trips per dwelling unit)
2. Trip reduction of 11% in the AM and 14% in the PM, daily reduction calculated at 15%. Based on MXD model developed by Fehr & Peers for the US EPA to account for internal capture and external walking, biking, and transit trips due to mixed-use development and local area characteristics. (Mixed Use Trip Generation Model v 4.0, 2010)
3. Trip generation rates for the new parking spaces were based on observed data at the Main garage and Central garage as provided by City staff. The number of 10-hr versus 3-hr parking spaces were based on the average proportions in the Main and Central garages.
4. Trips generated by the existing parking lots on site were obtained through counts conducted in May 2019. It is assumed that these parking spaces will be replaced in the proposed garage. Daily trip generation was estimated using the observed rate for the 3-hr parking spaces at the Main and Central garages, as provided by City staff.

MidPen Downtown San Mateo Opportunity Sites, Construction Criteria Pollutants

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	700.00	Space	1.25	228,918.00	0
Apartments Mid Rise	225.00	Dwelling Unit	1.16	226,354.00	644

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	146	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity = 90% PCE 2018 rate (of 129.77) with 10% PG&E (of 290) = 146

Land Use - Provided Land Uses

Construction Phase - Provided construction schedule

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Trips and VMT - Building Construction = 3,050 cement round trips, Paving = 65 asphalt round-trips

Demolition - Demolition hauling volume = 6,775 tons

Grading - Site Prep = 2,865cy export, Grading + Trenching = 600cy import, 6,182cy export

Vehicle Trips - apts w/ reduction = 4.57, 4.39, 4.03, parking = 6.56

Woodstoves - All gas no wood

Water And Wastewater - WTP treatment 100% aerobic

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	203.00
tblConstructionPhase	NumDays	220.00	325.00
tblConstructionPhase	NumDays	6.00	24.00
tblConstructionPhase	NumDays	10.00	6.00
tblConstructionPhase	NumDays	3.00	10.00
tblConstructionPhase	PhaseEndDate	11/10/2022	7/24/2023
tblConstructionPhase	PhaseEndDate	10/13/2022	7/24/2023
tblConstructionPhase	PhaseEndDate	12/9/2021	1/13/2022
tblConstructionPhase	PhaseEndDate	10/27/2022	8/1/2023
tblConstructionPhase	PhaseEndDate	12/1/2021	12/10/2021
tblConstructionPhase	PhaseStartDate	10/28/2022	10/13/2022
tblConstructionPhase	PhaseStartDate	12/10/2021	4/26/2022
tblConstructionPhase	PhaseStartDate	12/2/2021	12/11/2021
tblConstructionPhase	PhaseStartDate	10/14/2022	7/25/2023
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	33.75	72.00
tblFireplaces	NumberWood	38.25	0.00
tblGrading	AcresOfGrading	18.00	3.00
tblGrading	AcresOfGrading	2.50	4.50
tblGrading	MaterialExported	0.00	6,182.00
tblGrading	MaterialExported	0.00	2,865.00

tblGrading	MaterialImported	0.00	600.00
tblLandUse	LandUseSquareFeet	280,000.00	228,918.00
tblLandUse	LandUseSquareFeet	225,000.00	226,354.00
tblLandUse	LotAcreage	6.30	1.25
tblLandUse	LotAcreage	5.92	1.16
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00

tblOffRoadEquipment	UsageHours	6.00	6.60
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	1.20
tblOffRoadEquipment	UsageHours	8.00	3.40
tblOffRoadEquipment	UsageHours	7.00	2.70
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	1.40
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.20
tblProjectCharacteristics	CO2IntensityFactor	641.35	146
tblTripsAndVMT	HaulingTripNumber	0.00	6,100.00
tblTripsAndVMT	HaulingTripNumber	0.00	130.00
tblVehicleTrips	ST_TR	6.39	4.39
tblVehicleTrips	ST_TR	0.00	6.56
tblVehicleTrips	SU_TR	5.86	4.03
tblVehicleTrips	SU_TR	0.00	6.56
tblVehicleTrips	WD_TR	6.65	4.57
tblVehicleTrips	WD_TR	0.00	6.56
tblWater	AerobicPercent	87.46	100.00

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

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0362	0.5307	0.3178	1.0400e-003	0.1332	0.0145	0.1477	0.0372	0.0135	0.0507	0.0000	100.9057	100.9057	0.0181	0.0000	101.3593
2022	0.624	1.7065	1.5575	5.7500e-003	0.3059	0.0332	0.3391	0.0856	0.0314	0.1170	0.0000	548.3038	548.3038	0.0584	0.0000	549.7643
2023	1.2904	0.9678	1.0798	4.2500e-003	0.2531	0.0172	0.2702	0.0678	0.0164	0.0842	0.0000	407.8660	407.8660	0.0370	0.0000	408.7910
Maximum	**1.2904**	**1.7065**	**1.5575**	**5.7500e-003**	**0.3059**	**0.0332**	**0.3391**	**0.0856**	**0.0314**	**0.1170**	**0.0000**	**548.3038**	**548.3038**	**0.0584**	**0.0000**	**549.7643**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0362	0.5307	0.3178	1.0400e-003	0.1332	0.0145	0.1477	0.0372	0.0135	0.0507	0.0000	100.9057	100.9057	0.0181	0.0000	101.3592

2022	0.6240	1.7065	1.5575	5.7500e-003	0.3059	0.0332	0.3391	0.0856	0.0314	0.1170	0.0000	548.3037	548.3037	0.0584	0.0000	549.7642
2023	1.2904	0.9678	1.0798	4.2500e-003	0.2531	0.0172	0.2702	0.0678	0.0164	0.0842	0.0000	407.8659	407.8659	0.0370	0.0000	408.7909
Maximum	**1.2904**	**1.7065**	**1.5575**	**5.7500e-003**	**0.3059**	**0.0332**	**0.3391**	**0.0856**	**0.0314**	**0.1170**	**0.0000**	**548.3037**	**548.3037**	**0.0584**	**0.0000**	**549.7642**

	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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-1-2021**	**1-31-2022**	0.7454	0.7454
2	**2-1-2022**	**4-30-2022**	0.2357	0.2357
3	**5-1-2022**	**7-31-2022**	0.5142	0.5142
4	**8-1-2022**	**10-31-2022**	0.6419	0.6419
5	**11-1-2022**	**1-31-2023**	1.0863	1.0863
6	**2-1-2023**	**4-30-2023**	0.9748	0.9748
7	**5-1-2023**	**7-31-2023**	0.9424	0.9424
8	**8-1-2023**	**9-30-2023**	0.0026	0.0026
		Highest	1.0863	1.0863

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2021	11/26/2021	5	20	
2	Site Preparation	Site Preparation	11/27/2021	12/10/2021	5	10	
3	Grading	Grading	12/11/2021	1/13/2022	5	24	
4	Trenching	Trenching	12/11/2021	4/25/2022	5	96	
5	Building Construction	Building Construction	4/26/2022	7/24/2023	5	325	
6	Architectural Coating	Architectural Coating	10/13/2022	7/24/2023	5	203	
7	Paving	Paving	7/25/2023	8/1/2023	5	6	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 1.25

Residential Indoor: 458,367; Residential Outdoor: 152,789; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	1.20	81	0.73
Demolition	Excavators	1	4.00	158	0.38
Demolition	Rubber Tired Dozers	1	4.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Site Preparation	Graders	1	4.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	4.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Grading	Scrapers	1	4.00	367	0.48
Grading	Graders	1	4.00	187	0.41
Grading	Rubber Tired Dozers	1	4.00	247	0.40
Grading	Excavators	1	4.00	158	0.38
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Trenching	Excavators	1	2.00	158	0.38
Trenching	Skid Steer Loaders	1	2.10	65	0.37
Trenching	Rollers	1	0.40	80	0.38
Trenching	Concrete/Industrial Saws	1	0.30	81	0.73
Trenching	Tractors/Loaders/Backhoes	1	1.50	97	0.37
Trenching	Excavators	1	4.60	158	0.38
Trenching	Rubber Tired Loaders	1	3.10	203	0.36
Building Construction	Cranes	1	3.40	231	0.29

Building Construction	Forklifts	1	2.70	89	0.20
Building Construction	Generator Sets	0	0.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	1.40	97	0.37
Building Construction	Welders	1	3.20	46	0.45
Architectural Coating	Air Compressors	1	6.60	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Pavers	1	3.30	130	0.42
Paving	Paving Equipment	1	3.30	132	0.36
Paving	Rollers	1	3.30	80	0.38
Paving	Tractors/Loaders/Backhoes	1	3.30	97	0.37
Trenching	Generator Sets	1	3.10	84	0.74
Trenching	Air Compressors	1	3.10	78	0.48
Trenching	Concrete/Industrial Saws	1	1.30	81	0.73

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	4	10.00	0.00	670.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	358.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	848.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	11	28.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	258.00	62.00	6,100.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	52.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	130.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0725	0.0000	0.0725	0.0110	0.0000	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9000e-003	0.0797	0.0534	9.0000e-005		4.0100e-003	4.0100e-003		3.7100e-003	3.7100e-003	0.0000	8.2043	8.2043	2.4400e-003	0.0000	8.2653
Total	**7.9000e-003**	**0.0797**	**0.0534**	**9.0000e-005**	**0.0725**	**4.0100e-003**	**0.0765**	**0.0110**	**3.7100e-003**	**0.0147**	**0.0000**	**8.2043**	**8.2043**	**2.4400e-003**	**0.0000**	**8.2653**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8300e-003	0.0997	0.0466	2.7000e-004	5.6100e-003	3.0000e-004	5.9100e-003	1.5400e-003	2.9000e-004	1.8300e-003	0.0000	27.5147	27.5147	3.5200e-003	0.0000	27.6028
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.7000e-004	1.8000e-003	1.0000e-005	7.9000e-004	0.0000	7.9000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6322	0.6322	1.0000e-005	0.0000	0.6325
Total	**3.0800e-003**	**0.0998**	**0.0484**	**2.8000e-004**	**6.4000e-003**	**3.0000e-004**	**6.7000e-003**	**1.7500e-003**	**2.9000e-004**	**2.0400e-003**	**0.0000**	**28.1469**	**28.1469**	**3.5300e-003**	**0.0000**	**28.2353**

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					0.0725	0.0000	0.0725	0.0110	0.0000	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9000e-003	0.0797	0.0534	9.0000e-005		4.0100e-003	4.0100e-003		3.7100e-003	3.7100e-003	0.0000	8.2043	8.2043	2.4400e-003	0.0000	8.2653
Total	**7.9000e-003**	**0.0797**	**0.0534**	**9.0000e-005**	**0.0725**	**4.0100e-003**	**0.0765**	**0.0110**	**3.7100e-003**	**0.0147**	**0.0000**	**8.2043**	**8.2043**	**2.4400e-003**	**0.0000**	**8.2653**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8300e-003	0.0997	0.0466	2.7000e-004	5.6100e-003	3.0000e-004	5.9100e-003	1.5400e-003	2.9000e-004	1.8300e-003	0.0000	27.5147	27.5147	3.5200e-003	0.0000	27.6028
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.7000e-004	1.8000e-003	1.0000e-005	7.9000e-004	0.0000	7.9000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6322	0.6322	1.0000e-005	0.0000	0.6325
Total	**3.0800e-003**	**0.0998**	**0.0484**	**2.8000e-004**	**6.4000e-003**	**3.0000e-004**	**6.7000e-003**	**1.7500e-003**	**2.9000e-004**	**2.0400e-003**	**0.0000**	**28.1469**	**28.1469**	**3.5300e-003**	**0.0000**	**28.2353**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0176	0.0000	0.0176	8.5600e-003	0.0000	8.5600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1900e-003	0.0467	0.0200	5.0000e-005		2.0600e-003	2.0600e-003		1.9000e-003	1.9000e-003	0.0000	3.9921	3.9921	1.2900e-003	0.0000	4.0244
Total	**4.1900e-003**	**0.0467**	**0.0200**	**5.0000e-005**	**0.0176**	**2.0600e-003**	**0.0197**	**8.5600e-003**	**1.9000e-003**	**0.0105**	**0.0000**	**3.9921**	**3.9921**	**1.2900e-003**	**0.0000**	**4.0244**

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	1.5100e-003	0.0533	0.0249	1.4000e-004	3.0000e-003	1.6000e-004	3.1600e-003	8.2000e-004	1.5000e-004	9.8000e-004	0.0000	14.7019	14.7019	1.8800e-003	0.0000	14.7490
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.2000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2529	0.2529	0.0000	0.0000	0.2530
Total	**1.6100e-003**	**0.0533**	**0.0256**	**1.4000e-004**	**3.3100e-003**	**1.6000e-004**	**3.4800e-003**	**9.0000e-004**	**1.5000e-004**	**1.0700e-003**	**0.0000**	**14.9548**	**14.9548**	**1.8800e-003**	**0.0000**	**15.0020**

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					0.0176	0.0000	0.0176	8.5600e-003	0.0000	8.5600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1900e-003	0.0467	0.0200	5.0000e-005		2.0600e-003	2.0600e-003		1.9000e-003	1.9000e-003	0.0000	3.9921	3.9921	1.2900e-003	0.0000	4.0244
Total	**4.1900e-003**	**0.0467**	**0.0200**	**5.0000e-005**	**0.0176**	**2.0600e-003**	**0.0197**	**8.5600e-003**	**1.9000e-003**	**0.0105**	**0.0000**	**3.9921**	**3.9921**	**1.2900e-003**	**0.0000**	**4.0244**

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	1.5100e-003	0.0533	0.0249	1.4000e-004	3.0000e-003	1.6000e-004	3.1600e-003	8.2000e-004	1.5000e-004	9.8000e-004	0.0000	14.7019	14.7019	1.8800e-003	0.0000	14.7490
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.2000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2529	0.2529	0.0000	0.0000	0.2530
Total	**1.6100e-003**	**0.0533**	**0.0256**	**1.4000e-004**	**3.3100e-003**	**1.6000e-004**	**3.4800e-003**	**9.0000e-004**	**1.5000e-004**	**1.0700e-003**	**0.0000**	**14.9548**	**14.9548**	**1.8800e-003**	**0.0000**	**15.0020**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0246	0.0000	0.0246	0.0126	0.0000	0.0126	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0107	0.1187	0.0688	1.4000e-004		5.0700e-003	5.0700e-003		4.6700e-003	4.6700e-003	0.0000	12.7166	12.7166	4.1100e-003	0.0000	12.8194
Total	**0.0107**	**0.1187**	**0.0688**	**1.4000e-004**	**0.0246**	**5.0700e-003**	**0.0296**	**0.0126**	**4.6700e-003**	**0.0173**	**0.0000**	**12.7166**	**12.7166**	**4.1100e-003**	**0.0000**	**12.8194**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2400e-003	0.0788	0.0369	2.1000e-004	6.4400e-003	2.4000e-004	6.6700e-003	1.7100e-003	2.3000e-004	1.9400e-003	0.0000	21.7654	21.7654	2.7900e-003	0.0000	21.8350

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.6000e-004	1.7500e-003	1.0000e-005	7.7000e-004	0.0000	7.7000e-004	2.0000e-004	0.0000	2.1000e-004	0.0000	0.6164	0.6164	1.0000e-005	0.0000	0.6167
Total	**2.4900e-003**	**0.0790**	**0.0386**	**2.2000e-004**	**7.2100e-003**	**2.4000e-004**	**7.4400e-003**	**1.9100e-003**	**2.3000e-004**	**2.1500e-003**	**0.0000**	**22.3818**	**22.3818**	**2.8000e-003**	**0.0000**	**22.4517**

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					0.0246	0.0000	0.0246	0.0126	0.0000	0.0126	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0107	0.1187	0.0688	1.4000e-004		5.0700e-003	5.0700e-003		4.6700e-003	4.6700e-003	0.0000	12.7166	12.7166	4.1100e-003	0.0000	12.8194
Total	**0.0107**	**0.1187**	**0.0688**	**1.4000e-004**	**0.0246**	**5.0700e-003**	**0.0296**	**0.0126**	**4.6700e-003**	**0.0173**	**0.0000**	**12.7166**	**12.7166**	**4.1100e-003**	**0.0000**	**12.8194**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2400e-003	0.0788	0.0369	2.1000e-004	6.4400e-003	2.4000e-004	6.6700e-003	1.7100e-003	2.3000e-004	1.9400e-003	0.0000	21.7654	21.7654	2.7900e-003	0.0000	21.8350
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.6000e-004	1.7500e-003	1.0000e-005	7.7000e-004	0.0000	7.7000e-004	2.0000e-004	0.0000	2.1000e-004	0.0000	0.6164	0.6164	1.0000e-005	0.0000	0.6167
Total	**2.4900e-003**	**0.0790**	**0.0386**	**2.2000e-004**	**7.2100e-003**	**2.4000e-004**	**7.4400e-003**	**1.9100e-003**	**2.3000e-004**	**2.1500e-003**	**0.0000**	**22.3818**	**22.3818**	**2.8000e-003**	**0.0000**	**22.4517**

