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Air Quality and Health Risk Assessment Methodology

AIR QUALITY AND HEALTH RISK ASSESSMENT METHODOLOGY

16 NOVEMBER 2020

POTRERO YARD MODERNIZATION PROJECT
San Francisco, California

For:
San Francisco Planning Department
San Francisco, California

18202-00.02710

BASELINE ENVIRONMENTAL CONSULTING
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AIR QUALITY AND HEALTH RISK ASSESSMENT METHODOLOGY

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Potrero Yard Modernization Project

1. INTRODUCTION

At the request of the San Francisco Municipal Transportation Agency (SFMTA) and as directed by the San Francisco Planning Department, Baseline Environmental Consulting (Baseline) will evaluate the potential local and regional air quality impacts associated with implementation of the proposed Potrero Yard Modernization Project (proposed project). Baseline has prepared this document to describe the approach for evaluating criteria air pollutant and toxic air contaminant (TAC) emissions, as well as potential local health effects related to proposed project emissions. This approach will be used to support environmental review of the proposed project under the California Environmental Quality Act (CEQA).

1.1 Project Description

The proposed project is an SFMTA capital project to rebuild and expand the Potrero Yard transit facility at 2500 Mariposa Street in San Francisco (Figure 1). The proposed project is a part of the SFMTA's 20-year Building Progress Program to expand and modernize its facilities to meet growing transportation demands and changing technologies. The project is proposed to accommodate bus maintenance, operation, and administrative uses within a modern, energy-efficient, and seismically-safe transit facility. The proposed program would incorporate modern bus technologies, facilitate the transition to a future all-electric battery-powered bus fleet, improve work conditions, increase the efficiency and timeliness of bus maintenance and repairs, and promote resiliency and flexibility in the face of climate change and natural disasters. The proposed project would also include a joint development program, with residential uses within and atop the transit facility podium and a ground floor commercial/active use along Bryant Street, and potentially other frontages.

Under the proposed project, the existing bus storage yard (including the bus wash area and running repair station) and the maintenance and operations building (including the second-floor parking deck) would be demolished and replaced with a new, approximately 75- to 150-foot-tall and approximately 1,300,000-gross-square-foot structure. Commercial and residential uses would be along the perimeter of the podium on six floors, and three to seven floors of residential development atop the transit facility podium. The proposed project would consist of the following project components:

- The transit facility, an approximately 75-foot tall podium with three transit levels. The proposed transit facility would include 52,000 square feet of administrative, training, and office space (e.g., offices, conference rooms, break rooms/kitchenettes, and training rooms). The remaining 671,000 square feet of space would include bus service,

storage, and circulation space. The facility would be designed to include parking for 213 buses, 18 maintenance bays and maintenance support areas, operations, an SFMTA operator training center, storage (parts and battery-electric infrastructure), administrative uses/common areas (e.g., offices, conference rooms, break rooms), and joint development uses. A total of 310 parking spaces would be provided: 63 spaces for the 40-foot-long buses, 150 spaces for the articulated 60-foot-long buses, and 97 parking spaces for large and standard non-revenue vehicles. The proposed transit facility would also include a basement to accommodate transit facility and joint development service functions.

- Residential apartments, including up to 575 residential units in three to seven levels developed atop the proposed transit facility.

- Commercial/retail uses, including up to approximately 33,000 square feet along the perimeter of the proposed replacement transit facility.

1.1.1 Construction

The SFMTA estimates that construction of the proposed project would occur in one phase and take three to four years to complete, with construction beginning in 2023 and building occupancy likely by the end of 2026. Demolition would last about 2 months and site preparation, grading, and piling would last about 5 months. Installation of the foundation system would last about 2 months. Above-ground building construction, exterior finishing, and interior finishing would take a total of about 27 months, with some work overlap. Construction-related activities would typically occur Monday through Saturday, between 7 a.m. and 8 p.m., with most work occurring between Monday and Friday. Nighttime construction is anticipated for certain activities such as major concrete pours; however, construction on Sundays and major legal holidays is not anticipated. Throughout the construction period, construction staging would occur on site and on the surrounding sidewalks.

1.1.2 Operations

The SFMTA estimates that operation of the proposed project would begin as early as 2026. The proposed transit facility would operate 24 hours per day, 7 days a week. The proposed transit facility would continue to use solvents for bus cleaning activities in accordance with the emission limitations described under the facility's existing Bay Area Air Quality Management District (BAAQMD) Permit to Operate (i.e., no net change in permissible solvent emissions are proposed or required).[1] There are no other existing sources of TAC emissions at the existing facility. The proposed transit facility would also include operation of two emergency diesel generators with a maximum power of about 1,000 kilowatts. Backup power for the proposed residential apartments would include one emergency diesel generator with a maximum power of about 1,000 kilowatts. The proposed project would not use natural gas and, therefore, would not include any natural-gas powered process boilers. Upon commencement of operations the

[1] Bay Area Air Quality Management District Permit to Operation, Plant #9427, San Francisco Municipal Railway Potrero.

SFMTA expects that the Potrero Yard facility would have an employment population of approximately 829 full-time equivalent persons, including 383 operators.

1.1.3 Project Variant

The proposed project includes three proposed variants:

- Variant 1: Internal relocation of ramps from the north portion of site to a more southerly location allowing for the activation of the 17th Street frontage.

- Variant 2: Relocation of proposed emergency exit from 17th Street west of Hampshire Street to Hampshire Street south of 17th Street, or other measures to address potential conflicts with the bicycle track.

- Variant 3: Relocation of joint development lobby away from Mariposa Street to Hampshire Street.

Each of the variants modify one limited feature or aspect of the proposed project and do not alter the development program. Therefore, air pollutant emissions and associated health risks from the construction and operation of the proposed variants are anticipated to be the same as the proposed project.

1.2 Overview of Assessment Approach

In accordance with the BAAQMD's 2017 CEQA guidelines, the air quality and health risk assessment will support the evaluation of potential local and regional air quality impacts associated with construction and operation of the proposed project.[2] When feasible, assumptions and methods from the San Francisco Citywide Health Risk Assessment (Citywide HRA), which was developed in consultation with the BAAQMD, will be included in the assessment.[3] The air quality and health risk assessment for the proposed project will evaluate:

- Mass emissions of criteria air pollutants from both construction and operational sources;
- Excess lifetime cancer risks and $PM_{2.5}$ concentrations at sensitive receptors during construction and operation in addition to existing cancer risk and $PM_{2.5}$ concentrations at sensitive receptor locations;
- Chronic hazard indices (HIs) at sensitive receptors during construction and operation;
- Cumulative health risks including emissions from existing sources, the proposed project, and reasonably foreseeable future projects; and

[2] Bay Area Air Quality Management District (BAAQMD), 2017, California Environmental Quality Act Air Quality Guidelines, May.

[3] San Francisco Department of Public Health, 2020, Draft San Francisco Citywide Health Risk Assessment: Technical Support Documentation, February.

- Quantitative analysis of available control measures that would reduce the proposed project's criteria pollutant emissions and the project's contribution to health risks.

2. EMISSION ESTIMATION METHODS

The proposed project would generate criteria air pollutant and TAC emissions during construction and operation. The primary pollutant emissions of concern would be ozone precursors (i.e., reactive organic gases [ROGs] and nitrogen oxides [NOx]), respirable particulate matter less than 10 microns in diameter (PM_{10}), fine particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), total organic gases (TOG), and diesel particulate matter (DPM). All DPM emissions will be conservatively assumed to be equal to PM_{10} emissions from diesel exhaust, because more than 90 percent of DPM is less than 1 micron in diameter.