3.4 Grading - 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					
Fugitive Dust					0.0155	0.0000	0.0155	7.6800e-003	0.0000	7.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4900e-003	0.0595	0.0386	9.0000e-005		2.5000e-003	2.5000e-003		2.3000e-003	2.3000e-003	0.0000	7.6337	7.6337	2.4700e-003	0.0000	7.6954
Total	**5.4900e-003**	**0.0595**	**0.0386**	**9.0000e-005**	**0.0155**	**2.5000e-003**	**0.0180**	**7.6800e-003**	**2.3000e-003**	**9.9800e-003**	**0.0000**	**7.6337**	**7.6337**	**2.4700e-003**	**0.0000**	**7.6954**

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	1.2800e-003	0.0435	0.0229	1.2000e-004	6.0000e-003	1.3000e-004	6.1200e-003	1.5500e-003	1.2000e-004	1.6700e-003	0.0000	12.8346	12.8346	1.6900e-003	0.0000	12.8768
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	1.4000e-004	9.0000e-005	9.8000e-004	0.0000	4.6000e-004	0.0000	4.6000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3563	0.3563	1.0000e-005	0.0000	0.3565
Total	**1.4200e-003**	**0.0436**	**0.0239**	**1.2000e-004**	**6.4600e-003**	**1.3000e-004**	**6.5800e-003**	**1.6700e-003**	**1.2000e-004**	**1.8000e-003**	**0.0000**	**13.1909**	**13.1909**	**1.7000e-003**	**0.0000**	**13.2332**

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					0.0155	0.0000	0.0155	7.6800e-003	0.0000	7.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4900e-003	0.0595	0.0386	9.0000e-005		2.5000e-003	2.5000e-003		2.3000e-003	2.3000e-003	0.0000	7.6337	7.6337	2.4700e-003	0.0000	7.6954
Total	**5.4900e-003**	**0.0595**	**0.0386**	**9.0000e-005**	**0.0155**	**2.5000e-003**	**0.0180**	**7.6800e-003**	**2.3000e-003**	**9.9800e-003**	**0.0000**	**7.6337**	**7.6337**	**2.4700e-003**	**0.0000**	**7.6954**

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	1.2800e-003	0.0435	0.0229	1.2000e-004	6.0000e-003	1.3000e-004	6.1200e-003	1.5500e-003	1.2000e-004	1.6700e-003	0.0000	12.8346	12.8346	1.6900e-003	0.0000	12.8768
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	1.4000e-004	9.0000e-005	9.8000e-004	0.0000	4.6000e-004	0.0000	4.6000e-004	1.2000e-004	0.0000	1.3000e-004	0.0000	0.3563	0.3563	1.0000e-005	0.0000	0.3565
Total	**1.4200e-003**	**0.0436**	**0.0239**	**1.2000e-004**	**6.4600e-003**	**1.3000e-004**	**6.5800e-003**	**1.6700e-003**	**1.2000e-004**	**1.8000e-003**	**0.0000**	**13.1909**	**13.1909**	**1.7000e-003**	**0.0000**	**13.2332**

3.5 Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.7100e-003	0.0532	0.0590	1.1000e-004		2.6200e-003	2.6200e-003		2.5000e-003	2.5000e-003	0.0000	9.1816	9.1816	2.0600e-003	0.0000	9.2330

Total	**5.7100e-003**	**0.0532**	**0.0590**	**1.1000e-004**		**2.6200e-003**	**2.6200e-003**		**2.5000e-003**	**2.5000e-003**	**0.0000**	**9.1816**	**9.1816**	**2.0600e-003**	**0.0000**	**9.2330**

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	5.4000e-004	3.5000e-004	3.7700e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3276	1.3276	2.0000e-005	0.0000	1.3282
Total	**5.4000e-004**	**3.5000e-004**	**3.7700e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3276**	**1.3276**	**2.0000e-005**	**0.0000**	**1.3282**

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	5.7100e-003	0.0532	0.0590	1.1000e-004		2.6200e-003	2.6200e-003		2.5000e-003	2.5000e-003	0.0000	9.1815	9.1815	2.0600e-003	0.0000	9.2329
Total	**5.7100e-003**	**0.0532**	**0.0590**	**1.1000e-004**		**2.6200e-003**	**2.6200e-003**		**2.5000e-003**	**2.5000e-003**	**0.0000**	**9.1815**	**9.1815**	**2.0600e-003**	**0.0000**	**9.2329**

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	5.4000e-004	3.5000e-004	3.7700e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3276	1.3276	2.0000e-005	0.0000	1.3282
Total	**5.4000e-004**	**3.5000e-004**	**3.7700e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3276**	**1.3276**	**2.0000e-005**	**0.0000**	**1.3282**

3.5 Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0277	0.2480	0.3163	5.7000e-004		0.0119	0.0119		0.0113	0.0113	0.0000	49.5886	49.5886	0.0110	0.0000	49.8646
Total	**0.0277**	**0.2480**	**0.3163**	**5.7000e-004**		**0.0119**	**0.0119**		**0.0113**	**0.0113**	**0.0000**	**49.5886**	**49.5886**	**0.0110**	**0.0000**	**49.8646**

Unmitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7300e-003	1.7000e-003	0.0190	8.0000e-005	8.9300e-003	5.0000e-005	8.9800e-003	2.3800e-003	5.0000e-005	2.4200e-003	0.0000	6.9070	6.9070	1.2000e-004	0.0000	6.9100
Total	**2.7300e-003**	**1.7000e-003**	**0.0190**	**8.0000e-005**	**8.9300e-003**	**5.0000e-005**	**8.9800e-003**	**2.3800e-003**	**5.0000e-005**	**2.4200e-003**	**0.0000**	**6.9070**	**6.9070**	**1.2000e-004**	**0.0000**	**6.9100**

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	0.0277	0.2480	0.3163	5.7000e-004		0.0119	0.0119		0.0113	0.0113	0.0000	49.5886	49.5886	0.0110	0.0000	49.8645
Total	**0.0277**	**0.2480**	**0.3163**	**5.7000e-004**		**0.0119**	**0.0119**		**0.0113**	**0.0113**	**0.0000**	**49.5886**	**49.5886**	**0.0110**	**0.0000**	**49.8645**

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	2.7300e-003	1.7000e-003	0.0190	8.0000e-005	8.9300e-003	5.0000e-005	8.9800e-003	2.3800e-003	5.0000e-005	2.4200e-003	0.0000	6.9070	6.9070	1.2000e-004	0.0000	6.9100
Total	**2.7300e-003**	**1.7000e-003**	**0.0190**	**8.0000e-005**	**8.9300e-003**	**5.0000e-005**	**8.9800e-003**	**2.3800e-003**	**5.0000e-005**	**2.4200e-003**	**0.0000**	**6.9070**	**6.9070**	**1.2000e-004**	**0.0000**	**6.9100**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0301	0.2696	0.2026	4.1000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	34.3586	34.3586	9.7400e-003	0.0000	34.6020
Total	**0.0301**	**0.2696**	**0.2026**	**4.1000e-004**		**0.0124**	**0.0124**		**0.0116**	**0.0116**	**0.0000**	**34.3586**	**34.3586**	**9.7400e-003**	**0.0000**	**34.6020**

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	0.0135	0.4596	0.2417	1.3100e-003	0.0454	1.3300e-003	0.0467	0.0120	1.2700e-003	0.0132	0.0000	135.5983	135.5983	0.0178	0.0000	136.0440
Vendor	0.0167	0.5435	0.2477	1.4300e-003	0.0362	1.1700e-003	0.0373	0.0105	1.1200e-003	0.0116	0.0000	143.3517	143.3517	0.0125	0.0000	143.6634
Worker	0.0556	0.0346	0.3861	1.5500e-003	0.1818	1.0800e-003	0.1829	0.0484	1.0000e-003	0.0494	0.0000	140.6440	140.6440	2.3900e-003	0.0000	140.7037
Total	**0.0858**	**1.0377**	**0.8755**	**4.2900e-003**	**0.2633**	**3.5800e-003**	**0.2669**	**0.0708**	**3.3900e-003**	**0.0742**	**0.0000**	**419.5939**	**419.5939**	**0.0327**	**0.0000**	**420.4111**

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	0.0301	0.2696	0.2026	4.1000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	34.3585	34.3585	9.7400e-003	0.0000	34.6020
Total	**0.0301**	**0.2696**	**0.2026**	**4.1000e-004**		**0.0124**	**0.0124**		**0.0116**	**0.0116**	**0.0000**	**34.3585**	**34.3585**	**9.7400e-003**	**0.0000**	**34.6020**

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	0.0135	0.4596	0.2417	1.3100e-003	0.0454	1.3300e-003	0.0467	0.0120	1.2700e-003	0.0132	0.0000	135.5983	135.5983	0.0178	0.0000	136.0440
Vendor	0.0167	0.5435	0.2477	1.4300e-003	0.0362	1.1700e-003	0.0373	0.0105	1.1200e-003	0.0116	0.0000	143.3517	143.3517	0.0125	0.0000	143.6634
Worker	0.0556	0.0346	0.3861	1.5500e-003	0.1818	1.0800e-003	0.1829	0.0484	1.0000e-003	0.0494	0.0000	140.6440	140.6440	2.3900e-003	0.0000	140.7037
Total	**0.0858**	**1.0377**	**0.8755**	**4.2900e-003**	**0.2633**	**3.5800e-003**	**0.2669**	**0.0708**	**3.3900e-003**	**0.0742**	**0.0000**	**419.5939**	**419.5939**	**0.0327**	**0.0000**	**420.4111**

3.6 Building Construction - 2023

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	0.0228	0.2031	0.1626	3.3000e-004		8.9800e-003	8.9800e-003		8.3900e-003	8.3900e-003	0.0000	28.0279	28.0279	7.8900e-003	0.0000	28.2251
Total	**0.0228**	**0.2031**	**0.1626**	**3.3000e-004**		**8.9800e-003**	**8.9800e-003**		**8.3900e-003**	**8.3900e-003**	**0.0000**	**28.0279**	**28.0279**	**7.8900e-003**	**0.0000**	**28.2251**

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	8.0700e-003	0.2610	0.1989	1.0200e-003	0.0441	5.1000e-004	0.0446	0.0115	4.9000e-004	0.0120	0.0000	106.3141	106.3141	0.0146	0.0000	106.6783
Vendor	0.0108	0.3477	0.1989	1.1300e-003	0.0295	4.9000e-004	0.0300	8.5400e-003	4.7000e-004	9.0000e-003	0.0000	113.5907	113.5907	0.0100	0.0000	113.8406
Worker	0.0431	0.0256	0.2932	1.2200e-003	0.1483	8.7000e-004	0.1491	0.0395	8.0000e-004	0.0403	0.0000	110.3853	110.3853	1.7600e-003	0.0000	110.4294
Total	**0.0619**	**0.6343**	**0.6910**	**3.3700e-003**	**0.2219**	**1.8700e-003**	**0.2237**	**0.0595**	**1.7600e-003**	**0.0613**	**0.0000**	**330.2902**	**330.2902**	**0.0263**	**0.0000**	**330.9483**

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	0.0228	0.2031	0.1626	3.3000e-004		8.9800e-003	8.9800e-003		8.3900e-003	8.3900e-003	0.0000	28.0279	28.0279	7.8900e-003	0.0000	28.2250
Total	**0.0228**	**0.2031**	**0.1626**	**3.3000e-004**		**8.9800e-003**	**8.9800e-003**		**8.3900e-003**	**8.3900e-003**	**0.0000**	**28.0279**	**28.0279**	**7.8900e-003**	**0.0000**	**28.2250**

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	8.0700e-003	0.2610	0.1989	1.0200e-003	0.0441	5.1000e-004	0.0446	0.0115	4.9000e-004	0.0120	0.0000	106.3141	106.3141	0.0146	0.0000	106.6783
Vendor	0.0108	0.3477	0.1989	1.1300e-003	0.0295	4.9000e-004	0.0300	8.5400e-003	4.7000e-004	9.0000e-003	0.0000	113.5907	113.5907	0.0100	0.0000	113.8406
Worker	0.0431	0.0256	0.2932	1.2200e-003	0.1483	8.7000e-004	0.1491	0.0395	8.0000e-004	0.0403	0.0000	110.3853	110.3853	1.7600e-003	0.0000	110.4294
Total	**0.0619**	**0.6343**	**0.6910**	**3.3700e-003**	**0.2219**	**1.8700e-003**	**0.2237**	**0.0595**	**1.7600e-003**	**0.0613**	**0.0000**	**330.2902**	**330.2902**	**0.0263**	**0.0000**	**330.9483**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4608					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4100e-003	0.0442	0.0569	9.0000e-005		2.5600e-003	2.5600e-003		2.5600e-003	2.5600e-003	0.0000	8.0045	8.0045	5.2000e-004	0.0000	8.0175
Total	**0.4672**	**0.0442**	**0.0569**	**9.0000e-005**		**2.5600e-003**	**2.5600e-003**		**2.5600e-003**	**2.5600e-003**	**0.0000**	**8.0045**	**8.0045**	**5.2000e-004**	**0.0000**	**8.0175**

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	3.5700e-003	2.2200e-003	0.0248	1.0000e-004	0.0117	7.0000e-005	0.0117	3.1000e-003	6.0000e-005	3.1700e-003	0.0000	9.0267	9.0267	1.5000e-004	0.0000	9.0305
Total	**3.5700e-003**	**2.2200e-003**	**0.0248**	**1.0000e-004**	**0.0117**	**7.0000e-005**	**0.0117**	**3.1000e-003**	**6.0000e-005**	**3.1700e-003**	**0.0000**	**9.0267**	**9.0267**	**1.5000e-004**	**0.0000**	**9.0305**

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	0.4608					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4100e-003	0.0442	0.0569	9.0000e-005		2.5600e-003	2.5600e-003		2.5600e-003	2.5600e-003	0.0000	8.0044	8.0044	5.2000e-004	0.0000	8.0175
Total	**0.4672**	**0.0442**	**0.0569**	**9.0000e-005**		**2.5600e-003**	**2.5600e-003**		**2.5600e-003**	**2.5600e-003**	**0.0000**	**8.0044**	**8.0044**	**5.2000e-004**	**0.0000**	**8.0175**

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	3.5700e-003	2.2200e-003	0.0248	1.0000e-004	0.0117	7.0000e-005	0.0117	3.1000e-003	6.0000e-005	3.1700e-003	0.0000	9.0267	9.0267	1.5000e-004	0.0000	9.0305
Total	**3.5700e-003**	**2.2200e-003**	**0.0248**	**1.0000e-004**	**0.0117**	**7.0000e-005**	**0.0117**	**3.1000e-003**	**6.0000e-005**	**3.1700e-003**	**0.0000**	**9.0267**	**9.0267**	**1.5000e-004**	**0.0000**	**9.0305**

3.7 Architectural Coating - 2023

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	1.1803					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0154	0.1046	0.1454	2.4000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	20.5026	20.5026	1.2300e-003	0.0000	20.5333
Total	**1.1957**	**0.1046**	**0.1454**	**2.4000e-004**		**5.6900e-003**	**5.6900e-003**		**5.6900e-003**	**5.6900e-003**	**0.0000**	**20.5026**	**20.5026**	**1.2300e-003**	**0.0000**	**20.5333**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6800e-003	5.1600e-003	0.0591	2.5000e-004	0.0299	1.8000e-004	0.0301	7.9500e-003	1.6000e-004	8.1100e-003	0.0000	22.2482	22.2482	3.6000e-004	0.0000	22.2571