2.1 Calculation Methodologies for Construction Emissions

During construction, the primary emission sources of concern would include emissions from off-road construction equipment and on-road vehicles (worker vehicles, vendor trucks, concrete trucks, and haul trucks), and off-gassing from architectural coatings and asphalt paving. Emissions will be estimated based on project-specific construction information provided by the SFMTA. A preliminary draft of the SFMTA's project-specific construction information is provided in Appendix A.

2.1.1 Off-Road Construction Equipment

Construction of the proposed project would rely on electrical-, propane-, and diesel-powered off-road equipment. Emissions from off-road construction equipment will be estimated using the methodology described below and based on the SFMTA's summary of equipment use anticipated for each of the following phases of project construction (Appendix A): demolition; site preparation, grading, and pile-driving; foundation; building construction; paving; and architectural coating.

While the use of electrical power supply during construction may come from fossil fuel power plants that generate criteria air pollutants, these pollutant emissions would be associated with the individual power plant operations (which may not occur in the San Francisco air basin or even in the state) and not the proposed project. Power plants are existing stationary sources subject to air district and/or the United States Environmental Protection Agency's (U.S. EPA's) permitting requirements to monitor and control pollutant emissions. Therefore, pollutant emissions associated with the use of off-site generated electrical power during construction of the proposed project will not be estimated.

Use of diesel construction equipment would occur during each phase of construction. Propane construction equipment would also be used for several types of equipment (e.g., forklifts), which generates lower pollutant emissions than diesel; however, to simplify calculations and be conservative, all propane emissions will be estimated as diesel emissions. The proposed project is mapped in the San Francisco Department of Public Health's Air Pollutant Exposure Zone (APEZ), which is an area designated as having poor air quality from existing freeway, maritime,

and industrial activities.[4] To reduce diesel exhaust emissions within an APEZ, the San Francisco Clean Construction Ordinance requires all off-road diesel equipment to be equipped with Tier 2 or higher engines and the most effective Verified Diesel Emission Control Strategies available for the engine type.[5] It should be noted that off-road propane equipment is not subject to the Clean Construction Ordinance. Consistent with the Clean Construction Ordinance, uncontrolled construction emissions will be estimated assuming that all off-road diesel equipment would be equipped with engines certified to meet the U.S. EPA's Tier 2 emission standards and Level 3 diesel particulate filters. Consistent with CalEEMod 2016.3.2, the diesel particulate filters were assumed to reduce exhaust particulate matter and reactive organic gases emissions by 85 and 90 percent, respectively.

Emissions from off-road diesel equipment will be estimated in accordance with methodologies presented in the California Air Resources Board's (CARB's) *Off-road Simulation Model and Summary of Off-Road Emissions Inventory Update*[6] and using data derived from the CARB's Off-Road Emissions Inventory Model (OFFROAD2011) and California Emissions Estimator Model version 2016.3.2 (CalEEMod 2016.3.2). The equation used to estimate emissions of ROG, NOx, and exhaust PM_{10} and $PM_{2.5}$ from off-road diesel equipment is presented in Table 1. Construction of the proposed project is expected to begin in 2023 and end in 2026, with construction activities predominantly occurring Monday through Friday. The total estimated pollutant emissions will be converted to average daily emission rates using the total number of work days over the construction period (approximately 780 work days).

2.1.2 On-Road Construction Vehicles

Construction of the proposed project would generate emissions from on-road vehicle trips for worker commute, vendor trucks, haul trucks, and concrete trucks. Emissions from on-road construction vehicles will be estimated using the methodology described below and based on the SFMTA's summary of anticipated construction vehicle trips for each phase of construction (Appendix A). In general, workers would commute to the proposed project staging areas, surrounding neighborhoods, or nearby parking garages. Vendor, haul, and concrete truck trips would travel to and from the proposed project staging areas.

Emission factors for running and idling exhaust emissions will be derived from CARB's *EMission FACtors Model* (EMFAC2017), which accounts for the CARB's on-road diesel fleet rules, Pavley Clean Car Standards, and the Low Carbon Fuel Standard. The emissions factors for the earliest date of construction (2023) will be used for each vehicle type based on EMFAC2017's aggregate speed and model year options. All worker vehicles will be assumed to be gasoline powered and all trucks will be assumed to be diesel powered.

[4] San Francisco Planning Department, 2020, Property Information Map - Map Viewer; Air Pollution Exposure Zone (2020). Available at: https://sfplanninggis.org/pim/. Accessed on June 15, 2020.

[5] San Francisco Department of the Environment, San Francisco Department of Public Health, San Francisco Planning Department, 2015, San Francisco Clean Construction Ordinance, Implementation Guide for San Francisco Public Projects, August.

[6] California Air Resources Board (CARB), 2010, Off-road Simulation Model and Summary of Off-Road Emissions Inventory Update.

For worker vehicle, vendor truck, concrete truck, and haul truck trips, the vehicle fleet mix will be based on the default parameters from CalEEMod. For soil disposal trips, it was conservatively assumed that all soils would be transported to the Altamont Landfill in Livermore, which is near the border of the San Francisco Bay Area Air Basin. For trips with unknown destinations, such as worker vehicle, concrete truck, and miscellaneous vendor truck trips, the travel distance for each trip will be based on default parameters from CalEEMod to calculate total vehicles miles travelled. A preliminary draft of the fleet mix and trip lengths for each destination type are summarized in Appendix A. The equations used to estimate emissions of ROG, NOx, and exhaust PM_{10} and $PM_{2.5}$ from on-road vehicles are presented in Table 1.

2.1.3 Off-Gassing from Architectural Coating and Asphalt Paving

ROG off-gassing from architectural coatings will be calculated based on the square footage of the proposed project buildings, an assumed volatile organic compound (VOC) content of the paint, and an application rate. The VOC content of the paint is assumed to be consistent with the limits set in BAAQMD Regulations 8, Rule 3.[7] Similarly, ROG off-gassing from paving will be calculated based on the paved area of the proposed project and the VOC emission factor per acre of parking area. The equations and parameters used for calculating ROG off-gassing from architectural coatings and pavement are summarized in Table 1.

2.2 Calculation Methodologies for Operational Emissions

Operation of the proposed project could commence as early as 2026. The primary sources of pollutant emissions during project operation would include vehicle trips, energy use, stationary equipment, and area sources such as the use of consumer products and architectural coatings. The net increase in pollutant emissions for the proposed project relative to the existing transit facility operations will be estimated, as described below.

The net increase in emissions from energy use and area sources will be calculated using CalEEMod 2016.3.2. The selected land-use (e.g., mid-rise apartment) and input parameters (e.g., square footage) for the model will be consistent with the final project description and parameters used for the final travel demand analysis prepared for the proposed project.

The net increase in emissions from stationary sources will also be calculated using CalEEMod 2016.3.2. The proposed transit facility would continue to use solvents for bus cleaning activities in accordance with the emission limitations described under the facility's existing BAAQMD Permit to Operate (i.e., no net change in permissible solvent emissions).[8] In addition, the proposed project includes up to three new diesel backup generators with a maximum power of 1,000 kilowatts.