Total	**8.6800e-003**	**5.1600e-003**	**0.0591**	**2.5000e-004**	**0.0299**	**1.8000e-004**	**0.0301**	**7.9500e-003**	**1.6000e-004**	**8.1100e-003**	**0.0000**	**22.2482**	**22.2482**	**3.6000e-004**	**0.0000**	**22.2571**

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	1.1803					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0154	0.1046	0.1454	2.4000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	20.5026	20.5026	1.2300e-003	0.0000	20.5333
Total	**1.1957**	**0.1046**	**0.1454**	**2.4000e-004**		**5.6900e-003**	**5.6900e-003**		**5.6900e-003**	**5.6900e-003**	**0.0000**	**20.5026**	**20.5026**	**1.2300e-003**	**0.0000**	**20.5333**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6800e-003	5.1600e-003	0.0591	2.5000e-004	0.0299	1.8000e-004	0.0301	7.9500e-003	1.6000e-004	8.1100e-003	0.0000	22.2482	22.2482	3.6000e-004	0.0000	22.2571
Total	**8.6800e-003**	**5.1600e-003**	**0.0591**	**2.5000e-004**	**0.0299**	**1.8000e-004**	**0.0301**	**7.9500e-003**	**1.6000e-004**	**8.1100e-003**	**0.0000**	**22.2482**	**22.2482**	**3.6000e-004**	**0.0000**	**22.2571**

3.8 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.3000e-004	8.2100e-003	0.0118	2.0000e-005		4.1000e-004	4.1000e-004		3.8000e-004	3.8000e-004	0.0000	1.5777	1.5777	5.1000e-004	0.0000	1.5905
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.3000e-004**	**8.2100e-003**	**0.0118**	**2.0000e-005**		**4.1000e-004**	**4.1000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**1.5777**	**1.5777**	**5.1000e-004**	**0.0000**	**1.5905**

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	3.8000e-004	0.0124	9.4300e-003	5.0000e-005	1.0900e-003	2.0000e-005	1.1100e-003	3.0000e-004	2.0000e-005	3.2000e-004	0.0000	5.0435	5.0435	6.9000e-004	0.0000	5.0608
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	7.0000e-005	4.0000e-005	4.7000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1758	0.1758	0.0000	0.0000	0.1759
Total	**4.5000e-004**	**0.0124**	**9.9000e-003**	**5.0000e-005**	**1.3300e-003**	**2.0000e-005**	**1.3500e-003**	**3.6000e-004**	**2.0000e-005**	**3.8000e-004**	**0.0000**	**5.2194**	**5.2194**	**6.9000e-004**	**0.0000**	**5.2367**

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	8.3000e-004	8.2100e-003	0.0118	2.0000e-005		4.1000e-004	4.1000e-004		3.8000e-004	3.8000e-004	0.0000	1.5777	1.5777	5.1000e-004	0.0000	1.5905
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.3000e-004**	**8.2100e-003**	**0.0118**	**2.0000e-005**		**4.1000e-004**	**4.1000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**1.5777**	**1.5777**	**5.1000e-004**	**0.0000**	**1.5905**

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	3.8000e-004	0.0124	9.4300e-003	5.0000e-005	1.0900e-003	2.0000e-005	1.1100e-003	3.0000e-004	2.0000e-005	3.2000e-004	0.0000	5.0435	5.0435	6.9000e-004	0.0000	5.0608
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	7.0000e-005	4.0000e-005	4.7000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1758	0.1758	0.0000	0.0000	0.1759
Total	**4.5000e-004**	**0.0124**	**9.9000e-003**	**5.0000e-005**	**1.3300e-003**	**2.0000e-005**	**1.3500e-003**	**3.6000e-004**	**2.0000e-005**	**3.8000e-004**	**0.0000**	**5.2194**	**5.2194**	**6.9000e-004**	**0.0000**	**5.2367**

MidPen Downtown San Mateo Opportunity Sites, Operation Criteria Pollutants and GHG

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	45.00	Space	1.25	228,918.00	0
Apartments Mid Rise	225.00	Dwelling Unit	1.16	226,354.00	644

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	146	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity = 90% PCE 2018 rate (of 129.77) with 10% PG&E (of 290) = 146

Land Use - Provided Land Uses - operational net parking

Construction Phase - Provided construction schedule

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Trips and VMT - 1 mile nearby TAC, Building Construction = 3,050 cement round trips, Paving = 65 asphalt round-trips

Demolition - Demolition hauling volume = 6,775 tons

Grading - Site Prep = 2,865cy export, Grading + Trenching = 600cy import, 6,182cy export

Vehicle Trips - apts w/ reduction = 4.57, 4.39, 4.03, parking = 6.56

Woodstoves - All gas no wood

Water And Wastewater - WTP treatment 100% aerobic

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	203.00
tblConstructionPhase	NumDays	220.00	325.00
tblConstructionPhase	NumDays	6.00	24.00
tblConstructionPhase	NumDays	10.00	6.00
tblConstructionPhase	NumDays	3.00	10.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	33.75	72.00
tblFireplaces	NumberWood	38.25	0.00
tblGrading	AcresOfGrading	18.00	3.00
tblGrading	AcresOfGrading	2.50	4.50
tblGrading	MaterialExported	0.00	6,182.00
tblGrading	MaterialExported	0.00	2,865.00
tblGrading	MaterialImported	0.00	600.00
tblLandUse	LandUseSquareFeet	18,000.00	228,918.00
tblLandUse	LandUseSquareFeet	225,000.00	226,354.00
tblLandUse	LotAcreage	0.41	1.25
tblLandUse	LotAcreage	5.92	1.16
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	6.00	6.60
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	1.20
tblOffRoadEquipment	UsageHours	8.00	3.40
tblOffRoadEquipment	UsageHours	7.00	2.70
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	1.40
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.20
tblProjectCharacteristics	CO2IntensityFactor	641.35	146
tblTripsAndVMT	HaulingTripNumber	0.00	6,100.00
tblTripsAndVMT	HaulingTripNumber	0.00	130.00
tblVehicleTrips	ST_TR	6.39	4.39

tblVehicleTrips	ST_TR	0.00	6.56
tblVehicleTrips	SU_TR	5.86	4.03
tblVehicleTrips	SU_TR	0.00	6.56
tblVehicleTrips	WD_TR	6.65	4.57
tblVehicleTrips	WD_TR	0.00	6.56
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	1.1141	0.0270	1.6737	1.4000e-004		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	11.7182	11.7182	2.7900e-003	1.6000e-004	11.8371
Energy	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	197.1452	197.1452	0.0204	5.7200e-003	199.3572
Mobile	0.2125	0.5969	2.3815	8.6200e-003	0.8608	6.8900e-003	0.8677	0.2313	6.4100e-003	0.2378	0.0000	790.1937	790.1937	0.0282	0.0000	790.898
Waste						0.0000	0.0000		0.0000	0.0000	21.0096	0.0000	21.0096	1.2416	0.0000	52.0503
Water						0.0000	0.0000		0.0000	0.0000	5.1866	7.3953	12.5819	0.0193	0.0116	16.5167
Total	**1.3372**	**0.7144**	**4.0937**	**9.3400e-003**	**0.8608**	**0.0241**	**0.8849**	**0.2313**	**0.0236**	**0.255**	**26.1962**	**1,006.4524**	**1,032.6485**	**1.3123**	**0.0175**	**1,070.6593**

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	1.1141	0.0270	1.6737	1.4000e-004		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	11.7182	11.7182	2.7900e-003	1.6000e-004	11.8371
Energy	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	197.1452	197.1452	0.0204	5.7200e-003	199.3572
Mobile	0.2125	0.5969	2.3815	8.6200e-003	0.8608	6.8900e-003	0.8677	0.2313	6.4100e-003	0.2378	0.0000	790.1937	790.1937	0.0282	0.0000	790.8980
Waste						0.0000	0.0000		0.0000	0.0000	21.0096	0.0000	21.0096	1.2416	0.0000	52.0503
Water						0.0000	0.0000		0.0000	0.0000	5.1866	7.3953	12.5819	0.0193	0.0116	16.5167
Total	**1.3372**	**0.7144**	**4.0937**	**9.3400e-003**	**0.8608**	**0.0241**	**0.8849**	**0.2313**	**0.0236**	**0.2550**	**26.1962**	**1,006.4524**	**1,032.6485**	**1.3123**	**0.0175**	**1,070.6593**

	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	0.2125	0.5969	2.3815	8.6200e-003	0.8608	6.8900e-003	0.8677	0.2313	6.4100e-003	0.2378	0.0000	790.1937	790.1937	0.0282	0.0000	790.8980
Unmitigated	0.2125	0.5969	2.3815	8.6200e-003	0.8608	6.8900e-003	0.8677	0.2313	6.4100e-003	0.2378	0.0000	790.1937	790.1937	0.0282	0.0000	790.8980

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,028.25	987.75	906.75	2,321,403	2,321,403
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	1,028.25	987.75	906.75	2,321,403	2,321,403

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.465886	0.050507	0.268464	0.141721	0.017188	0.007113	0.024629	0.006618	0.004259	0.003067	0.009235	0.000505	0.000808
Unenclosed Parking with Elevator	0.465886	0.050507	0.268464	0.141721	0.017188	0.007113	0.024629	0.006618	0.004259	0.003067	0.009235	0.000505	0.000808

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	92.3202	92.3202	0.0183	3.7900e-003	93.9092
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	92.3202	92.3202	0.0183	3.7900e-003	93.9092
NaturalGas Mitigated	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	104.8250	104.8250	2.0100e-003	1.9200e-003	105.4480
NaturalGas Unmitigated	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	104.8250	104.8250	2.0100e-003	1.9200e-003	105.4480

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.96435e+006	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	104.8250	104.8250	2.0100e-003	1.9200e-003	105.4480
Unenclosed 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		**0.0106**	**0.0905**	**0.0385**	**5.8000e-004**		**7.3200e-003**	**7.3200e-003**		**7.3200e-003**	**7.3200e-003**	**0.0000**	**104.8250**	**104.8250**	**2.0100e-003**	**1.9200e-003**	**105.4480**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.96435e+006	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	104.8250	104.8250	2.0100e-003	1.9200e-003	105.4480

Unenclosed 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		**0.0106**	**0.0905**	**0.0385**	**5.8000e-004**		**7.3200e-003**	**7.3200e-003**		**7.3200e-003**	**7.3200e-003**	**0.0000**	**104.8250**	**104.8250**	**2.0100e-003**	**1.9200e-003**	**105.4480**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	949948	62.9098	0.0125	2.5900e-003	63.9926
Unenclosed Parking with Elevator	444101	29.4104	5.8400e-003	1.2100e-003	29.9166
Total		**92.3202**	**0.0183**	**3.8000e-003**	**93.9092**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	949948	62.9098	0.0125	2.5900e-003	63.9926
Unenclosed Parking with Elevator	444101	29.4104	5.8400e-003	1.2100e-003	29.9166
Total		**92.3202**	**0.0183**	**3.8000e-003**	**93.9092**

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	1.1141	0.0270	1.6737	1.4000e-004		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	11.7182	11.7182	2.7900e-003	1.6000e-004	11.8371
Unmitigated	1.1141	0.0270	1.6737	1.4000e-004		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	11.7182	11.7182	2.7900e-003	1.6000e-004	11.8371

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	0.1641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8988					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.1000e-004	7.7600e-003	3.3000e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	8.9884	8.9884	1.7000e-004	1.6000e-004	9.0418
Landscaping	0.0503	0.0192	1.6704	9.0000e-005		9.2600e-003	9.2600e-003		9.2600e-003	9.2600e-003	0.0000	2.7298	2.7298	2.6200e-003	0.0000	2.7953
Total	**1.1141**	**0.0270**	**1.6737**	**1.4000e-004**		**9.8900e-003**	**9.8900e-003**		**9.8900e-003**	**9.8900e-003**	**0.0000**	**11.7182**	**11.7182**	**2.7900e-003**	**1.6000e-004**	**11.8371**

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	0.1641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8988					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.1000e-004	7.7600e-003	3.3000e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	8.9884	8.9884	1.7000e-004	1.6000e-004	9.0418
Landscaping	0.0503	0.0192	1.6704	9.0000e-005		9.2600e-003	9.2600e-003		9.2600e-003	9.2600e-003	0.0000	2.7298	2.7298	2.6200e-003	0.0000	2.7953
Total	**1.1141**	**0.0270**	**1.6737**	**1.4000e-004**		**9.8900e-003**	**9.8900e-003**		**9.8900e-003**	**9.8900e-003**	**0.0000**	**11.7182**	**11.7182**	**2.7900e-003**	**1.6000e-004**	**11.8371**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	12.5819	0.0193	0.0116	16.5167
Unmitigated	12.5819	0.0193	0.0116	16.5167

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.6597 / 9.24196	12.5819	0.0193	0.0116	16.5167
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**12.5819**	**0.0193**	**0.0116**	**16.5167**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.6597 / 9.24196	12.5819	0.0193	0.0116	16.5167
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**12.5819**	**0.0193**	**0.0116**	**16.5167**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	21.0096	1.2416	0.0000	52.0503
Unmitigated	21.0096	1.2416	0.0000	52.0503

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	103.5	21.0096	1.2416	0.0000	52.0503
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**21.0096**	**1.2416**	**0.0000**	**52.0503**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	103.5	21.0096	1.2416	0.0000	52.0503
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000

Total		21.0096	1.2416	0.0000	52.0503

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

MidPen Downtown San Mateo Opportunity Sites - Existing

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	2.00	1000sqft	0.05	2,000.00	0
Parking Lot	235.00	Space	2.36	103,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Existing land uses

Construction Phase - Existing land use - no construction

Off-road Equipment - Existing land use - no construction

Grading - Existing land use - no construction

Energy Use - Historical energy use

Trips and VMT -

Vehicle Trips - Default Industrial, Parking = 6.56

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	3.00	1.00
tblEnergyUse	LightingElect	3.70	2.99
tblEnergyUse	LightingElect	0.88	0.35
tblEnergyUse	T24E	1.59	1.21
tblEnergyUse	T24NG	20.06	17.85
tblLandUse	LandUseSquareFeet	94,000.00	103,000.00
tblLandUse	LotAcreage	2.11	2.36
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblVehicleTrips	ST_TR	0.00	6.56
tblVehicleTrips	SU_TR	0.00	6.56
tblVehicleTrips	WD_TR	0.00	6.56

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	0.0179	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.51E-03
Energy	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	17.5275	17.5275	7.2000e-004	1.9000e-004	17.6015

Mobile	2.4600e-003	7.2200e-003	0.0299	1.1000e-004	0.0114	9.0000e-005	0.0115	3.0600e-003	8.0000e-005	3.1500e-003	0.0000	10.3754	10.3754	3.6000e-004	0.0000	10.3845
Waste						0.0000	0.0000		0.0000	0.0000	0.5034	0.0000	0.5034	0.0298	0.0000	1.2472
Water						0.0000	0.0000		0.0000	0.0000	0.1467	0.7280	0.8748	0.0151	3.6000e-004	1.3604
Total	**0.0206**	**9.67E-03**	**0.0341**	**1.2000e-004**	**0.0114**	**2.8000e-004**	**0.0117**	**3.0600e-003**	**2.7000e-004**	**3.34E-03**	**0.6502**	**28.6351**	**29.2853**	**0.0459**	**5.5000e-004**	**30.5981**

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	0.0179	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003
Energy	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	17.5275	17.5275	7.2000e-004	1.9000e-004	17.6015
Mobile	2.4600e-003	7.2200e-003	0.0299	1.1000e-004	0.0114	9.0000e-005	0.0115	3.0600e-003	8.0000e-005	3.1500e-003	0.0000	10.3754	10.3754	3.6000e-004	0.0000	10.3845
Waste						0.0000	0.0000		0.0000	0.0000	0.5034	0.0000	0.5034	0.0298	0.0000	1.2472
Water						0.0000	0.0000		0.0000	0.0000	0.1467	0.7280	0.8748	0.0151	3.6000e-004	1.3604
Total	**0.0206**	**9.6700e-003**	**0.0341**	**1.2000e-004**	**0.0114**	**2.8000e-004**	**0.0117**	**3.0600e-003**	**2.7000e-004**	**3.3400e-003**	**0.6502**	**28.6351**	**29.2853**	**0.0459**	**5.5000e-004**	**30.5981**