[7] BAAQMD, 2001, Regulation 8, Organic Compounds, Rule 3, Architectural Coatings, November 21.

[8] Bay Area Air Quality Management District Permit to Operation, Plant #9427, San Francisco Municipal Railway Potrero.

The California Air Toxics Control Measure for Stationary Compression Ignition Engines and BAAQMD Rule regulation 9, rule 8, restrict non-emergency use of emergency standby diesel-fueled compression ignition engines to a maximum of 50 hours per year;[9] therefore, it was assumed that each emergency generator would operate 50 hours per year for testing and maintenance purposes. The generators would be permitted with the BAAQMD and would comply with applicable Best Available Control Technology and Best Available Control Technology for Toxics requirements.

CalEEMod has not been updated to incorporate the latest vehicle emission factors from EMFAC2017. Therefore, emissions from vehicle trips will be estimated using CalEEMod methodology and incorporating emission factors from EMFAC2017, as described below.

2.2.1 On-Road Operation Vehicles

Operation of the proposed project would generate a net increase in emissions from on-road vehicles associated with worker, residential, and retail trips. The proposed project would not generate a net increase in emissions from new bus trips, because all of the existing and new buses would be electric-powered. The net increase in emissions from on-road vehicles during operation of the proposed project will be estimated using the methodology described below and based on vehicle trip information provided by the traffic engineer, including vehicle miles traveled, daily trips rates, and fleet mix.

Emission factors for running, idling, brake wear, and tire wear emissions will be derived from EMFAC2017, which accounts for the CARB's on-road diesel fleet rules, Pavley Clean Car Standards, and the Low Carbon Fuel Standard. The emissions factors for the earliest date of operation (2026) will be used for each vehicle type based on EMFAC2017's aggregate speed and model year options. In accordance with the Citywide HRA, fugitive $PM_{2.5}$ emissions will the estimated assuming that 91 percent of $PM_{2.5}$ emissions from exhaust, brake wear, and tire wear is resuspended as fugitive dust.[10] Based on CARB's Entrained Road Travel methodology for paved road dust, fugitive PM_{10} emissions will be estimated assuming that fugitive $PM_{2.5}$ emissions are approximately 15 percent of the fugitive PM_{10} emissions.[11] The equations used to estimate emissions of ROG, NOx, PM_{10}, $PM_{2.5}$, and TOG from on-road vehicles are presented in Table 1.

2.3 Air Concentrations Estimation Methods

The health risk assessment will evaluate the health impacts associated with excess lifetime cancer risks, exposure to $PM_{2.5}$ concentrations, and chronic HIs at nearby sensitive receptors from the proposed project. Annual average concentrations of TACs will be estimated through air dispersion modeling of emissions from off-road diesel construction equipment proposed at

[9] Bay Area Air Quality Management (BAAQMD), 2018, Regulation 9, Rule 8, Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines, Last updated: April.

[10] San Francisco Department of Public Health, 2020, Draft San Francisco Citywide Health Risk Assessment: Technical Support Documentation, February.

[11] California Air Resources Board, 2016, Miscellaneous Process Methodology. Entrained Road Travel, Paved Road Dust. Available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf

the project site; on-road construction diesel trucks accessing the roadways adjacent to the proposed project; on-road operational vehicles near the project site; and emergency generator operations at the proposed project site. The concentrations will then be used to estimate the health risk impacts from project construction and operation. The methodologies used to evaluate emissions from construction and operation of the proposed project will be consistent with the Citywide HRA and the BAAQMD's *Recommended Methods for Screening and Modeling Local Risks and Hazards.*[12]

2.4 Chemical Selection

The excess lifetime cancer risks analysis will be calculated based on concentrations of DPM and/or TOG from off-road construction equipment, on-road construction trucks, on-road operational vehicles, and emergency diesel generators during operation. Diesel exhaust, a complex mixture that includes hundreds of individual constituents, is identified by the State of California as a known carcinogen.[13] Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. The California Environmental Protection Agency (Cal/EPA) and other proponents of using the surrogate approach to quantifying excess lifetime cancer risks associated with the diesel mixture indicate that this method is preferable to use of a component-based approach because it provides a protective approach to estimating health risks. A component-based approach involves estimating risks for each of the individual components of a mixture. Critics of the component-based approach believe it will underestimate the risks associated with diesel as a whole mixture because the identity of all chemicals in the mixture may not be known and/or exposure and health effects information for all chemicals identified within the mixture may not be available. Furthermore, Cal/EPA has concluded that "potential cancer risk from inhalation exposure to whole diesel exhaust will exceed the multi-pathway cancer risk from the speciated components."[14] These analyses will be based on the surrogate approach, as recommended by Cal/EPA.

Because a surrogate approach has not been recommended for effects from gasoline-fueled vehicles, the component-based approach will be used to estimate effects from gasoline-fueled on-road operational vehicles. The speciation profile for gasoline was obtained from the BAAQMD's *Recommended Method for Screening and Modeling Local Risk and Hazards*.[15]

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[12] Bay Area Air Quality Management District (BAAQMD), 2011, Recommended Methods for Screening and Modeling Local Risks and Hazards, May.

[13] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, 1998, Findings of the Scientific Review Panel on the Report on Diesel Exhaust, as adopted at the Panel's April 22, 1998, meeting.

California Environmental Protection Agency, 2016. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values, March. Available at: https://www.arb.ca.gov/toxics/healthval/contable.pdf

[14] Office of Environmental Health Hazard Assessment, 2003, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August. Available at: https://oehha.ca.gov/media/downloads/crnr/hrafinalnoapp.pdf

[15] Bay Area Air Quality Management District (BAAQMD), 2011, Recommended Methods for Screening and Modeling Local Risks and Hazards, May.

2.5 Model Selection and Parameters

Consistent with the Citywide HRA, near-field air dispersion modeling of DPM and $PM_{2.5}$ from project construction and operation will be conducted using the USEPA's atmospheric dispersion modeling system (AERMOD). For each receptor location, the model will generate average air concentrations (or air dispersion factors as unit emissions) that result from emissions from multiple sources.

Air dispersion models such as AERMOD require a variety of inputs such as source parameters, meteorological parameters, topography information, and receptor parameters. When site-specific information is unknown, the same assumptions used in the Citywide HRA will be used, when available, or the default parameter sets that are designed to produce conservative (i.e., overestimates of) air concentrations will be selected.

2.5.1 Emission Sources

Emissions from off-road diesel construction equipment will be modeled as a series of area sources encompassing the proposed project site (Figure 1). Consistent with modeling assumptions used in the Citywide HRA, a release height of 5 meters and an initial vertical dimension of 1.4 meters will be used for each area source.

Emissions from on-road construction trucks and on-road operational vehicles will be modeled as a series of volume sources along the roadways adjacent to the project site. To be conservative, it will be assumed that each construction truck trip will include travel around the entire perimeter of the proposed project site. For operational vehicle trips, the project's daily net increase in traffic volumes for light-duty vehicles, trucks, and buses estimated on roadways near the maximally exposed individual resident (MEIR) will be used. Consistent with modeling assumptions used in the Citywide HRA, a release height of 2 meters, an initial vertical dimension of 2.3 meters, and an initial lateral dimension equal to the roadway width divided by 2.15 will be used for each volume source.

Emissions from the three emergency diesel generators during operation of the proposed project will be modeled as separate point sources. Because the exact location of the generators is not yet known, it will be assumed that the generators are located at ground level on the proposed project site near the MEIR. Consistent with the modeling assumptions used in the Citywide HRA, a stack height of 3.66 meters, diameter of 0.183 meters, temperature of 739.8 degrees Kelvin, and velocity of 45.3 meters per second will be used for each point source.

2.5.2 Emission Rates

Construction emission rates for off-road equipment and on-road vehicle sources will be calculated based on the actual hours of activities over the shortest duration of expected construction (3 years). For modeling purposes, it is assumed that construction activities would occur Monday through Friday, between 7 a.m. and 8 p.m.

Operation emission rates for on-road vehicles and emergency generator sources will be modeled as a continuous source (i.e., emissions occur 7 days a week, 24 hours per day, 365 days per year). This is consistent with the Citywide HRA methodology.

Dispersion of air pollutants from off-road construction equipment, on-road vehicles, and the emergency generators will be modeled using the χ/Q ("chi over q") method, such that each source has a unit emission rate (e.g., 1 gram per second for volume sources). The annual average concentration profiles from the air dispersion model will then be scaled according to the ratio between the unit emission rate and the actual emission rate from each source.

2.5.3 Meteorology

Air dispersion modeling applications require the use of meteorological data that ideally are spatially and temporally representative of conditions in the immediate vicinity of the site under consideration. Consistent with the Citywide HRA methodology, BAAQMD's Mission Bay meteorological data from 2008 will be used for this analysis.

2.5.4 Terrain considerations

Elevation and land use data will be imported from the National Elevation Dataset maintained by the United States Geological Survey. Dispersion coefficients for urban area will be selected for the proposed project location.

2.5.5 Receptors

In order to evaluate health impacts to off-site receptors, receptors will be modeled at locations co-located with the receptors used in the Citywide HRA and within 1,000 feet of the proposed project. Receptors will be modeled at a height of 1.8 meters above terrain height (i.e., the default breathing height for ground-floor receptors) which is consistent with the Citywide HRA methodology. Sensitive receptors (e.g., residents) will be identified based on review of publicly available aerial- and street-view maps. All off-site sensitive receptors, such as residential developments, schools or hospitals, will conservatively be treated as residential receptors in this analysis because residential receptors have the longest exposure duration, the highest breathing rate by applicable age group, and the highest exposure frequency and exposure time. The location of the MEIR will be identified using the concentration contours generated from the air dispersion model.

3. PROJECT-LEVEL HEALTH RISK ANALYSIS

In February 2015, the Office of Environmental Health Hazard Assessment (OEHHA) released the updated *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, which combines information from previously-released and adopted technical support documents to delineate OEHHA's revised risk assessment methodologies based on

current science.[16] This updated guidance manual supersedes OEHHA's 2003 guidance manual that previously provided methodologies for conducting health risk assessments under the Air Toxics Hot Spots Program (AB 2588). In September 2016, the BAAQMD adopted the OEHHA 2015 guidance manual for all health risk assessments other than gasoline dispensing facilities.[17] The OEHHA 2015 guidance manual and BAAQMD 2017 CEQA guidelines are used in this analysis to evaluate potential health risks to nearby sensitive receptors.[18]

3.1 Areas and Sources Evaluated

As discussed in Section 3, the receptor grid from the Citywide HRA will be used to model air pollutant concentrations at all receptors within 1,000 feet of the construction site. Excess lifetime cancer risks, $PM_{2.5}$ concentrations, and chronic non-cancer HIs from the project will be evaluated at sensitive receptors. The following sources could potentially contribute to health risks at the sensitive receptors:

- Off-road diesel-powered equipment during construction;
- On-road diesel-powered trucks during construction;
- On-road gasoline-powered light-duty vehicles, diesel-powered trucks, and electric-powered buses during operation; and
- Emergency diesel generators during operation.

The net increase in electric-powered buses during project operation would not generate TACs from engine exhaust, but would contribute to the resuspension of fugitive $PM_{2.5}$ dust. The on-road construction trucks and other operational vehicles would also contribute to the resuspension of fugitive $PM_{2.5}$ dust.

3.2 Exposure Assessment

3.2.1 Potentially Exposed Population

The analysis will evaluate the following receptor populations based on OEHHA 2015 guidelines for two scenarios, which are expected to have the highest impacts from the proposed project:

- **Scenario 1:** 30-year off-site residential exposure commencing[19] at the start of proposed project construction and continuing through project operation;

[16] Office of Environmental Health Hazard Assessment (OEHHA), 2015, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment, August.

[17] Bay Area Air Quality Management District, 2016, Air Toxics NSR Program, Health Risk Assessment Guidelines, December.

[18] Note: the health risks associated with naturally occurring asbestos are analyzed in the Hazardous Materials section of the Environmental Impact Report. Therefore, naturally occurring asbestos analysis will not be included as a part of the air quality technical report.

[19] The 30-year exposure is assumed to begin in the last trimester of pregnancy.

- **Scenario 2:** 30-year off-site residential exposure commencing at the time of project operation.

Under Scenario 1, residential risks from construction emissions will be added to residential risks associated with operational emissions from a combined total of 30 years of exposure, to ensure that the full impact of project construction and operation on nearby receptors is evaluated. Scenario 2 evaluates the impact on sensitive receptors from 30 years of exposure to operational emissions only (not construction of the proposed project). The 30-year exposure duration scenarios are consistent with OEHHA's guidance[20] for evaluating cancer risk at the MEIR.

3.2.2 Exposure Assumptions

The exposure parameters used to estimate excess lifetime cancer risks for all potentially exposed populations for the construction/operation combined scenario (Scenario 1) and operation-only scenario (Scenario 2) for this analysis will be obtained using risk assessment guidelines from OEHHA and BAAQMD, unless otherwise noted, and are presented in Table 2.

3.2.3 Calculation of Intake

The dose estimated for each exposure pathway is a function of concentration of a chemical and the intake of that chemical. The intake factor for inhalation, IF_{inh}, can be calculated as follows:

$$IF_{inh} = \frac{DBR \times FAH \times EF \times ED \times CF}{AT}$$

Where:
IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)
DBR = Daily Breathing Rate (L/kg-day)
FAH = Frequency of time at home (unitless)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
AT = Averaging Time (days)
CF = Conversion Factor, 0.001 (m^3/L)

The chemical intake or dose is estimated by multiplying the inhalation intake factor, IF_{inh}, by the chemical concentration in air. When coupled with the chemical concentration, this calculation is mathematically equivalent to the dose algorithm given in the current OEHHA guidance.[21]

3.3 Toxicity Assessment

The toxicity assessment characterizes the relationship between the magnitude of exposure and the nature and magnitude of adverse health effects that may result from such exposure. For

[20] Office of Environmental Health Hazard Assessment (OEHHA), 2015, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment, August.

[21] Office of Environmental Health Hazard Assessment, 2015, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment, August.

purposes of calculating exposure criteria to be used in risk assessments, adverse health effects are classified into two broad categories – cancer and non-cancer endpoints. Toxicity values that are used to estimate the likelihood of adverse effects occurring in humans at different exposure levels are identified as part of the toxicity assessment component of a risk assessment.