	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	2.4600e-003	7.2200e-003	0.0299	1.1000e-004	0.0114	9.0000e-005	0.0115	3.0600e-003	8.0000e-005	3.1500e-003	0.0000	10.3754	10.3754	3.6000e-004	0.0000	10.3845
Unmitigated	2.4600e-003	7.2200e-003	0.0299	1.1000e-004	0.0114	9.0000e-005	0.0115	3.0600e-003	8.0000e-005	3.1500e-003	0.0000	10.3754	10.3754	3.6000e-004	0.0000	10.3845

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	13.94	2.64	1.36	30,738	30,738
Parking Lot	0.00	0.00	0.00		
Total	13.94	2.64	1.36	30,738	30,738

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	0.465886	0.050507	0.268464	0.141721	0.017188	0.007113	0.024629	0.006618	0.004259	0.003067	0.009235	0.000505	0.000808
Parking Lot	0.465886	0.050507	0.268464	0.141721	0.017188	0.007113	0.024629	0.006618	0.004259	0.003067	0.009235	0.000505	0.000808

5.0 Energy Detail

Historical Energy Use: Y

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	14.8859	14.8859	6.7000e-004	1.4000e-004	14.9443
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	14.8859	14.8859	6.7000e-004	1.4000e-004	14.9443
NaturalGas Mitigated	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.6415	2.6415	5.0000e-005	5.0000e-005	2.6572
NaturalGas Unmitigated	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.6415	2.6415	5.0000e-005	5.0000e-005	2.6572

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	49500	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.6415	2.6415	5.0000e-005	5.0000e-005	2.6572
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		**2.7000e-004**	**2.4300e-003**	**2.0400e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**2.6415**	**2.6415**	**5.0000e-005**	**5.0000e-005**	**2.6572**

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	49500	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.6415	2.6415	5.0000e-005	5.0000e-005	2.6572
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		**2.7000e-004**	**2.4300e-003**	**2.0400e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**2.6415**	**2.6415**	**5.0000e-005**	**5.0000e-005**	**2.6572**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	15120	4.3986	2.0000e-004	4.0000e-005	4.4158
Parking Lot	36050	10.4874	4.7000e-004	1.0000e-004	10.5285
Total		**14.8859**	**6.7000e-004**	**1.4000e-004**	**14.9443**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	15120	4.3986	2.0000e-004	4.0000e-005	4.4158

Parking Lot	36050	10.4874	4.7000e-004	1.0000e-004	10.5285
Total		**14.8859**	**6.7000e-004**	**1.4000e-004**	**14.9443**

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	0.0179	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003
Unmitigated	0.0179	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003

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	3.1900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0145					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-004	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003

Total	**0.0179**	**2.0000e-005**	**2.1700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.2300e-003**	**4.2300e-003**	**1.0000e-005**	**0.0000**	**4.5100e-003**

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	3.1900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0145					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-004	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003
Total	**0.0179**	**2.0000e-005**	**2.1700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.2300e-003**	**4.2300e-003**	**1.0000e-005**	**0.0000**	**4.5100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.8748	0.0151	3.6000e-004	1.3604
Unmitigated	0.8748	0.0151	3.6000e-004	1.3604

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.4625 / 0	0.8748	0.0151	3.6000e-004	1.3604
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.8748**	**0.0151**	**3.6000e-004**	**1.3604**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.4625 / 0	0.8748	0.0151	3.6000e-004	1.3604
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.8748**	**0.0151**	**3.6000e-004**	**1.3604**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.5034	0.0298	0.0000	1.2472
Unmitigated	0.5034	0.0298	0.0000	1.2472

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2.48	0.5034	0.0298	0.0000	1.2472
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.5034**	**0.0298**	**0.0000**	**1.2472**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2.48	0.5034	0.0298	0.0000	1.2472

Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.5034**	**0.0298**	**0.0000**	**1.2472**

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

MidPen Downtown San Mateo Opportunity Sites, Construction TAC

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	700.00	Space	1.25	228,918.00	0
Apartments Mid Rise	225.00	Dwelling Unit	1.16	226,354.00	644

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	146	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity = 90% PCE 2018 rate (of 129.77) with 10% PG&E (of 290) = 146

Land Use - Provided Land Uses

Construction Phase - Provided construction schedule

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Trips and VMT - 1 mile nearby TAC, Building Construction = 3,050 cement round trips, Paving = 65 asphalt round-trips

Demolition - Demolition hauling volume = 6,775 tons

Grading - Site Prep = 2,865cy export, Grading + Trenching = 600cy import, 6,182cy export

Vehicle Trips - apts w/ reduction = 4.57, 4.39, 4.03, parking = 6.56

Woodstoves - All gas no wood

Water And Wastewater - WTP treatment 100% aerobic

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	10.00	203.00
tblConstructionPhase	NumDays	220.00	325.00
tblConstructionPhase	NumDays	6.00	24.00
tblConstructionPhase	NumDays	10.00	6.00
tblConstructionPhase	NumDays	3.00	10.00
tblConstructionPhase	PhaseEndDate	11/10/2022	7/24/2023
tblConstructionPhase	PhaseEndDate	10/13/2022	7/24/2023
tblConstructionPhase	PhaseEndDate	12/9/2021	1/13/2022
tblConstructionPhase	PhaseEndDate	10/27/2022	8/1/2023
tblConstructionPhase	PhaseEndDate	12/1/2021	12/10/2021
tblConstructionPhase	PhaseStartDate	10/28/2022	10/13/2022
tblConstructionPhase	PhaseStartDate	12/10/2021	4/26/2022
tblConstructionPhase	PhaseStartDate	12/2/2021	12/11/2021
tblConstructionPhase	PhaseStartDate	10/14/2022	7/25/2023
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	33.75	72.00

tblFireplaces	NumberWood	38.25	0.00
tblGrading	AcresOfGrading	18.00	3.00
tblGrading	AcresOfGrading	2.50	4.50
tblGrading	MaterialExported	0.00	6,182.00
tblGrading	MaterialExported	0.00	2,865.00
tblGrading	MaterialImported	0.00	600.00
tblLandUse	LandUseSquareFeet	280,000.00	228,918.00
tblLandUse	LandUseSquareFeet	225,000.00	226,354.00
tblLandUse	LotAcreage	6.30	1.25
tblLandUse	LotAcreage	5.92	1.16
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	6.00	6.60
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	1.20
tblOffRoadEquipment	UsageHours	8.00	3.40
tblOffRoadEquipment	UsageHours	7.00	2.70
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	1.40
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.20
tblProjectCharacteristics	CO2IntensityFactor	641.35	146
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00

tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	6,100.00
tblTripsAndVMT	HaulingTripNumber	0.00	130.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblVehicleTrips	ST_TR	6.39	4.39
tblVehicleTrips	ST_TR	0.00	6.56
tblVehicleTrips	SU_TR	5.86	4.03
tblVehicleTrips	SU_TR	0.00	6.56
tblVehicleTrips	WD_TR	6.65	4.57
tblVehicleTrips	WD_TR	0.00	6.56
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00

tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0304	0.3709	0.2279	4.7000e-004	0.1158	0.0139	0.1296	0.0325	0.0129	0.0453	0.0000	42.5663	42.5663	0.0109	0.0000	42.8377
2022	0.5613	1.1133	0.9194	1.9100e-003	0.0422	0.0301	0.0723	0.0149	0.0285	0.0434	0.0000	174.0527	174.0527	0.0301	0.0000	174.8040
2023	1.2427	0.6592	0.5636	1.1900e-003	0.0232	0.0155	0.0387	6.2900e-003	0.0149	0.0212	0.0000	109.1156	109.1156	0.0143	0.0000	109.4734
Maximum	**1.2427**	**1.1133**	**0.9194**	**1.9100e-003**	**0.1158**	**0.0301**	**0.1296**	**0.0325**	**0.0285**	**0.0453**	**0.0000**	**174.0527**	**174.0527**	**0.0301**	**0.0000**	**174.8040**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0112	0.2608	0.2664	4.7000e-004	0.0527	9.2300e-003	0.0619	7.5400e-003	9.2200e-003	0.0168	0.0000	42.5663	42.5663	0.0109	0.0000	42.8377
2022	0.5201	1.0680	1.0340	1.9100e-003	0.0337	0.0327	0.0664	8.9900e-003	0.0327	0.0417	0.0000	174.0525	174.0525	0.0301	0.0000	174.8039
2023	1.2183	0.6391	0.6020	1.1900e-003	0.0232	0.0179	0.0410	6.2900e-003	0.0179	0.0241	0.0000	109.1155	109.1155	0.0143	0.0000	109.4733

Maximum	**1.2183**	**1.0680**	**1.0340**	**1.9100e-003**	**0.0527**	**0.0327**	**0.0664**	**8.9900e-003**	**0.0327**	**0.0417**	**0.0000**	**174.0525**	**174.0525**	**0.0301**	**0.0000**	**174.8039**

	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	**4.62**	**8.19**	**-11.20**	**0.00**	**39.53**	**-0.57**	**29.61**	**57.50**	**-6.22**	**24.91**	**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	**11-1-2021**	**1-31-2022**	0.5491	0.4039
2	**2-1-2022**	**4-30-2022**	0.2213	0.2281
3	**5-1-2022**	**7-31-2022**	0.2972	0.2714
4	**8-1-2022**	**10-31-2022**	0.4182	0.3909
5	**11-1-2022**	**1-31-2023**	0.8728	0.8441
6	**2-1-2023**	**4-30-2023**	0.8216	0.8020
7	**5-1-2023**	**7-31-2023**	0.7982	0.7799
8	**8-1-2023**	**9-30-2023**	0.0017	0.0017
		Highest	0.8728	0.8441

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2021	11/26/2021	5	20	
2	Site Preparation	Site Preparation	11/27/2021	12/10/2021	5	10	
3	Grading	Grading	12/11/2021	1/13/2022	5	24	
4	Trenching	Trenching	12/11/2021	4/25/2022	5	96	
5	Building Construction	Building Construction	4/26/2022	7/24/2023	5	325	
6	Architectural Coating	Architectural Coating	10/13/2022	7/24/2023	5	203	
7	Paving	Paving	7/25/2023	8/1/2023	5	6	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 1.25

Residential Indoor: 458,367; Residential Outdoor: 152,789; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	1.20	81	0.73
Demolition	Excavators	1	4.00	158	0.38
Demolition	Rubber Tired Dozers	1	4.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Site Preparation	Graders	1	4.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	4.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Grading	Scrapers	1	4.00	367	0.48
Grading	Graders	1	4.00	187	0.41
Grading	Rubber Tired Dozers	1	4.00	247	0.40
Grading	Excavators	1	4.00	158	0.38
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Trenching	Excavators	1	2.00	158	0.38
Trenching	Skid Steer Loaders	1	2.10	65	0.37
Trenching	Rollers	1	0.40	80	0.38
Trenching	Concrete/Industrial Saws	1	0.30	81	0.73
Trenching	Tractors/Loaders/Backhoes	1	1.50	97	0.37
Trenching	Excavators	1	4.60	158	0.38
Trenching	Rubber Tired Loaders	1	3.10	203	0.36
Building Construction	Cranes	1	3.40	231	0.29
Building Construction	Forklifts	1	2.70	89	0.20
Building Construction	Generator Sets	0	0.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	1.40	97	0.37

Building Construction	Welders	1	3.20	46	0.45
Architectural Coating	Air Compressors	1	6.60	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Pavers	1	3.30	130	0.42
Paving	Paving Equipment	1	3.30	132	0.36
Paving	Rollers	1	3.30	80	0.38
Paving	Tractors/Loaders/Backhoes	1	3.30	97	0.37
Trenching	Generator Sets	1	3.10	84	0.74
Trenching	Air Compressors	1	3.10	78	0.48
Trenching	Concrete/Industrial Saws	1	1.30	81	0.73

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	4	10.00	0.00	670.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	358.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	848.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	11	28.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	258.00	62.00	6,100.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	52.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	130.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0725	0.0000	0.0725	0.0110	0.0000	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9000e-003	0.0797	0.0534	9.0000e-005		4.0100e-003	4.0100e-003		3.7100e-003	3.7100e-003	0.0000	8.2043	8.2043	2.4400e-003	0.0000	8.2653
Total	**7.9000e-003**	**0.0797**	**0.0534**	**9.0000e-005**	**0.0725**	**4.0100e-003**	**0.0765**	**0.0110**	**3.7100e-003**	**0.0147**	**0.0000**	**8.2043**	**8.2043**	**2.4400e-003**	**0.0000**	**8.2653**

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	6.7000e-004	0.0312	0.0105	3.0000e-005	2.9000e-004	4.0000e-005	3.2000e-004	8.0000e-005	3.0000e-005	1.1000e-004	0.0000	3.4975	3.4975	4.1000e-004	0.0000	3.5076
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	4.0000e-005	4.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0757	0.0757	0.0000	0.0000	0.0758
Total	**7.5000e-004**	**0.0313**	**0.0110**	**3.0000e-005**	**3.6000e-004**	**4.0000e-005**	**3.9000e-004**	**1.0000e-004**	**3.0000e-005**	**1.3000e-004**	**0.0000**	**3.5732**	**3.5732**	**4.1000e-004**	**0.0000**	**3.5834**

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					0.0326	0.0000	0.0326	2.4700e-003	0.0000	2.4700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2500e-003	0.0455	0.0598	9.0000e-005		2.2700e-003	2.2700e-003		2.2700e-003	2.2700e-003	0.0000	8.2043	8.2043	2.4400e-003	0.0000	8.2653
Total	**2.2500e-003**	**0.0455**	**0.0598**	**9.0000e-005**	**0.0326**	**2.2700e-003**	**0.0349**	**2.4700e-003**	**2.2700e-003**	**4.7400e-003**	**0.0000**	**8.2043**	**8.2043**	**2.4400e-003**	**0.0000**	**8.2653**

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	6.7000e-004	0.0312	0.0105	3.0000e-005	2.9000e-004	4.0000e-005	3.2000e-004	8.0000e-005	3.0000e-005	1.1000e-004	0.0000	3.4975	3.4975	4.1000e-004	0.0000	3.5076
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	4.0000e-005	4.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0757	0.0757	0.0000	0.0000	0.0758
Total	**7.5000e-004**	**0.0313**	**0.0110**	**3.0000e-005**	**3.6000e-004**	**4.0000e-005**	**3.9000e-004**	**1.0000e-004**	**3.0000e-005**	**1.3000e-004**	**0.0000**	**3.5732**	**3.5732**	**4.1000e-004**	**0.0000**	**3.5834**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0176	0.0000	0.0176	8.5600e-003	0.0000	8.5600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1900e-003	0.0467	0.0200	5.0000e-005		2.0600e-003	2.0600e-003		1.9000e-003	1.9000e-003	0.0000	3.9921	3.9921	1.2900e-003	0.0000	4.0244

Total	**4.1900e-003**	**0.0467**	**0.0200**	**5.0000e-005**	**0.0176**	**2.0600e-003**	**0.0197**	**8.5600e-003**	**1.9000e-003**	**0.0105**	**0.0000**	**3.9921**	**3.9921**	**1.2900e-003**	**0.0000**	**4.0244**

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	3.6000e-004	0.0167	5.6200e-003	2.0000e-005	1.5000e-004	2.0000e-005	1.7000e-004	4.0000e-005	2.0000e-005	6.0000e-005	0.0000	1.8688	1.8688	2.2000e-004	0.0000	1.8742
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	1.0000e-005	2.0000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0303	0.0303	0.0000	0.0000	0.0303
Total	**3.9000e-004**	**0.0167**	**5.8200e-003**	**2.0000e-005**	**1.8000e-004**	**2.0000e-005**	**2.0000e-004**	**5.0000e-005**	**2.0000e-005**	**7.0000e-005**	**0.0000**	**1.8991**	**1.8991**	**2.2000e-004**	**0.0000**	**1.9045**

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					7.9200e-003	0.0000	7.9200e-003	1.9300e-003	0.0000	1.9300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1100e-003	0.0222	0.0258	5.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	3.9921	3.9921	1.2900e-003	0.0000	4.0244
Total	**1.1100e-003**	**0.0222**	**0.0258**	**5.0000e-005**	**7.9200e-003**	**9.8000e-004**	**8.9000e-003**	**1.9300e-003**	**9.8000e-004**	**2.9100e-003**	**0.0000**	**3.9921**	**3.9921**	**1.2900e-003**	**0.0000**	**4.0244**