Following the Citywide HRA methodology for cancer risk calculations, the carcinogenic toxicity for DPM from off-road construction equipment, on-road construction trucks, on-road operational trucks, and emergency diesel generators, as well as TOG from gasoline-powered light-duty vehicles during operation, will be considered for cancer risk calculations. Chronic hazard quotients (HQs) calculated for project construction and operation will utilize toxicity values for chemicals emitted from these same sources. This analysis will use the Cal/EPA's approved inhalation Cancer Potency Factors (CPFs) and chronic inhalation reference exposure levels (RELs) for DPM and TOG.[22] Toxicity values are summarized in Table 3.

3.4 Age Sensitivity Factors

The estimated excess lifetime cancer risks for a resident child will be adjusted using age sensitivity factors (ASFs) that account for an "anticipated special sensitivity to carcinogens" of infants and children as recommended in the OEHHA Technical Support Document[23] and OEHHA 2015 Hot Spots guidance.[24] Cancer risk estimates will be weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to two years of age and by a factor of three for exposures that occur from two years through 15 years of age. No weighting factor will be applied to age 16 and older. This approach was also adopted by BAAQMD in its most recent Air Toxics NSR Program HRA Guideline.[25]

As presented in Table 2, analyses conducted under the OEHHA 2015 guidance incorporate age groupings that align with the age breakouts discussed for the application of ASFs; therefore, the ASFs can be applied directly to each age grouping. The ASFs used to evaluate off-site residents for each scenario evaluated under the 2015 OEHHA methodology are summarized in Table 4.

3.5 Risk Characterization

3.5.1 Estimation of Cancer Risks

Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed

[22] California Environmental Protection Agency, 2016, OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values, March.

[23] California Environmental Protection Agency, 2009, Technical Support Document for Cancer Potency Factors: Methodologies for Derivation, Listing of Available Values, and Adjustment to Allow for Early Life Stage Exposures, May.

[24] Office of Environmental Health Hazard Assessment, 2015, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment, August.

[25] Bay Area Air Quality Management District, 2016, Health Risk Assessment Guidelines, Air Toxics NSR Program, December.

to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific CPF.

The equation used to calculate the potential excess lifetime cancer risk for the inhalation pathway is as follows:

$$Risk_{inh} = C_i \times CF \times IF_{inh} \times CPF_i \times ASF$$

Where:
$Risk_{inh}$ = Cancer Risk; the incremental probability of an individual developing cancer as a result of inhalation exposure to a particular potential carcinogen (unitless)
C_i = Annual Average Air Concentration for Chemical *i* (µg/m^3)
CF = Conversion Factor (mg/µg)
IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)
CPFi = Cancer Potency Factor for Chemical *i* (mg chemical/kg body weight-day)$^{-1}$
ASF = Age Sensitivity Factor (unitless)

3.5.2 Estimation of Chronic Non-Cancer Hazard Indices

The potential for exposure to result in adverse chronic non-cancer effects is evaluated by comparing the estimated annual average air concentration (which is equivalent to the average daily air concentration) to the non-cancer chronic REL for each chemical. When calculated for a single chemical, the comparison yields a ratio termed an HQ. To evaluate the potential for adverse chronic non-cancer health effects from simultaneous exposure to multiple chemicals, the HQs for all chemicals are summed, yielding an HI.

$$HQ_i = {}^{C_i}/_{REL_i}$$

$$HI = \sum_i HQ_i$$

Where:
HQ_i = Chronic hazard quotient for chemical *i*
HI = Chronic hazard index
C*i* = Annual average concentration of chemical *i* (µg/m^3)
REL_i = Chronic non-cancer reference exposure level for chemical *i* (µg/m^3)

3.6 Project Contribution to Existing Health Risks (from Citywide HRA)

The Citywide HRA evaluated cancer risks and $PM_{2.5}$ concentrations from existing known sources of air pollution, including stationary sources such as emergency generators and gasoline stations, and major roadways such as U.S. Highway 101 located in the vicinity of the project. The Citywide HRA was used to identify the APEZ. The Citywide HRA was developed in 2012 and most recently updated in 2020 to include more recent data and updated guidance from OEHHA for conducting health risk assessments under the Air Toxics Hot Spots Program. The project-level cancer risks and $PM_{2.5}$ concentrations will be added as an overlay to the Citywide HRA. The

combined health risk database will be used to determine whether the proposed project would substantially contribute to existing health risks.

4. CUMULATIVE HEALTH RISK ASSESSMENT

According to the BAAQMD CEQA Guidelines, impacts from off-site sources within the "zone of influence" of the off-site MEIR should be evaluated. As discussed in Section 4.6, the proposed project contribution to the existing Citywide HRA database will be evaluated. However, new sources of TACs not included in the Citywide HRA will need to be calculated and added to the cumulative health risk assessment.

4.1 Existing Sources from Citywide HRA

As discussed in Section 4.6, the existing sources of TACs in the vicinity of the project have been included in the Citywide HRA, which will be added to cumulative health risks.

4.2 New Sources from Cumulative Projects

After the MEIR is identified upon completion of the project-level health risk analysis, new and foreseeable future projects will be identified within 1,000 feet of the MEIR. These cumulative projects may include new sources of TACs, such as vehicle trips and emergency diesel generators. The Environmental Planning Division of the San Francisco Planning Department will provide available information for each project within 1,000 feet of the project MEIR, such as the project description, emissions sources, and health risks to nearby sensitive receptors. If the HRA results from a cumulative project are available, they will be added to the existing HRA results from the Citywide HRA at the MEIR location. If the HRA results are not available for a cumulative project, the potential impacts will be discussed qualitatively and, if needed, conservative health risks will be assigned based on coordination with Environmental Planning Division of the San Francisco Planning Department.

4.3 Cumulative Risk Calculation

For simplicity, it is assumed that construction and operational emission rates and associated health risks are constant for every day of the year for each cumulative project. The cumulative health risk database developed for the proposed project will be submitted to the Environmental Planning Division for documentation purposes.

4.4 Modeling Uncertainties

A summary of the modeling uncertainties will be included as an appendix to the air quality analysis. This will include a semi-quantitative analysis of how the U.S. EPA's recent Safer Affordable Fuel-Efficient Vehicles Rule Part 1: One National Program would affect the EMFAC2017 emission factors for light-duty gasoline-powered vehicles. Additional uncertainties regarding modeling assumptions, parameters and other factors will also be provided.

5. CONTROL MEASURES

If the proposed project's air quality impacts exceed the applicable CEQA thresholds under the uncontrolled scenario, the adequacy of the analysis will be discussed and refined modeling assumptions may be considered. Modeling refinements may include accounting for the project's proposed use of propane-powered off-road equipment during construction or refining the construction truck trip distances. Alternatively, one or more of the following control measures may be selected to reduce the impacts:

- Use of all Tier 4 Final engines for off-road construction equipment.
- Use of Tier 4 Final engines for off-road construction equipment with engines beyond a certain horsepower (e.g., engines equal to or greater than 175 horsepower).
- Use of additional alternative fuels (e.g., propane, electricity, renewable diesel) for diesel off-road construction equipment.
- Use of post-2010 or newer model year haul trucks.

6. DELIVERABLES AND COORDINATION

Baseline will not prepare a stand-alone air quality and health risk assessment technical study. Instead, Baseline will work with SWCA Environmental Consultants to document the results of the assessment in the draft EIR for the proposed project, with technical documentation included as part of the EIR appendix. The air quality technical appendix will provide details that are not required within the EIR section, such as detailed descriptions of air-pollutant emission and health risk assessment methodologies and parameters.

Upon completion and approval of the Air Quality Technical Report Methodology, Baseline will submit the following deliverables:

- Preliminary results of criteria air pollutant emissions, project-level HRA, existing plus project, and cumulative (existing plus project plus cumulative projects) HRA in tabulated format.
- A Draft Air Quality section for the EIR with the following supporting technical information in an appendix:
    - The final air quality and HRA methodology, detailed summary tables of modeling assumptions and results, a map of sensitive receptors and sources used for air dispersion modeling, a summary of any deviations from the methodology, and a discussion of modeling uncertainties.
- Updated Citywide HRA database that includes the project's impacts to receptors within 1,000 feet of the project site.

Following approval of this methodology, Baseline anticipates the following coordination efforts with the Environmental Planning Division and the SFMTA:

- One meeting to discuss cumulative projects and how to incorporate these projects into the cumulative HRA
- One meeting to discuss the preliminary results for the air quality analysis, which may include the following items:
    - Model adjustments
    - Control measures and their effectiveness
- One meeting to discuss the Environmental Planning Division's feedback on the Draft Air Quality section for the EIR.

FIGURE

Project Location

Figure 1

Legend

Proposed Project Site (Approximate)

Base: Google Aerial Map, 2020.

0 200 Feet N

Potrero Yard Modernization Project
San Francisco

BASELINE ENVIRONMENTAL CONSULTING

TABLES

Table 1
Emissions Calculation Methodology
Potrero Yard Modernization Project
San Francisco, California

Type	Project Phase	Source	Formula	Formula Reference
Off-Road Equipment[1]	Construction	Diesel Exhaust	$E_D = \sum(EF_D * HP * LF * Hr * Red * C)$	CARB 2010
On-Road Vehicles[2]	Construction and Operation	Exhaust – Running	$E_R = \sum(EF_R * VMT * C)$	CARB 2018
		Exhaust – Idling	$E_I = \sum(EF_I * Idle\ hours * C)$	CARB 2018
		Brake Wear (Operation Only)	$E_{BW} = \sum(EF_{BW} * VMT * C)$	CARB 2018
		Tire Wear (Operation Only)	$E_{TW} = \sum(EF_{TW} * VMT * C)$	CARB 2018
		Dust Resuspension (Operation only)	$EF_{FP} = 0.91 * (E_R + E_{BW} + E_{TW})$ $EF_{RP} = EF_{FP} / 0.15$	SFDPH 2020 CARB 216
Architectural Coatings[3]	Construction	Off-Gassing	$E_{AC} = \sum(EF_{AC} * A_{paint} * F_{area})$	CAPCOA 2016
Asphalt Paving[4]	Construction	Off-Gassing	$E_{AP} = \sum(EF_{AP} * A_{parking})$	CAPCOA 2016
Stationary Sources[5]	Operation	Emergency Generator	$E_G = \sum(EF_G * HP * LF * Hr * C)$	CAPCOA 2016

Notes:
lb = pound; g = gram; hp = horsepower; hr = hour; SF = square feet
Reactive organic gases and volatile organic compounds can be used interchangeably for CEQA analysis.
The emission calculation methodology for the proposed project's operational emissions estimated using CalEEMod 2016.3.2 are summarized in the CalEEMod User's Guide (CAPCOA 2016).

[1] Parameters used for estimating off-road construction equipment emissions:
E_D = off-road diesel equipment exhaust emissions (lb).
EF_D = diesel equipment emission factor (g/hp-hr). CalEEMod 2016.3.2 default values used.
HP = equipment horsepower. OFFROAD2011 default values used.
LF = equipment load factor. OFFROAD2011 default values used.
Hr = total hours of equipment operation.
Red = reduction from diesel particulate filter.
C = unit conversion factor (1 lb/454 g).

[2] Parameters used for estimating on-road vehicle emissions:
E_R = on-road vehicle running exhaust emissions (lb).
EF_R = running emission factor (g/mile). EMFAC2017 values for aggregate speed and model years used.
VMT = vehicle miles travelled.
E_I = on-road vehicle idling exhaust emissions (lb). Idling exhaust is calculated only for heavy-duty trucks.
EF_I = idling emission factor (g/hour). EMFAC2017 values used.
EF_{BW} = brake wear emission factor (g/mile). EMFAC2017 values used.
EF_{TW} = tire wear emission factor (g/mile). EMFAC2017 values used.
Idle hours = total ours of truck idling. Assumes average idling time per trip.
C = unit conversion factor (1 lb/454 g).
EF_{FP} = fugitive dust emissions factor for fine particulates (g/mile).
EF_{RP} = fugitive dust emission factor for respirable particulates (g/mile).

[3] Parameters used for estimating architectural coating emissions:
E_{AC} = architectural coating emissions (lb).
EF_{AC} = off-gassing emission factor (lb/SF). Based on the volatile organic compound content of paint and application rates. Consistent with Bay Area Air Quality Management District's Regulation 8, Rule 3, assumed 100 grams per liter for indoor paint and 150 grams per liter for exterior paint. Consistent with CAPCOA 2016, assumed 1 gallon of paint application per 180 square feet per.

A_{paint} = painted surface area (SF). Consistent with CAPCOA 2016, assumed the total surface for painting equals 270 percent of the floor square footage for residential buildings, 200 percent of the floor square footage for nonresidential buildings, and 6 percent of the square footage for parking lots.
F_{Area} = fraction of total painted surface area painted. Consistent with CAPCOA 2016, assumed 75 percent for the interior building surfaces, 25 percent for the exterior building surfaces, and 100 percent for parking lots.

[4] Parameters used for estimating asphalt paving emissions:
E_{AP} = asphalt paving emissions (lb).
EF_{AP} = off-gassing emission factor (lb/acre). Consistent with CAPCOA 2016, assumed 2.62 lb/acre.
$A_{parking}$ = parking lot area (acre).

[5] Parameters used for estimating emergency generator emissions:
E_G = emergency generator annual exhaust emissions (lb).
EF_G = diesel generator emission factor (g/hp-hr). Consistent with CAPCOA 2016 default values.
HP = generator horsepower.
LF = equipment load factor. Consistent with CAPCOA 2016 default values.
Hr = total hours of equipment operation. Assumes 50 hours of testing and maintenance per year per generator.
C = unit conversion factor (1 lb/454 g).

References:

California Air Resources Board (CARB), 2016, Miscellaneous Process Methodology. Entrained Road Travel, Paved Road Dust. Available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf
California Air Resources Board (CARB), 2010, Off-road Simulation Model and Summary of Off-Road Emissions Inventory Update.
California Air Resources Board (CARB), 2018, EMFAC2017 Volume III – Technical Documentation, July 20.
California Air Pollution Control Officers Association (CAPCOA), 2016, CalEEMod User's Guide, Appendix A, Calculation Details for CalEEMod, October.
San Francisco Department of Public Health (SFDPH), 2020, Draft San Francisco Citywide Health Risk Assessment: Technical Support Documentation, February.