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	3.6000e-004	0.0167	5.6200e-003	2.0000e-005	1.5000e-004	2.0000e-005	1.7000e-004	4.0000e-005	2.0000e-005	6.0000e-005	0.0000	1.8688	1.8688	2.2000e-004	0.0000	1.8742
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	1.0000e-005	2.0000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0303	0.0303	0.0000	0.0000	0.0303
Total	**3.9000e-004**	**0.0167**	**5.8200e-003**	**2.0000e-005**	**1.8000e-004**	**2.0000e-005**	**2.0000e-004**	**5.0000e-005**	**2.0000e-005**	**7.0000e-005**	**0.0000**	**1.8991**	**1.8991**	**2.2000e-004**	**0.0000**	**1.9045**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0246	0.0000	0.0246	0.0126	0.0000	0.0126	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0107	0.1187	0.0688	1.4000e-004		5.0700e-003	5.0700e-003		4.6700e-003	4.6700e-003	0.0000	12.7166	12.7166	4.1100e-003	0.0000	12.8194
Total	**0.0107**	**0.1187**	**0.0688**	**1.4000e-004**	**0.0246**	**5.0700e-003**	**0.0296**	**0.0126**	**4.6700e-003**	**0.0173**	**0.0000**	**12.7166**	**12.7166**	**4.1100e-003**	**0.0000**	**12.8194**

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	5.3000e-004	0.0247	8.3100e-003	3.0000e-005	3.3000e-004	3.0000e-005	3.6000e-004	9.0000e-005	3.0000e-005	1.1000e-004	0.0000	2.7666	2.7666	3.2000e-004	0.0000	2.7747
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	3.0000e-005	4.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0738	0.0738	0.0000	0.0000	0.0739
Total	**6.1000e-004**	**0.0247**	**8.7900e-003**	**3.0000e-005**	**4.0000e-004**	**3.0000e-005**	**4.3000e-004**	**1.1000e-004**	**3.0000e-005**	**1.3000e-004**	**0.0000**	**2.8405**	**2.8405**	**3.2000e-004**	**0.0000**	**2.8486**

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					0.0111	0.0000	0.0111	2.8400e-003	0.0000	2.8400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0697	0.0839	1.4000e-004		2.9500e-003	2.9500e-003		2.9500e-003	2.9500e-003	0.0000	12.7166	12.7166	4.1100e-003	0.0000	12.8194
Total	**3.5500e-003**	**0.0697**	**0.0839**	**1.4000e-004**	**0.0111**	**2.9500e-003**	**0.0140**	**2.8400e-003**	**2.9500e-003**	**5.7900e-003**	**0.0000**	**12.7166**	**12.7166**	**4.1100e-003**	**0.0000**	**12.8194**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.3000e-004	0.0247	8.3100e-003	3.0000e-005	3.3000e-004	3.0000e-005	3.6000e-004	9.0000e-005	3.0000e-005	1.1000e-004	0.0000	2.7666	2.7666	3.2000e-004	0.0000	2.7747
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	3.0000e-005	4.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0738	0.0738	0.0000	0.0000	0.0739

Total	**6.1000e-004**	**0.0247**	**8.7900e-003**	**3.0000e-005**	**4.0000e-004**	**3.0000e-005**	**4.3000e-004**	**1.1000e-004**	**3.0000e-005**	**1.3000e-004**	**0.0000**	**2.8405**	**2.8405**	**3.2000e-004**	**0.0000**	**2.8486**

3.4 Grading - 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					
Fugitive Dust					0.0155	0.0000	0.0155	7.6800e-003	0.0000	7.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4900e-003	0.0595	0.0386	9.0000e-005		2.5000e-003	2.5000e-003		2.3000e-003	2.3000e-003	0.0000	7.6337	7.6337	2.4700e-003	0.0000	7.6954
Total	**5.4900e-003**	**0.0595**	**0.0386**	**9.0000e-005**	**0.0155**	**2.5000e-003**	**0.0180**	**7.6800e-003**	**2.3000e-003**	**9.9800e-003**	**0.0000**	**7.6337**	**7.6337**	**2.4700e-003**	**0.0000**	**7.6954**

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	3.0000e-004	0.0141	5.1300e-003	2.0000e-005	3.0000e-004	2.0000e-005	3.2000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.6295	1.6295	1.8000e-004	0.0000	1.6341
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	4.0000e-005	2.0000e-005	2.6000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0427	0.0427	0.0000	0.0000	0.0427
Total	**3.4000e-004**	**0.0141**	**5.3900e-003**	**2.0000e-005**	**3.4000e-004**	**2.0000e-005**	**3.6000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**1.6722**	**1.6722**	**1.8000e-004**	**0.0000**	**1.6768**

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					6.9900e-003	0.0000	6.9900e-003	1.7300e-003	0.0000	1.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1300e-003	0.0418	0.0504	9.0000e-005		1.7700e-003	1.7700e-003		1.7700e-003	1.7700e-003	0.0000	7.6337	7.6337	2.4700e-003	0.0000	7.6954
Total	**2.1300e-003**	**0.0418**	**0.0504**	**9.0000e-005**	**6.9900e-003**	**1.7700e-003**	**8.7600e-003**	**1.7300e-003**	**1.7700e-003**	**3.5000e-003**	**0.0000**	**7.6337**	**7.6337**	**2.4700e-003**	**0.0000**	**7.6954**

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	3.0000e-004	0.0141	5.1300e-003	2.0000e-005	3.0000e-004	2.0000e-005	3.2000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.6295	1.6295	1.8000e-004	0.0000	1.6341
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	4.0000e-005	2.0000e-005	2.6000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0427	0.0427	0.0000	0.0000	0.0427
Total	**3.4000e-004**	**0.0141**	**5.3900e-003**	**2.0000e-005**	**3.4000e-004**	**2.0000e-005**	**3.6000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**1.6722**	**1.6722**	**1.8000e-004**	**0.0000**	**1.6768**

3.5 Trenching - 2021

Unmitigated Construction On-Site

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

Off-Road	5.7100e-003	0.0532	0.0590	1.1000e-004		2.6200e-003	2.6200e-003		2.5000e-003	2.5000e-003	0.0000	9.1816	9.1816	2.0600e-003	0.0000	9.2330
Total	**5.7100e-003**	**0.0532**	**0.0590**	**1.1000e-004**		**2.6200e-003**	**2.6200e-003**		**2.5000e-003**	**2.5000e-003**	**0.0000**	**9.1816**	**9.1816**	**2.0600e-003**	**0.0000**	**9.2330**

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	1.7000e-004	8.0000e-005	1.0300e-003	0.0000	1.5000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1590	0.1590	1.0000e-005	0.0000	0.1592
Total	**1.7000e-004**	**8.0000e-005**	**1.0300e-003**	**0.0000**	**1.5000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1590**	**0.1590**	**1.0000e-005**	**0.0000**	**0.1592**

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	2.4100e-003	0.0507	0.0702	1.1000e-004		2.9400e-003	2.9400e-003		2.9400e-003	2.9400e-003	0.0000	9.1815	9.1815	2.0600e-003	0.0000	9.2329
Total	**2.4100e-003**	**0.0507**	**0.0702**	**1.1000e-004**		**2.9400e-003**	**2.9400e-003**		**2.9400e-003**	**2.9400e-003**	**0.0000**	**9.1815**	**9.1815**	**2.0600e-003**	**0.0000**	**9.2329**

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	1.7000e-004	8.0000e-005	1.0300e-003	0.0000	1.5000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1590	0.1590	1.0000e-005	0.0000	0.1592
Total	**1.7000e-004**	**8.0000e-005**	**1.0300e-003**	**0.0000**	**1.5000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1590**	**0.1590**	**1.0000e-005**	**0.0000**	**0.1592**

3.5 Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0277	0.2480	0.3163	5.7000e-004		0.0119	0.0119		0.0113	0.0113	0.0000	49.5886	49.5886	0.0110	0.0000	49.8646
Total	**0.0277**	**0.2480**	**0.3163**	**5.7000e-004**		**0.0119**	**0.0119**		**0.0113**	**0.0113**	**0.0000**	**49.5886**	**49.5886**	**0.0110**	**0.0000**	**49.8646**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	3.6000e-004	5.0600e-003	1.0000e-005	8.4000e-004	1.0000e-005	8.5000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.8278	0.8278	2.0000e-005	0.0000	0.8285
Total	**8.4000e-004**	**3.6000e-004**	**5.0600e-003**	**1.0000e-005**	**8.4000e-004**	**1.0000e-005**	**8.5000e-004**	**2.2000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.8278**	**0.8278**	**2.0000e-005**	**0.0000**	**0.8285**

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	0.0130	0.2738	0.3790	5.7000e-004		0.0159	0.0159		0.0159	0.0159	0.0000	49.5886	49.5886	0.0110	0.0000	49.8645
Total	**0.0130**	**0.2738**	**0.3790**	**5.7000e-004**		**0.0159**	**0.0159**		**0.0159**	**0.0159**	**0.0000**	**49.5886**	**49.5886**	**0.0110**	**0.0000**	**49.8645**

Mitigated Construction Off-Site

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

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	3.6000e-004	5.0600e-003	1.0000e-005	8.4000e-004	1.0000e-005	8.5000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.8278	0.8278	2.0000e-005	0.0000	0.8285
Total	**8.4000e-004**	**3.6000e-004**	**5.0600e-003**	**1.0000e-005**	**8.4000e-004**	**1.0000e-005**	**8.5000e-004**	**2.2000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.8278**	**0.8278**	**2.0000e-005**	**0.0000**	**0.8285**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0301	0.2696	0.2026	4.1000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	34.3586	34.3586	9.7400e-003	0.0000	34.6020
Total	**0.0301**	**0.2696**	**0.2026**	**4.1000e-004**		**0.0124**	**0.0124**		**0.0116**	**0.0116**	**0.0000**	**34.3586**	**34.3586**	**9.7400e-003**	**0.0000**	**34.6020**

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	3.1800e-003	0.1487	0.0542	1.7000e-004	2.3000e-003	1.6000e-004	2.4600e-003	6.1000e-004	1.5000e-004	7.6000e-004	0.0000	17.2156	17.2156	1.9400e-003	0.0000	17.2641
Vendor	8.2600e-003	0.3211	0.1308	3.6000e-004	5.0800e-003	3.1000e-004	5.3900e-003	1.4800e-003	3.0000e-004	1.7800e-003	0.0000	36.8130	36.8130	3.5900e-003	0.0000	36.9028
Worker	0.0171	7.3600e-003	0.1030	1.9000e-004	0.0170	2.2000e-004	0.0173	4.5600e-003	2.0000e-004	4.7600e-003	0.0000	16.8569	16.8569	5.1000e-004	0.0000	16.8696
Total	**0.0285**	**0.4771**	**0.2880**	**7.2000e-004**	**0.0244**	**6.9000e-004**	**0.0251**	**6.6500e-003**	**6.5000e-004**	**7.3000e-003**	**0.0000**	**70.8855**	**70.8855**	**6.0400e-003**	**0.0000**	**71.0365**

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	0.0115	0.2179	0.2422	4.1000e-004		0.0113	0.0113		0.0113	0.0113	0.0000	34.3585	34.3585	9.7400e-003	0.0000	34.6020
Total	**0.0115**	**0.2179**	**0.2422**	**4.1000e-004**		**0.0113**	**0.0113**		**0.0113**	**0.0113**	**0.0000**	**34.3585**	**34.3585**	**9.7400e-003**	**0.0000**	**34.6020**

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	3.1800e-003	0.1487	0.0542	1.7000e-004	2.3000e-003	1.6000e-004	2.4600e-003	6.1000e-004	1.5000e-004	7.6000e-004	0.0000	17.2156	17.2156	1.9400e-003	0.0000	17.2641
Vendor	8.2600e-003	0.3211	0.1308	3.6000e-004	5.0800e-003	3.1000e-004	5.3900e-003	1.4800e-003	3.0000e-004	1.7800e-003	0.0000	36.8130	36.8130	3.5900e-003	0.0000	36.9028
Worker	0.0171	7.3600e-003	0.1030	1.9000e-004	0.0170	2.2000e-004	0.0173	4.5600e-003	2.0000e-004	4.7600e-003	0.0000	16.8569	16.8569	5.1000e-004	0.0000	16.8696
Total	**0.0285**	**0.4771**	**0.2880**	**7.2000e-004**	**0.0244**	**6.9000e-004**	**0.0251**	**6.6500e-003**	**6.5000e-004**	**7.3000e-003**	**0.0000**	**70.8855**	**70.8855**	**6.0400e-003**	**0.0000**	**71.0365**

3.6 Building Construction - 2023

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	0.0228	0.2031	0.1626	3.3000e-004		8.9800e-003	8.9800e-003		8.3900e-003	8.3900e-003	0.0000	28.0279	28.0279	7.8900e-003	0.0000	28.2251
Total	**0.0228**	**0.2031**	**0.1626**	**3.3000e-004**		**8.9800e-003**	**8.9800e-003**		**8.3900e-003**	**8.3900e-003**	**0.0000**	**28.0279**	**28.0279**	**7.8900e-003**	**0.0000**	**28.2251**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0800e-003	0.1031	0.0446	1.3000e-004	2.2300e-003	8.0000e-005	2.3200e-003	5.8000e-004	8.0000e-005	6.7000e-004	0.0000	13.4521	13.4521	1.4600e-003	0.0000	13.4887
Vendor	5.6600e-003	0.2288	0.1044	2.9000e-004	4.1400e-003	1.6000e-004	4.3100e-003	1.2100e-003	1.5000e-004	1.3600e-003	0.0000	28.9892	28.9892	2.7100e-003	0.0000	29.0569
Worker	0.0129	5.3700e-003	0.0770	1.5000e-004	0.0139	1.8000e-004	0.0141	3.7200e-003	1.6000e-004	3.8800e-003	0.0000	13.2386	13.2386	3.7000e-004	0.0000	13.2478
Total	**0.0207**	**0.3373**	**0.2260**	**5.7000e-004**	**0.0203**	**4.2000e-004**	**0.0207**	**5.5100e-003**	**3.9000e-004**	**5.9100e-003**	**0.0000**	**55.6798**	**55.6798**	**4.5400e-003**	**0.0000**	**55.7934**

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	9.3900e-003	0.1778	0.1976	3.3000e-004		9.2500e-003	9.2500e-003		9.2500e-003	9.2500e-003	0.0000	28.0279	28.0279	7.8900e-003	0.0000	28.2250

Total	**9.3900e-003**	**0.1778**	**0.1976**	**3.3000e-004**		**9.2500e-003**	**9.2500e-003**		**9.2500e-003**	**9.2500e-003**	**0.0000**	**28.0279**	**28.0279**	**7.8900e-003**	**0.0000**	**28.2250**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0800e-003	0.1031	0.0446	1.3000e-004	2.2300e-003	8.0000e-005	2.3200e-003	5.8000e-004	8.0000e-005	6.7000e-004	0.0000	13.4521	13.4521	1.4600e-003	0.0000	13.4887
Vendor	5.6600e-003	0.2288	0.1044	2.9000e-004	4.1400e-003	1.6000e-004	4.3100e-003	1.2100e-003	1.5000e-004	1.3600e-003	0.0000	28.9892	28.9892	2.7100e-003	0.0000	29.0569
Worker	0.0129	5.3700e-003	0.0770	1.5000e-004	0.0139	1.8000e-004	0.0141	3.7200e-003	1.6000e-004	3.8800e-003	0.0000	13.2386	13.2386	3.7000e-004	0.0000	13.2478
Total	**0.0207**	**0.3373**	**0.2260**	**5.7000e-004**	**0.0203**	**4.2000e-004**	**0.0207**	**5.5100e-003**	**3.9000e-004**	**5.9100e-003**	**0.0000**	**55.6798**	**55.6798**	**4.5400e-003**	**0.0000**	**55.7934**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4608					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4100e-003	0.0442	0.0569	9.0000e-005		2.5600e-003	2.5600e-003		2.5600e-003	2.5600e-003	0.0000	8.0045	8.0045	5.2000e-004	0.0000	8.0175
Total	**0.4672**	**0.0442**	**0.0569**	**9.0000e-005**		**2.5600e-003**	**2.5600e-003**		**2.5600e-003**	**2.5600e-003**	**0.0000**	**8.0045**	**8.0045**	**5.2000e-004**	**0.0000**	**8.0175**

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	1.1000e-003	4.7000e-004	6.6100e-003	1.0000e-005	1.0900e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.1000e-004	0.0000	1.0819	1.0819	3.0000e-005	0.0000	1.0827
Total	**1.1000e-003**	**4.7000e-004**	**6.6100e-003**	**1.0000e-005**	**1.0900e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**1.0819**	**1.0819**	**3.0000e-005**	**0.0000**	**1.0827**

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	0.4608					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8600e-003	0.0425	0.0575	9.0000e-005		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	8.0044	8.0044	5.2000e-004	0.0000	8.0175
Total	**0.4627**	**0.0425**	**0.0575**	**9.0000e-005**		**2.9800e-003**	**2.9800e-003**		**2.9800e-003**	**2.9800e-003**	**0.0000**	**8.0044**	**8.0044**	**5.2000e-004**	**0.0000**	**8.0175**

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	1.1000e-003	4.7000e-004	6.6100e-003	1.0000e-005	1.0900e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.1000e-004	0.0000	1.0819	1.0819	3.0000e-005	0.0000	1.0827
Total	**1.1000e-003**	**4.7000e-004**	**6.6100e-003**	**1.0000e-005**	**1.0900e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**1.0819**	**1.0819**	**3.0000e-005**	**0.0000**	**1.0827**

3.7 Architectural Coating - 2023

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	1.1803					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0154	0.1046	0.1454	2.4000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	20.5026	20.5026	1.2300e-003	0.0000	20.5333
Total	**1.1957**	**0.1046**	**0.1454**	**2.4000e-004**		**5.6900e-003**	**5.6900e-003**		**5.6900e-003**	**5.6900e-003**	**0.0000**	**20.5026**	**20.5026**	**1.2300e-003**	**0.0000**	**20.5333**

Unmitigated Construction Off-Site

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

Worker	2.6000e-003	1.0800e-003	0.0155	3.0000e-005	2.8000e-003	4.0000e-005	2.8400e-003	7.5000e-004	3.0000e-005	7.8000e-004	0.0000	2.6683	2.6683	7.0000e-005	0.0000	2.6701
Total	**2.6000e-003**	**1.0800e-003**	**0.0155**	**3.0000e-005**	**2.8000e-003**	**4.0000e-005**	**2.8400e-003**	**7.5000e-004**	**3.0000e-005**	**7.8000e-004**	**0.0000**	**2.6683**	**2.6683**	**7.0000e-005**	**0.0000**	**2.6701**

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	1.1803					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7700e-003	0.1090	0.1471	2.4000e-004		7.6400e-003	7.6400e-003		7.6400e-003	7.6400e-003	0.0000	20.5026	20.5026	1.2300e-003	0.0000	20.5333
Total	**1.1851**	**0.1090**	**0.1471**	**2.4000e-004**		**7.6400e-003**	**7.6400e-003**		**7.6400e-003**	**7.6400e-003**	**0.0000**	**20.5026**	**20.5026**	**1.2300e-003**	**0.0000**	**20.5333**

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	2.6000e-003	1.0800e-003	0.0155	3.0000e-005	2.8000e-003	4.0000e-005	2.8400e-003	7.5000e-004	3.0000e-005	7.8000e-004	0.0000	2.6683	2.6683	7.0000e-005	0.0000	2.6701
Total	**2.6000e-003**	**1.0800e-003**	**0.0155**	**3.0000e-005**	**2.8000e-003**	**4.0000e-005**	**2.8400e-003**	**7.5000e-004**	**3.0000e-005**	**7.8000e-004**	**0.0000**	**2.6683**	**2.6683**	**7.0000e-005**	**0.0000**	**2.6701**

3.8 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.3000e-004	8.2100e-003	0.0118	2.0000e-005		4.1000e-004	4.1000e-004		3.8000e-004	3.8000e-004	0.0000	1.5777	1.5777	5.1000e-004	0.0000	1.5905
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.3000e-004**	**8.2100e-003**	**0.0118**	**2.0000e-005**		**4.1000e-004**	**4.1000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**1.5777**	**1.5777**	**5.1000e-004**	**0.0000**	**1.5905**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	4.8900e-003	2.1200e-003	1.0000e-005	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.6382	0.6382	7.0000e-005	0.0000	0.6399
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.2000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0211	0.0211	0.0000	0.0000	0.0211
Total	**1.2000e-004**	**4.9000e-003**	**2.2400e-003**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.6593**	**0.6593**	**7.0000e-005**	**0.0000**	**0.6610**

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	4.4000e-004	9.1400e-003	0.0136	2.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	1.5777	1.5777	5.1000e-004	0.0000	1.5905
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.4000e-004**	**9.1400e-003**	**0.0136**	**2.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**1.5777**	**1.5777**	**5.1000e-004**	**0.0000**	**1.5905**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	4.8900e-003	2.1200e-003	1.0000e-005	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.6382	0.6382	7.0000e-005	0.0000	0.6399
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.2000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0211	0.0211	0.0000	0.0000	0.0211
Total	**1.2000e-004**	**4.9000e-003**	**2.2400e-003**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.6593**	**0.6593**	**7.0000e-005**	**0.0000**	**0.6610**

MidPen Downtown San Mateo Opportunity Sites, Operation Criteria Pollutants and GHG - 2030

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	45.00	Space	1.25	228,918.00	0
Apartments Mid Rise	225.00	Dwelling Unit	1.16	226,354.00	644

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	146	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity = 90% PCE 2018 rate (of 129.77) with 10% PG&E (of 290) = 146

Land Use - Provided Land Uses - operational net parking

Construction Phase - Provided construction schedule

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Off-road Equipment - Provided construction equipment and hours

Trips and VMT - 1 mile nearby TAC, Building Construction = 3,050 cement round trips, Paving = 65 asphalt round-trips

Demolition - Demolition hauling volume = 6,775 tons

Grading - Site Prep = 2,865cy export, Grading + Trenching = 600cy import, 6,182cy export

Vehicle Trips - apts w/ reduction = 4.57, 4.39, 4.03, parking = 6.56

Woodstoves - All gas no wood

Water And Wastewater - WTP treatment 100% aerobic

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	203.00
tblConstructionPhase	NumDays	220.00	325.00
tblConstructionPhase	NumDays	6.00	24.00
tblConstructionPhase	NumDays	10.00	6.00
tblConstructionPhase	NumDays	3.00	10.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	33.75	72.00
tblFireplaces	NumberWood	38.25	0.00
tblGrading	AcresOfGrading	18.00	3.00
tblGrading	AcresOfGrading	2.50	4.50
tblGrading	MaterialExported	0.00	6,182.00
tblGrading	MaterialExported	0.00	2,865.00
tblGrading	MaterialImported	0.00	600.00
tblLandUse	LandUseSquareFeet	18,000.00	228,918.00
tblLandUse	LandUseSquareFeet	225,000.00	226,354.00
tblLandUse	LotAcreage	0.41	1.25
tblLandUse	LotAcreage	5.92	1.16
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	6.00	6.60
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	1.20
tblOffRoadEquipment	UsageHours	8.00	3.40
tblOffRoadEquipment	UsageHours	7.00	2.70
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	1.40
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.20
tblProjectCharacteristics	CO2IntensityFactor	641.35	146
tblTripsAndVMT	HaulingTripNumber	0.00	6,100.00
tblTripsAndVMT	HaulingTripNumber	0.00	130.00
tblVehicleTrips	ST_TR	6.39	4.39

tblVehicleTrips	ST_TR	0.00	6.56
tblVehicleTrips	SU_TR	5.86	4.03
tblVehicleTrips	SU_TR	0.00	6.56
tblVehicleTrips	WD_TR	6.65	4.57
tblVehicleTrips	WD_TR	0.00	6.56
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	1.1137	0.0270	1.6700	1.4000e-004		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	11.7182	11.7182	2.7700e-003	1.6000e-004	11.8367
Energy	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	197.1452	197.1452	0.0204	5.7200e-003	199.3572
Mobile	0.1761	0.4907	1.9145	7.5400e-003	0.8610	4.8900e-003	0.8659	0.2314	4.5400e-003	0.2360	0.0000	693.8027	693.8027	0.0247	0.0000	694.4213
Waste						0.0000	0.0000		0.0000	0.0000	21.0096	0.0000	21.0096	1.2416	0.0000	52.0503
Water						0.0000	0.0000		0.0000	0.0000	5.1866	7.3953	12.5819	0.0193	0.0116	16.5167
Total	**1.3004**	**0.6082**	**3.6229**	**8.2600e-003**	**0.8610**	**0.0221**	**0.8831**	**0.2314**	**0.0218**	**0.2532**	**26.1962**	**910.0614**	**936.2576**	**1.3088**	**0.0175**	**974.1822**

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	1.1137	0.0270	1.6700	1.4000e-004		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	11.7182	11.7182	2.7700e-003	1.6000e-004	11.8367
Energy	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	197.1452	197.1452	0.0204	5.7200e-003	199.3572
Mobile	0.1761	0.4907	1.9145	7.5400e-003	0.8610	4.8900e-003	0.8659	0.2314	4.5400e-003	0.2360	0.0000	693.8027	693.8027	0.0247	0.0000	694.4213
Waste						0.0000	0.0000		0.0000	0.0000	21.0096	0.0000	21.0096	1.2416	0.0000	52.0503
Water						0.0000	0.0000		0.0000	0.0000	5.1866	7.3953	12.5819	0.0193	0.0116	16.5167
Total	**1.3004**	**0.6082**	**3.6229**	**8.2600e-003**	**0.8610**	**0.0221**	**0.8831**	**0.2314**	**0.0218**	**0.2532**	**26.1962**	**910.0614**	**936.2576**	**1.3088**	**0.0175**	**974.1822**

	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	0.1761	0.4907	1.9145	7.5400e-003	0.8610	4.8900e-003	0.8659	0.2314	4.5400e-003	0.2360	0.0000	693.8027	693.8027	0.0247	0.0000	694.4213
Unmitigated	0.1761	0.4907	1.9145	7.5400e-003	0.8610	4.8900e-003	0.8659	0.2314	4.5400e-003	0.2360	0.0000	693.8027	693.8027	0.0247	0.0000	694.4213

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,028.25	987.75	906.75	2,321,403	2,321,403
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	1,028.25	987.75	906.75	2,321,403	2,321,403

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.448867	0.051210	0.277116	0.145918	0.016779	0.007633	0.027321	0.006813	0.004476	0.002855	0.009510	0.000605	0.000896
Unenclosed Parking with Elevator	0.448867	0.051210	0.277116	0.145918	0.016779	0.007633	0.027321	0.006813	0.004476	0.002855	0.009510	0.000605	0.000896

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	92.3202	92.3202	0.0183	3.7900e-003	93.9092
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	92.3202	92.3202	0.0183	3.7900e-003	93.9092
NaturalGas Mitigated	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	104.8250	104.8250	2.0100e-003	1.9200e-003	105.4480
NaturalGas Unmitigated	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	104.8250	104.8250	2.0100e-003	1.9200e-003	105.4480

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.96435e+006	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	104.8250	104.8250	2.0100e-003	1.9200e-003	105.4480
Unenclosed 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		**0.0106**	**0.0905**	**0.0385**	**5.8000e-004**		**7.3200e-003**	**7.3200e-003**		**7.3200e-003**	**7.3200e-003**	**0.0000**	**104.8250**	**104.8250**	**2.0100e-003**	**1.9200e-003**	**105.4480**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.96435e+006	0.0106	0.0905	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	104.8250	104.8250	2.0100e-003	1.9200e-003	105.4480

Unenclosed 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		**0.0106**	**0.0905**	**0.0385**	**5.8000e-004**		**7.3200e-003**	**7.3200e-003**		**7.3200e-003**	**7.3200e-003**	**0.0000**	**104.8250**	**104.8250**	**2.0100e-003**	**1.9200e-003**	**105.4480**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	949948	62.9098	0.0125	2.5900e-003	63.9926
Unenclosed Parking with Elevator	444101	29.4104	5.8400e-003	1.2100e-003	29.9166
Total		**92.3202**	**0.0183**	**3.8000e-003**	**93.9092**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	949948	62.9098	0.0125	2.5900e-003	63.9926
Unenclosed Parking with Elevator	444101	29.4104	5.8400e-003	1.2100e-003	29.9166
Total		**92.3202**	**0.0183**	**3.8000e-003**	**93.9092**

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	1.1137	0.0270	1.6700	1.4000e-004		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	11.7182	11.7182	2.7700e-003	1.6000e-004	11.8367
Unmitigated	1.1137	0.0270	1.6700	1.4000e-004		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	11.7182	11.7182	2.7700e-003	1.6000e-004	11.8367

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	0.1641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8988					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.1000e-004	7.7600e-003	3.3000e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	8.9884	8.9884	1.7000e-004	1.6000e-004	9.0418
Landscaping	0.0499	0.0192	1.6667	9.0000e-005		9.2700e-003	9.2700e-003		9.2700e-003	9.2700e-003	0.0000	2.7298	2.7298	2.6000e-003	0.0000	2.7948
Total	**1.1137**	**0.0270**	**1.6700**	**1.4000e-004**		**9.9000e-003**	**9.9000e-003**		**9.9000e-003**	**9.9000e-003**	**0.0000**	**11.7182**	**11.7182**	**2.7700e-003**	**1.6000e-004**	**11.8367**

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	0.1641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8988					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.1000e-004	7.7600e-003	3.3000e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	8.9884	8.9884	1.7000e-004	1.6000e-004	9.0418
Landscaping	0.0499	0.0192	1.6667	9.0000e-005		9.2700e-003	9.2700e-003		9.2700e-003	9.2700e-003	0.0000	2.7298	2.7298	2.6000e-003	0.0000	2.7948
Total	**1.1137**	**0.0270**	**1.6700**	**1.4000e-004**		**9.9000e-003**	**9.9000e-003**		**9.9000e-003**	**9.9000e-003**	**0.0000**	**11.7182**	**11.7182**	**2.7700e-003**	**1.6000e-004**	**11.8367**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	12.5819	0.0193	0.0116	16.5167
Unmitigated	12.5819	0.0193	0.0116	16.5167

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.6597 / 9.24196	12.5819	0.0193	0.0116	16.5167
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**12.5819**	**0.0193**	**0.0116**	**16.5167**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.6597 / 9.24196	12.5819	0.0193	0.0116	16.5167
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**12.5819**	**0.0193**	**0.0116**	**16.5167**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	21.0096	1.2416	0.0000	52.0503
Unmitigated	21.0096	1.2416	0.0000	52.0503

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	103.5	21.0096	1.2416	0.0000	52.0503
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**21.0096**	**1.2416**	**0.0000**	**52.0503**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	103.5	21.0096	1.2416	0.0000	52.0503
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000

Total		21.0096	1.2416	0.0000	52.0503

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

MidPen Downtown San Mateo Opportunity Sites - Existing 2030

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	2.00	1000sqft	0.05	2,000.00	0
Parking Lot	235.00	Space	2.36	103,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Existing land uses

Construction Phase - Existing land use - no construction

Off-road Equipment - Existing land use - no construction

Grading - Existing land use - no construction

Energy Use - Historical energy use

Trips and VMT -

Vehicle Trips - Default Industrial, Parking = 6.56

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	3.00	1.00
tblEnergyUse	LightingElect	3.70	2.99
tblEnergyUse	LightingElect	0.88	0.35
tblEnergyUse	T24E	1.59	1.21
tblEnergyUse	T24NG	20.06	17.85
tblLandUse	LandUseSquareFeet	94,000.00	103,000.00
tblLandUse	LotAcreage	2.11	2.36
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblVehicleTrips	ST_TR	0.00	6.56
tblVehicleTrips	SU_TR	0.00	6.56
tblVehicleTrips	WD_TR	0.00	6.56

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	0.0179	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003
Energy	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	17.5275	17.5275	7.2000e-004	1.9000e-004	17.6015

Mobile	2.0600e-003	5.8600e-003	0.0241	1.0000e-004	0.0114	6.0000e-005	0.0115	3.0600e-003	6.0000e-005	3.1200e-003	0.0000	9.1104	9.1104	3.2000e-004	0.0000	9.1184
Waste						0.0000	0.0000		0.0000	0.0000	0.5034	0.0000	0.5034	0.0298	0.0000	1.2472
Water						0.0000	0.0000		0.0000	0.0000	0.1467	0.7280	0.8748	0.0151	3.6000e-004	1.3604
Total	**0.0202**	**8.3100e-003**	**0.0283**	**1.1000e-004**	**0.0114**	**2.5000e-004**	**0.0117**	**3.0600e-003**	**2.5000e-004**	**3.3100e-003**	**0.6502**	**27.3701**	**28.0203**	**0.0459**	**5.5000e-004**	**29.3320**