Table 2
Exposure Parameters for the Health Risk Assessment
Potrero Yard Modernization Project
San Francisco, California

Exposure Scenario	Phase	Receptor Age Group	Exposure Parameters					
			Daily Breathing Rate (DBR)[1] [L/kg-day]	Exposure Duration (ED)[2] [years]	Faction of Time at Home (FAH)[3] [unitless]	Exposure Frequency (EF)[4] [days/year]	Averaging Time (AT) [days]	Intake Factor, Inhalation (IF_{inh}) [m^3/kg-day]
Scenario 1	Construction (3 Years)	3rd Trimester	361	0.25	0.85	350	25550	0.0011
		0-2 Years	1090	2	0.85			0.0254
		2-16 Years	572	1	0.72			0.0056
	Operation (27 years)	2-16 Years	572	13	0.72			0.0733
		16-30 Years	261	14	0.73			0.0365
Scenario 2	Operation (30 years)	3rd Trimester	361	0.25	0.85	350	25550	0.0011
		0-2 Years	1090	2	0.85			0.0254
		2-16 Years	572	14	0.72			0.0790
		16-30 Years	261	14	0.73			0.0365

Notes:

The location of the maximally exposed individual resident (MEIR) will be determined upon completion of the air dispersion model. Two exposure scenarios at the MEIR will be evaluated:

1) Scenario 1: 30-year residential exposure commencing at the start of proposed project construction and continuing through project operation;
2) Scenario 2: 30-year residential exposure commencing at the time of project operation.

[1] Based on 95th percentile daily breathing rates for age groups less than 2 years old and 80th percentile daily breathing rates for age groups that are greater than or equal to 2 years old from OEHHA 2015.

[2] The exposure duration reflects the default exposure scenario for a 30-year resident from OEHHA 2015.

[3] Based on recommended fractions of time spent at home for all age groups reported in OEHHA 2015.

[4] Exposure frequency reflects default exposure frequency from OEHHA 2015.

Calculation:

$IF_{inh} = DBR \times FAH \times EF \times ED \times CF / AT$

Where CF = 0.001 (m^3/L)

Abbreviations:

OEHHA = Office of Environmental Health Hazard Assessment
kg = kilogram
L = liter
m^3 = cubic meter

Reference:

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

Table 3
Toxicity Values
Potrero Yard Modernization Project
San Francisco, California

Source	Chemical	CAS Number	Cancer Potency Factor (CPF) $[mg/kg\text{-}day]^{-1}$	Chronic Reference Exposure Level (REL) $[\mu g/m^3]$
Diesel Off-Road Equipment	DPM	9901	1.1	5.0
Diesel On-Road Trucks	DPM	9901	1.1	5.0
Gasoline On-Road Vehicles	1,3-butadiene	106990	0.60	2.0
	Acetaldehyde	75070	0.010	140
	Acrolein	107028	--	0.35
	Benzene	71432	0.10	3.0
	Ethylbenzene	100414	0.0087	2,000
	Formaldehyde	50000	0.021	9.0
	Methanol	67561	--	4,000
	Naphthalene	91203	0.12	9.0
	n-Hexane	110543	--	7,000
	Propene	115071	--	3,000
	Styrene	100425	--	900
	Toluene	108883	--	300
	Xylene	1330207	--	700
Emergency Diesel Generators	DPM	9901	1.1	5.0

Notes:
The CPFs and chronic RELs were obtained from the California Environmental Protection Agency (Cal/EPA, 2016).
The speciation profile for on-road gasoline vehicles was obtained from the Bay Area Air Quality Management District's (BAAQMD's) Recommended Methods for Screening and Modeling Local Risks and Hazards, Table 14. Only chemicals with CPF and/or REL values are shown.

Abbreviations:
Cal/EPA = California Environmental Protection Agency
CAS = chemical abstract services
DPM = diesel particulate matter
-- = Not applicable
kg = kilogram
m^3 = cubic meter
mg = milligram
µg = microgram

Reference:
BAAQMD, 2011. Recommended Methods for Screening and Modeling Local Risks and Hazards.
Cal/EPA, 2016. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. March.

Table 4
Age Sensitivity Factors
Potrero Yard Modernization Project
San Francisco, California

Receptor Age Group	Age Sensitivity Factor (ASF)
Third Trimester	10
Age 0-2 Years	10
Age 2-16 Years	3
Age 16-30 Years	1

Reference:

Office of Environmental Health Hazard Assessment, 2015, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment, August.

APPENDIX A

PRELIMINARY PROJECT-SPECIFIC CONSTRUCTION INFORMATION

Preliminary Project-Specific Construction Information

	Demolition			Site Preparation, Grading, and Piling			Foundation			Building Construction			Paving			Architectural Coating		
Total Work Days	42			110			42			546			20			20		
Total Workers per Day[1]	30			50			100			450			25			30		
Total Vendor Truck Trips[2]	840			550			1050			13650			60			100		
Total Soil Haul Truck Trips[3]	5000			20044			200			100			20					
Total Concrete Truck Trips[4]	20			270			3300			2500			50					
Equipment	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**
Aerial Lifts																		
Air Compressors	2	8	Diesel	1	8	Diesel	1	8	Diesel	1	2	Diesel	1	4	Diesel			
Air Compressors	2	8	Electric	2	8	Electric	2	8	Electric	10	8	Electric				1	8	Electric
Bore/Drill Rigs	1	8	Electric															
Cement and Mortar Mixers							1	8	Diesel	1	6	Diesel	1	10	Diesel			
Concrete/Industrial Saws	1	8	Diesel				1	1	Diesel									
Cranes	2	8	Diesel	2	8	Diesel	1	4	Diesel	1	1	Diesel	1	2	Diesel			
Crawler Tractors																		
Crushing/Proc. Equipment																		
Dumpers/Tenders																		
Excavators[5]	2	8	Diesel	6	4	Diesel	2	8	Diesel	2	2.64	Diesel						
Forklifts	1	4	Propane	1	4	Propane	2	8	Propane	3	4	Propane				1	8	Propane
Generator Sets	1	4	Diesel	4	4	Diesel	4	8	Diesel	1	2.34	Diesel						
Graders				2	6	Diesel	1	4	Diesel									
Off-Highway Tractors																		
Off-Highway Trucks																		
Other Construction Equipment	1	1	Electric	15	8	Electric	15	8	Electric	30	8	Electric						
Other General Industrial Equipment							1	8	Diesel									
Other Material Handling Equipment				1	8	Electric	1	8	Electric	2	8	Electric	1	4	Electric			
Pavers													1	8	Diesel			
Paving Equipment													2	8	Diesel			
Plate Compactors				2	8	Propane	2	8	Propane	1	2.64	Propane	4	8	Propane			
Pressure Washers										1	1	Electric				1	1	Electric
Pumps	54	8	Electric	54	8	Electric	54	8	Electric	54	4	Electric	2	8	Electric	2	8	Electric
Rollers				1	8	Diesel	1	6	Diesel				2	6	Diesel			
Rough Terrain Forklifts	1	6	Diesel	2	4	Diesel	2	8	Diesel	2	4							
Rubber Tired Dozers	2	8	Diesel	2	4	Diesel	1	4	Diesel	1	2.64	Diesel	1	8	Diesel			
Rubber Tired Loaders	1	8	Diesel	2	8	Diesel	1	2	Diesel									
Scrapers													1	8	Diesel			
Signal Boards	4	8	Electric	4	8	Electric	4	8	Electric									
Skid Steer Loaders	1	8	Propane	1	2	Propane												
Surfacing Equipment																		
Sweepers/Scrubbers																		
Tractors/Loaders/Backhoes	3	8	Diesel	5	4	Diesel	3	8	Diesel	3	4	Diesel	1	8	Diesel			
Trenchers				1	4	Diesel												
Welders				2	4	Electric	2	8	Electric	33	5	Electric						
Slant Pile Drill				1	8	Diesel												
Soil Mix Drill Rig				1	8	Diesel												
Grout Plant				1	8	Diesel												
Soldier Pile Rig[6]				1	8	Diesel												
Tie Back Drill				1	8	Diesel												
Air Compressor for Tie Back Rig				1	8	Diesel												
Concrete Truck	See Note 7	See Note 7	Diesel	See Note 7	See Note 7	Diesel	See Note 7	See Note 7	Diesel	See Note 7	See Note 7	Diesel	See Note 7	See Note 7	Diesel			
Concrete Boom Pump	1	2	Diesel	1	4	Diesel	4	4	Diesel	3	3	Diesel	1	4	Diesel			
Scissor Lift							5	10	Electric	50	5	Electric	2	8	Electric	4	8	Electric
Tower Crane				1	8	Electric	2	10	Electric	4	12	Electric	4	2	Electric	4	2	Electric
Hoist (Construction Elevator)				1	4	Electric	1	8	Electric	2	12	Electric	2	12	Electric	2	12	Electric
Light Plant	4	6	Propane	4	6	Propane	4	6	Propane				2	8	Propane			
Recycling Plant	1	8		1	2													