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	0.0179	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003
Energy	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	17.5275	17.5275	7.2000e-004	1.9000e-004	17.6015
Mobile	2.0600e-003	5.8600e-003	0.0241	1.0000e-004	0.0114	6.0000e-005	0.0115	3.0600e-003	6.0000e-005	3.1200e-003	0.0000	9.1104	9.1104	3.2000e-004	0.0000	9.1184
Waste						0.0000	0.0000		0.0000	0.0000	0.5034	0.0000	0.5034	0.0298	0.0000	1.2472
Water						0.0000	0.0000		0.0000	0.0000	0.1467	0.7280	0.8748	0.0151	3.6000e-004	1.3604
Total	**0.0202**	**8.3100e-003**	**0.0283**	**1.1000e-004**	**0.0114**	**2.5000e-004**	**0.0117**	**3.0600e-003**	**2.5000e-004**	**3.3100e-003**	**0.6502**	**27.3701**	**28.0203**	**0.0459**	**5.5000e-004**	**29.3320**

	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	2.0600e-003	5.8600e-003	0.0241	1.0000e-004	0.0114	6.0000e-005	0.0115	3.0600e-003	6.0000e-005	3.1200e-003	0.0000	9.1104	9.1104	3.2000e-004	0.0000	9.1184
Unmitigated	2.0600e-003	5.8600e-003	0.0241	1.0000e-004	0.0114	6.0000e-005	0.0115	3.0600e-003	6.0000e-005	3.1200e-003	0.0000	9.1104	9.1104	3.2000e-004	0.0000	9.1184

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	13.94	2.64	1.36	30,738	30,738
Parking Lot	0.00	0.00	0.00		
Total	13.94	2.64	1.36	30,738	30,738

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	0.448867	0.051210	0.277116	0.145918	0.016779	0.007633	0.027321	0.006813	0.004476	0.002855	0.009510	0.000605	0.000896
Parking Lot	0.448867	0.051210	0.277116	0.145918	0.016779	0.007633	0.027321	0.006813	0.004476	0.002855	0.009510	0.000605	0.000896

5.0 Energy Detail

Historical Energy Use: Y

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	14.8859	14.8859	6.7000e-004	1.4000e-004	14.9443
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	14.8859	14.8859	6.7000e-004	1.4000e-004	14.9443
NaturalGas Mitigated	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.6415	2.6415	5.0000e-005	5.0000e-005	2.6572
NaturalGas Unmitigated	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.6415	2.6415	5.0000e-005	5.0000e-005	2.6572

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	49500	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.6415	2.6415	5.0000e-005	5.0000e-005	2.6572
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		**2.7000e-004**	**2.4300e-003**	**2.0400e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**2.6415**	**2.6415**	**5.0000e-005**	**5.0000e-005**	**2.6572**

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	49500	2.7000e-004	2.4300e-003	2.0400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.6415	2.6415	5.0000e-005	5.0000e-005	2.6572
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		**2.7000e-004**	**2.4300e-003**	**2.0400e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**2.6415**	**2.6415**	**5.0000e-005**	**5.0000e-005**	**2.6572**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	15120	4.3986	2.0000e-004	4.0000e-005	4.4158
Parking Lot	36050	10.4874	4.7000e-004	1.0000e-004	10.5285
Total		**14.8859**	**6.7000e-004**	**1.4000e-004**	**14.9443**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	15120	4.3986	2.0000e-004	4.0000e-005	4.4158

Parking Lot	36050	10.4874	4.7000e-004	1.0000e-004	10.5285
Total		**14.8859**	**6.7000e-004**	**1.4000e-004**	**14.9443**

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	0.0179	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003
Unmitigated	0.0179	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003

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	3.1900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0145					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-004	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003

Total	**0.0179**	**2.0000e-005**	**2.1700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.2300e-003**	**4.2300e-003**	**1.0000e-005**	**0.0000**	**4.5100e-003**

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	3.1900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0145					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-004	2.0000e-005	2.1700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.2300e-003	4.2300e-003	1.0000e-005	0.0000	4.5100e-003
Total	**0.0179**	**2.0000e-005**	**2.1700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.2300e-003**	**4.2300e-003**	**1.0000e-005**	**0.0000**	**4.5100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.8748	0.0151	3.6000e-004	1.3604
Unmitigated	0.8748	0.0151	3.6000e-004	1.3604

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.4625 / 0	0.8748	0.0151	3.6000e-004	1.3604
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.8748**	**0.0151**	**3.6000e-004**	**1.3604**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.4625 / 0	0.8748	0.0151	3.6000e-004	1.3604
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.8748**	**0.0151**	**3.6000e-004**	**1.3604**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.5034	0.0298	0.0000	1.2472
Unmitigated	0.5034	0.0298	0.0000	1.2472

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2.48	0.5034	0.0298	0.0000	1.2472
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.5034**	**0.0298**	**0.0000**	**1.2472**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2.48	0.5034	0.0298	0.0000	1.2472

Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.5034**	**0.0298**	**0.0000**	**1.2472**

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

Attachment 3: Construction Health Risk Calculations

MidPen Downtown San Mateo Opportunity Sites, San Mateo, CA

DPM Construction Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2021	Const-Res Area 1	0.0067	RES_DPM	13.4	0.00307	3.87E-04	4,560	8.48E-08
	Const-Park Area 2	0.0072	PARK_DPM	14.4	0.00328	4.13E-04	4,873	8.48E-08
		0.0139					9,433	
2022	Const-Res Area 1	0.0145	RES_DPM	29.1	0.00664	8.37E-04	4,560	1.84E-07
	Const-Park Area 2	0.0156	PARK_DPM	31.1	0.00710	8.95E-04	4,873	1.84E-07
		0.0301					9,433	
2023	Const-Res Area 1	0.0075	RES_DPM	15.0	0.00342	4.31E-04	4,560	9.45E-08
	Const-Park Area 2	0.0080	PARK_DPM	16.0	0.00366	4.61E-04	4,873	9.45E-08
		0.0155					9,433	
Total		***0.0595***		***119***	***0.0272***	***0.0034***		
		hr/day =	12	(7am - 7pm)				
		days/yr =	365					
		hours/year =	4380					

MidPen Downtown San Mateo Opportunity Sites, San Mateo, CA

PM2.5 Fugitive Dust Construction Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2021	Const-Res Area 1	RES_FUG	0.0157	31.4	0.00717	9.04E-04	4,560	1.98E-07
	Const-Park Area 2	PARK_FUG	0.0168	33.6	0.00767	9.66E-04	4,873	1.98E-07
			0.0325				9,433	
2022	Const-Res Area 1	RES_FUG	0.0072	14.4	0.00329	4.14E-04	4,560	9.09E-08
	Const-Park Area 2	PARK_FUG	0.0077	15.4	0.00351	4.43E-04	4,873	9.09E-08
			0.0149				9,433	
2023	Const-Res Area 1	RES_FUG	0.0030	6.1	0.00139	1.75E-04	4,560	3.84E-08
	Const-Park Area 2	PARK_FUG	0.0032	6.5	0.00148	1.87E-04	4,873	3.84E-08
			0.0063				9,433	
Total			***0.0537***	***107.4***	***0.0245***	***0.0031***		
		hr/day =	12	(7am - 7pm)				
		days/yr =	365					
		hours/year =	4380					

MidPen Downtown San Mateo Opportunity Sites, San Mateo, CA
- Construction Health Impact Summary

Maximum Impacts at MEI Location - Unmitigated

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Infant/Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2021	0.01037	0.04159	2.2	0.0	0.002	0.05
2022	0.0225	0.01909	3.7	0.1	0.005	0.04
2023	0.01155	0.00807	0.3	0.0	0.002	0.02
Total	-	-	**6.1**	**0.1**	-	-
Maximum	0.0225	0.0416	**-**	**-**	**0.005**	**0.05**

Maximum Impacts at Safari Kids - Unmitigated

Construction Year	Unmitigated Emissions: Maximum Concentrations: Exhaust PM2.5/DPM ($\mu g/m^3$)	Unmitigated Emissions: Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Infant/Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2021	0.0083	0.0242	0.3	0.002	0.03
2022	0.0179	0.0111	0.7	0.004	0.03
2023	0.0092	0.0047	0.4	0.002	0.01
Total	-	-	**1.4**	-	-
Maximum	0.0179	0.0242	-	**0.004**	**0.03**

MidPen Downtown San Mateo Opportunity Sites, San Mateo, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	861	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	
				DPM Conc (ug/m3)	Age	Cancer	Modeled	DPM Conc (ug/m3)	Age	Cancer		
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*	2021-2022	0.0329	10	0.45	2021-2022	0.0329	-	-		
1	1	0 - 1	2021	0.0104	10	1.70	2021	0.0104	1	0.03	0.0416	0.0520
2	1	1 - 2	2022	0.0225	10	3.70	2022	0.0225	1	0.06	0.0191	0.0416
3	1	2 - 3	2023	0.0116	3	0.30	2023	0.0116	1	0.03	0.0081	0.0196
4	1	3 - 4	0	0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5	0	0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6	0	0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7	0	0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8	0	0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9	0	0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10	0	0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11	0	0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12	0	0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13	0	0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14	0	0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15	0	0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16	0	0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17	0	0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18	0	0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19	0	0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20	0	0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21	0	0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22	0	0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23	0	0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24	0	0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25	0	0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26	0	0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27	0	0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28	0	0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29	0	0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30	0	0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**6.1**				**0.13**		

* Third trimester of pregnancy

MidPen Downtown San Mateo Opportunity Sites, San Mateo, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 4.5 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	861	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				Adult - Exposure Information				Maximum	
							Modeled					
Exposure Year	Exposure Duration (years)	Age	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2021-2022	0.0275	10	0.37	2021-2022	0.0275	-	-		
1	1	0 - 1	2021	0.0087	10	1.42	2021	0.0087	1	0.02	0.0231	0.0318
2	1	1 - 2	2022	0.0188	10	3.09	2022	0.0188	1	0.05	0.0106	0.0294
3	1	2 - 3	2023	0.0097	3	0.25	2023	0.0097	1	0.03	0.0045	0.0141
4	1	3 - 4	0	0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5	0	0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6	0	0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7	0	0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8	0	0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9	0	0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10	0	0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11	0	0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12	0	0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13	0	0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14	0	0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15	0	0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16	0	0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17	0	0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18	0	0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19	0	0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20	0	0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21	0	0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22	0	0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23	0	0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24	0	0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25	0	0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26	0	0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27	0	0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28	0	0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29	0	0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30	0	0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**5.1**				**0.11**		

* Third trimester of pregnancy

MidPen Downtown San Mateo Opportunity Sites, San Mateo, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 10.7 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	861	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				Adult - Exposure Information				Maximum	
							Modeled					
Exposure Year	Exposure Duration (years)	Age	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2021-2022	0.0179	10	0.24	2021-2022	0.0179	-	-		
1	1	0 - 1	2021	0.0057	10	0.93	2021	0.0057	1	0.02	0.0100	0.0157
2	1	1 - 2	2022	0.0123	10	2.02	2022	0.0123	1	0.04	0.0046	0.0169
3	1	2 - 3	2023	0.0063	3	0.16	2023	0.0063	1	0.02	0.0020	0.0083
4	1	3 - 4	0	0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5	0	0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6	0	0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7	0	0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8	0	0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9	0	0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10	0	0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11	0	0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12	0	0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13	0	0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14	0	0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15	0	0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16	0	0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17	0	0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18	0	0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19	0	0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20	0	0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21	0	0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22	0	0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23	0	0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24	0	0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25	0	0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26	0	0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27	0	0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28	0	0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29	0	0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30	0	0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**3.4**				**0.07**		

* Third trimester of pregnancy

Safari Kids, San Mateo, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Preschool - 1.0 meters - 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	861	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 school children and 80th percentile adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)	Maximum Fugitive PM2.5	Maximum Total PM2.5
1	1	2021	0.0083	3	0.3	0.0242	0.0325
2	1	2022	0.0179	3	0.7	0.0111	0.0290
3	1	2023	0.0092	3	0.4	0.0047	0.0139
Total Increased Cancer Risk					**1.4**		

* Students assumed to be from 3+ years

Attachment 4: Community Risk Screening and Health Risk Calculations

Railroad Emissions and Health Risk Calculations

MidPen 4th Street, San Mateo, CA
DPM Modeling - Rail Line Information and DPM and PM2.5 Emission Rates
Caltrain Electrification and Diesel-Powered Freight Trains

Year	Description	No. Lines Modeled	Segment Width (ft)	Segment Width (m)	Segment Length (ft)	Segment Length (miles)	Segment Length (m)	Release Height (m)	Average No. Trains per Day	Train Travel Speed (mph)	DPM Emission Rates			
											Average Daily Emission Rate (g/mi/day)	Average Daily Emission Rate (g/day)	Link Emission Rate (g/s)	Link Emission Rate (lb/hr)
2024-2025	Caltrain	1	18	5.5	2,754	0.52	840	5.0	19	40	40.3	21.0	2.43E-04	1.93E-03
	Freight Trains	1	18	5.5	2,754	0.52	840	5.0	4	40	15.3	8.0	9.25E-05	7.34E-04
	Total	-	-	-	-	-	-	-	**23**	-	**55.6**	**29.0**	**3.36E-04**	**2.66E-03**
2026-2053	Caltrain	1	18	5.5	2,754	0.52	840	5.0	3	40	2.1	1.1	1.27E-05	1.01E-04
	Freight Trains	1	18	5.5	2,754	0.52	840	5.0	4	40	6.0	3.1	3.65E-05	2.89E-04
	Total	-	-	-	-	-	-	-	**7**	-	**8.1**	**4.2**	**4.92E-05**	**3.90E-04**

Notes: Emission based on Emission Factors for Locomotives, USEPA 2009 (EPA-420-F-09-025)
Average emissions calculated for the periods 2024-2025, 2026-2053.
Fuel correction factors from Offroad Modeling Change Technical memo, Changes to the Locomotive Inventory, CARB July 2006.
PM2.5 calculated as 92% of PM emissions (CARB CEIDERS PM2.5 fractions)
Passenger trains assumed to operate for 24 hours per day
Freight trains assumed to operate for 24 hours per day

Number of Diesel Trains in Service		
Trains on Rail Line	**2024-2025**	**2026-2053**
Caltrain Diesel Trains	***Total***	***Total***
Passenger trains - weekday =	24	4
Passenger trains - weekend =	4	0
Passenger trains - Sat only =	4	0
Total Trains =	32	4
Annual average daily trains =	19	3
Locomotive horsepower =	3467	3467
Locomotive engine load =	0.5	0.5
Freight	***Total***	***Total***
Freight trains per day =	4	4
Locomotive horsepower =	2300	2300
Locomotives per train =	2	2
Total horsepower =	4600	4600
Locomotive engine load =	0.5	0.5

Locomotive DPM Emission Factors (g/hp-hr)

Train Type	2024-2025	2026-2053
Passenger	0.0697	0.024
Freight	0.0793	0.031

* average emissions for period.

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

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

MidPen 4th Street, San Mateo - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 1st Floor Residential Receptors (1.5 meter receptor heights)
Caltrain Electrification and Diesel-Powered Freight Trains

Receptor Information	On-site residential receptors
Number of Receptors	72
Receptor Height =	1.5 feet
Receptor distances =	7 m spacing in residential areas

Meteorological Conditions

San Francisco Airport Hourly Data	2013-2017	BAAQMD
Land Use Classification	urban	
Wind speed =	variable	
Wind direction =	variable	

MEI Maximum Concentrations - Receptor Height = 1.5 m

Meteorological Data Years	Period Average DPM Concentration ($\mu g/m^3$)	
	2024-2025	**2026-2049**
2013-2017	0.01884	0.00276
Meteorological Data Years	**Period Average PM2.5 Concentration ($\mu g/m^3$)**	
	2020	**2026-2049**
2013-2017	0.0173	0.0025

MidPen 4th Street, San Mateo - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 2nd Floor Residential Receptors (5.2 meter receptor heights)
Caltrain Electrification and Diesel-Powered Freight Trains

Receptor Information	On-site residential receptors
Number of Receptors	72
Receptor Height =	5.2 meters
Receptor distances =	7 m spacing in residential areas

Meteorological Conditions

San Francisco Airport Hourly Data	2013-2017	BAAQMD
Land Use Classification	urban	
Wind speed =	variable	
Wind direction =	variable	

MEI Maximum Concentrations - Receptor Height = 5.2 m

Meteorological Data Years	Period Average DPM Concentration ($\mu g/m^3$)	
	2024-2025	**2026-2049**
2013-2017	0.02127	0.00312
Meteorological Data Years	**Period Average PM2.5 Concentration ($\mu g/m^3$)**	
	2020	**2026-2049**
2013-2017	0.0196	0.0029

MidPen 4th Street, San Mateo - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 3rd Floor Residential Receptors (8.2 meter receptor heights)
Caltrain Electrification and Diesel-Powered Freight Trains

Receptor Information	On-site residential receptors	
Number of Receptors	72	
Receptor Height =	8.2 meters	
Receptor distances =	7 m spacing in residential areas	
Meteorological Conditions		
San Francisco Airport Hourly Data	2013-2017	BAAQMD
Land Use Classification	urban	
Wind speed =	variable	
Wind direction =	variable	

MEI Maximum Concentrations - Receptor Height = 8.2 m

Meteorological Data Years	Period Average DPM Concentration ($\mu g/m^3$) 2024-2025	2026-2049
2013-2017	0.01248	0.0018
Meteorological Data Years	**Period Average PM2.5 Concentration ($\mu g/m^3$) 2020**	**2026-2049**
2013-2017	0.0115	0.0017

MidPen 4th Street, San Mateo - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 4th Floor Residential Receptors (11.2 meter receptor heights)
Caltrain Electrification and Diesel-Powered Freight Trains

Receptor Information	On-site residential receptors	
Number of Receptors	72	
Receptor Height =	11.2 meters	
Receptor distances =	7 m spacing in residential areas	
Meteorological Conditions		
San Francisco Airport Hourly Data	2013-2017	BAAQMD
Land Use Classification	urban	
Wind speed =	variable	
Wind direction =	variable	

MEI Maximum Concentrations - Receptor Height = 11.2 m

Meteorological Data Years	Period Average DPM Concentration ($\mu g/m^3$) 2024-2025	2026-2049
2013-2017	0.00557	0.0008
Meteorological Data Years	**Period Average PM2.5 Concentration ($\mu g/m^3$) 2020**	**2026-2049**
2013-2017	0.0051	0.0007

MidPen 4th Street, San Mateo - Rail Line DPM & PM2.5 Concentrations
AERMOD Risk Modeling Parameters and Maximum Concentrations
Construction MEI Receptor (1.5 meter receptor height)
Caltrain Electrification and Diesel-Powered Freight Trains

Receptor Information	Construction MEI receptor	
Number of Receptors	1	
Receptor Height =	1.5 feet	
Receptor distances =	at location of construction MEI receptor	
Meteorological Conditions		
San Francisco Airport Hourly Data	2013-2017	BAAQMD
Land Use Classification	urban	
Wind speed =	variable	
Wind direction =	variable	

MEI Maximum Concentrations - Receptor Height = 1.5 m

Meteorological Data Years	**Period Average DPM Concentration ($\mu g/m^3$) 2024-2025**	**2026-2049**
2013-2017	0.00896	0.00131
Meteorological Data Years	**Period Average PM2.5 Concentration ($\mu g/m^3$) 2020**	**2026-2049**
2013-2017	0.0082	0.0012

MidPen 4th Street, San Mateo, CA
AERMOD Railroad DPM Risk Modeling
On-Site 1st Floor Residential Receptors (1.5 meter receptor heights)
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	2024	0.25	-0.25 - 0*	10	0.0188	0.256
1	2024	1	1	10	0.0188	3.094
2	2025	1	2	10	0.0028	0.453
3	2026	1	3	3	0.0028	0.071
4	2027	1	4	3	0.0028	0.071
5	2028	1	5	3	0.0028	0.071
6	2029	1	6	3	0.0028	0.071
7	2030	1	7	3	0.0028	0.071
8	2031	1	8	3	0.0028	0.071
9	2032	1	9	3	0.0028	0.071
10	2033	1	10	3	0.0028	0.071
11	2034	1	11	3	0.0028	0.071
12	2035	1	12	3	0.0028	0.071
13	2036	1	13	3	0.0028	0.071
14	2037	1	14	3	0.0028	0.071
15	2038	1	15	3	0.0028	0.071
16	2039	1	16	3	0.0028	0.071
17	2040	1	17	1	0.0028	0.008
18	2041	1	18	1	0.0028	0.008
19	2042	1	19	1	0.0028	0.008
20	2043	1	20	1	0.0028	0.008
21	2044	1	21	1	0.0028	0.008
22	2045	1	22	1	0.0028	0.008
23	2046	1	23	1	0.0028	0.008
24	2047	1	24	1	0.0028	0.008
25	2048	1	25	1	0.0028	0.008
26	2049	1	26	1	0.0028	0.008
27	2050	1	27	1	0.0028	0.008
28	2051	1	28	1	0.0028	0.008
29	2052	1	29	1	0.0028	0.008
30	2053	1	30	1	0.0028	0.008
Total Increased Cancer Risk						**4.9**

* Third trimester of pregnancy

MidPen 4th Street, San Mateo, CA
AERMOD Railroad DPM Risk Modeling
On-Site 1st Floor Residential Receptors (1.5 meter receptor heights)
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	2024	0.25	-0.25 - 0*	10	0.0188	0.256
1	2024	1	1	10	0.0188	3.094
2	2025	1	2	10	0.0028	0.453
3	2026	1	3	3	0.0028	0.071
4	2027	1	4	3	0.0028	0.071
5	2028	1	5	3	0.0028	0.071
6	2029	1	6	3	0.0028	0.071
7	2030	1	7	3	0.0028	0.071
8	2031	1	8	3	0.0028	0.071
9	2032	1	9	3	0.0028	0.071
10	2033	1	10	3	0.0028	0.071
11	2034	1	11	3	0.0028	0.071
12	2035	1	12	3	0.0028	0.071
13	2036	1	13	3	0.0028	0.071
14	2037	1	14	3	0.0028	0.071
15	2038	1	15	3	0.0028	0.071
16	2039	1	16	3	0.0028	0.071
17	2040	1	17	1	0.0028	0.008
18	2041	1	18	1	0.0028	0.008
19	2042	1	19	1	0.0028	0.008
20	2043	1	20	1	0.0028	0.008
21	2044	1	21	1	0.0028	0.008
22	2045	1	22	1	0.0028	0.008
23	2046	1	23	1	0.0028	0.008
24	2047	1	24	1	0.0028	0.008
25	2048	1	25	1	0.0028	0.008
26	2049	1	26	1	0.0028	0.008
27	2050	1	27	1	0.0028	0.008
28	2051	1	28	1	0.0028	0.008
29	2052	1	29	1	0.0028	0.008
30	2053	1	30	1	0.0028	0.008
Total Increased Cancer Risk						**4.9**

* Third trimester of pregnancy

MidPen 4th Street, San Mateo, CA
AERMOD Railroad DPM Risk Modeling
On-Site 3rd Floor Residential Receptors (8.2 meter receptor heights)
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	2024	0.25	-0.25 - 0*	10	0.0125	0.170
1	2024	1	1	10	0.0125	2.050
2	2025	1	2	10	0.0018	0.301
3	2026	1	3	3	0.0018	0.047
4	2027	1	4	3	0.0018	0.047
5	2028	1	5	3	0.0018	0.047
6	2029	1	6	3	0.0018	0.047
7	2030	1	7	3	0.0018	0.047
8	2031	1	8	3	0.0018	0.047
9	2032	1	9	3	0.0018	0.047
10	2033	1	10	3	0.0018	0.047
11	2034	1	11	3	0.0018	0.047
12	2035	1	12	3	0.0018	0.047
13	2036	1	13	3	0.0018	0.047
14	2037	1	14	3	0.0018	0.047
15	2038	1	15	3	0.0018	0.047
16	2039	1	16	3	0.0018	0.047
17	2040	1	17	1	0.0018	0.005
18	2041	1	18	1	0.0018	0.005
19	2042	1	19	1	0.0018	0.005
20	2043	1	20	1	0.0018	0.005
21	2044	1	21	1	0.0018	0.005
22	2045	1	22	1	0.0018	0.005
23	2046	1	23	1	0.0018	0.005
24	2047	1	24	1	0.0018	0.005
25	2048	1	25	1	0.0018	0.005
26	2049	1	26	1	0.0018	0.005
27	2050	1	27	1	0.0018	0.005
28	2051	1	28	1	0.0018	0.005
29	2052	1	29	1	0.0018	0.005
30	2053	1	30	1	0.0018	0.005
Total Increased Cancer Risk						**3.3**

* Third trimester of pregnancy

MidPen 4th Street, San Mateo, CA
AERMOD Railroad DPM Risk Modeling
On-Site 4th Floor Residential Receptors (11.2 meter receptor heights)
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	2024	0.25	-0.25 - 0*	10	0.0056	0.076
1	2024	1	1	10	0.0056	0.915
2	2025	1	2	10	0.0008	0.131
3	2026	1	3	3	0.0008	0.021
4	2027	1	4	3	0.0008	0.021
5	2028	1	5	3	0.0008	0.021
6	2029	1	6	3	0.0008	0.021
7	2030	1	7	3	0.0008	0.021
8	2031	1	8	3	0.0008	0.021
9	2032	1	9	3	0.0008	0.021
10	2033	1	10	3	0.0008	0.021
11	2034	1	11	3	0.0008	0.021
12	2035	1	12	3	0.0008	0.021
13	2036	1	13	3	0.0008	0.021
14	2037	1	14	3	0.0008	0.021
15	2038	1	15	3	0.0008	0.021
16	2039	1	16	3	0.0008	0.021
17	2040	1	17	1	0.0008	0.002
18	2041	1	18	1	0.0008	0.002
19	2042	1	19	1	0.0008	0.002
20	2043	1	20	1	0.0008	0.002
21	2044	1	21	1	0.0008	0.002
22	2045	1	22	1	0.0008	0.002
23	2046	1	23	1	0.0008	0.002
24	2047	1	24	1	0.0008	0.002
25	2048	1	25	1	0.0008	0.002
26	2049	1	26	1	0.0008	0.002
27	2050	1	27	1	0.0008	0.002
28	2051	1	28	1	0.0008	0.002
29	2052	1	29	1	0.0008	0.002
30	2053	1	30	1	0.0008	0.002
Total Increased Cancer Risk						**1.4**

* Third trimester of pregnancy

MidPen 4th Street, San Mateo, CA
AERMOD Railroad DPM Risk Modeling
Construction MEI Receptor (1.5 meter receptor height)
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	2024	0.25	-0.25 - 0*	10	0.0090	0.122
1	2024	1	1	10	0.0090	1.472
2	2025	1	2	10	0.0013	0.215
3	2026	1	3	3	0.0013	0.034
4	2027	1	4	3	0.0013	0.034
5	2028	1	5	3	0.0013	0.034
6	2029	1	6	3	0.0013	0.034
7	2030	1	7	3	0.0013	0.034
8	2031	1	8	3	0.0013	0.034
9	2032	1	9	3	0.0013	0.034
10	2033	1	10	3	0.0013	0.034
11	2034	1	11	3	0.0013	0.034
12	2035	1	12	3	0.0013	0.034
13	2036	1	13	3	0.0013	0.034
14	2037	1	14	3	0.0013	0.034
15	2038	1	15	3	0.0013	0.034
16	2039	1	16	3	0.0013	0.034
17	2040	1	17	1	0.0013	0.004
18	2041	1	18	1	0.0013	0.004
19	2042	1	19	1	0.0013	0.004
20	2043	1	20	1	0.0013	0.004
21	2044	1	21	1	0.0013	0.004
22	2045	1	22	1	0.0013	0.004
23	2046	1	23	1	0.0013	0.004
24	2047	1	24	1	0.0013	0.004
25	2048	1	25	1	0.0013	0.004
26	2049	1	26	1	0.0013	0.004
27	2050	1	27	1	0.0013	0.004
28	2051	1	28	1	0.0013	0.004
29	2052	1	29	1	0.0013	0.004
30	2053	1	30	1	0.0013	0.004
Total Increased Cancer Risk						**2.3**

* Third trimester of pregnancy

Plant #9555 Emissions and Health Risk Calculations

MidPen Downtown San Mateo Opportunity Sites, San Mateo, CA - Plant #9555

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2021	Operation	9555		357.0	0.04075	5.13E-03	56.11	9.15E-05
Total			***0.0000***	***357.0***	***0.0408***	***0.0051***		

Construction Hours

hr/day =	24
days/yr =	365
hours/year =	8760

PM2.5 Concentration

1ST FLOOR
0.15676 at MEI
0.20531 at Proj Site SE corner

2nd FLOOR
0.14246 at MEI
0.199 at Proj Site SE corner

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	San Mateo
Roadway Direction	North-South
Side of the Roadway	West
Distance from Roadway	175 feet
	Const MEI
Annual Average Daily Traffic (ADT)	11,165

Results

San Mateo County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

1.61 (per million)

S Delaware St

Cumulative plus project volumes from traffic report

Data for San Mateo County based on meteorological data collected from San Mateo Sewage Treatment Plant in 2

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

1.10

(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	San Mateo
Roadway Direction	North-South
Side of the Roadway	West
Distance from Roadway	300 feet
Annual Average Daily Traffic (ADT)	11,165

Results

San Mateo County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

0.92 (per million)

S Delaware St

Cumulative plus project volumes from traffic report

Data for San Mateo County based on meteorological data collected from San Mateo Sewage Treatment Plant in 2

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	**9/26/2019**
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	San Mateo Downtown Opportunity Sites
Address	480 East 4th Ave & 400 East 5th Ave
City	San Mateo
County	San Mateo
Type (residential, commercial, mixed use, industrial, etc.)	Res
Project Size (# of units or building square feet)	164du

Comments: Blue highlighted from Stationary Source Website

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

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

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

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

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

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

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

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

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

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

Table B: Google Earth data

PROJECT SITE

Distance from Receptor (meters) or MEI[1]	FACID (Plant No.)	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	I&R Action
270	9328	Aki Auto Service	122 So Delaware Street	--	0.00003	--		Coating operation		emissions file attached. Use health risk calculator to estimate risk.	Computed
180	112267	Third Street Shell	611 E 3rd Ave	0.02	0.0001	--		GDF		""	Computed
110	108927	ARCO #00515 - ARTHUR KWAN	300 So Delaware Street	0.1	0.0003	--		GDF		""	Computed
200	112491	San Mateo Gas Co	706 E 4th Ave	0.02	0.0001	--		GDF		""	Computed
130	110792	Gas and Shop	609 E 4th Avenue	0.04	0.0002	--		GDF		""	Computed
60	112208	Tad's 76	402 S Delaware St	0.1	0.001	--		GDF		""	Computed
70	9555	San Mateo Lumber Co , Inc	501 So Claremont St	--	--	0.21		Wood working equipment		no recently reported emissions. Use 2014 dataset values as listed in row.	Source's screening levels modeled in AERMOD at 6 meters with 3.4567 lbs/day emssions rate and 0.283 PM2.5 fraction for Wood Operation-Sawing
130	20478	Gramercy on the Park Condos	555 Laurel Avenue	1.1	0.0003	0.001		Generator		""	Computed
300	8341	All Car Auto Painting & Body Repair	501 9th Avenue	--	0.0003	--		Coating operation		""	Computed
170	15342	Eurocraft Auto Body LLC	649 S Claremont St	--	0.0003	--		Coating operation		""	Computed
285	200272	All Car Care Auto	817 S CLAREMONT ST	--	0.0004	--		Coating operation		""	Computed

Construction MEI

FACID (Plant No.)	Distance from Receptor (meters) or MEI[1]	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
9328	295	--	0.00002	--
112267	185	0.02	0.0001	--
108927	125	0.04	0.0002	--
112491	160	0.03	0.0001	--
110792	105	0.1	0.0003	--
112208	20	0.7	0.003	--
9555	110	--	--	0.16
20478	230	0.5	0.0001	0.001
8341	300	--	0.0003	--
15342	200	--	0.0003	--
200272	300	--	0.0004	--

Footnotes:

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

Date last updated: 03/13/2018