Notes:

[1] In accordance with CalEEMod, assume single vehicle occupancy, a round trip distance of 21.6 miles, and a fleet mix of 50 percent light-duty auto, 25 percent light-duty truck type 1, and 25 percent light-duty truck type 2.

[2] In accordance with CalEEMod, assume a round trip distance of 14.6 miles and a fleet mix of 100 percent heavy heavy-duty trucks.

[3] In accordance with CalEEMod, assume a fleet mix of 100 percent heavy heavy-duty trucks. Conservatively assume a round trip distance of 110 miles to the Altamont Landfill in Livermore, which is near the border of the San Francisco Bay Area Air Basin.

[4] In accordance with CalEEMod, assume a round trip distance of 40 miles and a fleet mix of 100 percent heavy heavy-duty trucks.

[5] For the noise and vibration analysis, it will be conservatively assumed that excavators will be equipped with a hydraulic breaker (also known as a hoe ram) during bedrock removal.

[6] For the noise and vibration analysis, it will be conservatively assumed that impact pile driver methods will be used for pile installations.

[7] Assume 15 minutes onsite operation per concrete trip.

Appendix G-2

Construction Criteria Air Pollutant Calculations and
Supporting Documentation

Overview: Includes a summary of the estimated criteria air pollutant emissions by construction phase, as well as detailed estimates of criteria air pollutants emissions for each type of off-road construction equipment, on-road work trips, on-road truck trips, and off-gassing from paving and paint. Criteria air pollutants emissions from on-road construction vehicles were calculated using the summarized EMFAC2017 emissions factors.

Potrero Yard Modernization Project
Table G-2.1: Summary of Unmitigated Construction
Criteria Air Pollutant Emissions

Unmitigated NOx Emissions during Construction (lb/Phase)

Source	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating	TOTAL
Off-Road Equipment	3273.1	13249.4	4554.9	14171.5	1025.5	29.8	36304.3
On-Road Worker Trips	2.7	12.0	9.2	536.2	1.1	1.3	562.5
On-Road Truck Trips	5599.4	21898.0	1381.7	1947.5	4316.8	57.8	35201.2
Off-Gasing from Paving and Paint	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions (lb)	8875.3	35159.3	5945.8	16655.2	5343.4	88.9	72067.9
Average Daily Emissions (lb/day)[1]	11.4	45.1	7.6	21.4	6.9	0.1	92.4

Unmitigated ROG Emissions during Construction (lb/Phase)

Source	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating	TOTAL
Off-Road Equipment	13.6	51.9	19.8	64.5	4.4	0.1	154.4
On-Road Worker Trips	0.7	3.1	2.4	138.9	0.3	0.3	145.7
On-Road Truck Trips	77.6	293.6	26.5	39.0	115.9	1.1	553.7
Off-Gasing from Paving and Paint	0.0	0.0	0.0	0.0	28.9	15531.8	15560.8
Total Emissions (lb)	91.9	348.6	48.7	242.4	149.5	15533.5	16414.5
Average Daily Emissions (lb/day)[1]	0.1	0.4	0.1	0.3	0.2	19.9	21.0

Unmitigated PM10 Emissions during Construction (lb/Phase)

Source	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating	TOTAL
Off-Road Equipment	16.3	61.5	24.1	78.7	5.3	0.2	186.1
On-Road Worker Trips	0.1	0.5	0.4	21.6	0.0	0.1	22.7
On-Road Truck Trips	30.5	120.2	6.8	9.4	18.1	0.3	185.3
Off-Gasing from Paving and Paint	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions (lb)	46.9	182.2	31.3	109.8	23.4	0.5	394.1
Average Daily Emissions (lb/day)[1]	0.1	0.2	0.0	0.1	0.0	0.0	0.5

Unmitigated PM2.5 Emissions during Construction (lb/Phase)

Source	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating	TOTAL
Off-Road Equipment	16.3	61.5	24.1	78.7	5.3	0.2	186.1
On-Road Worker Trips	0.1	0.4	0.3	19.9	0.0	0.0	20.9
On-Road Truck Trips	29.2	115.0	6.5	9.0	17.3	0.3	177.3
Off-Gasing from Paving and Paint	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions (lb)	45.6	176.9	31.0	107.6	22.6	0.5	384.3
Average Daily Emissions (lb/day)[1]	0.1	0.2	0.0	0.1	0.0	0.0	0.5

[1] Average daily emissions based on the total duration of construction activities (780 work days).

Potrero Yard Modernization Project
Table G-2.2: Summary of Mitigated Construction
Criteria Air Pollutant Emissions

Mitigated NOx Emissions during Construction (lb/Phase)

Source	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating	TOTAL
Off-Road Equipment	349.7	1404.0	449.3	1149.1	151.9	1.6	3505.7
On-Road Worker Trips	2.7	12.0	9.2	536.2	1.1	1.3	562.5
On-Road Truck Trips	5599.4	21898.0	1381.7	1947.5	4316.8	57.8	35201.2
Off-Gasing from Paving and Paint	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions (lb)	5951.8	23313.9	1840.2	3632.8	4469.8	60.7	39269.4
Average Daily Emissions (lb/day)[1]	7.6	29.9	2.4	4.7	5.7	0.1	50.3

Mitigated ROG Emissions during Construction (lb/Phase)

Source	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating	TOTAL
Off-Road Equipment	48.2	197.4	66.8	195.6	16.7	0.4	525.0
On-Road Worker Trips	0.7	3.1	2.4	138.9	0.3	0.3	145.7
On-Road Truck Trips	77.6	293.6	26.5	39.0	115.9	1.1	553.7
Off-Gasing from Paving and Paint	0.0	0.0	0.0	0.0	28.9	15531.8	15560.8
Total Emissions (lb)	126.4	494.1	95.6	373.5	161.8	15533.7	16785.1
Average Daily Emissions (lb/day)[1]	0.2	0.6	0.1	0.5	0.2	19.9	21.5

Mitigated PM10 Emissions during Construction (lb/Phase)

Source	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating	TOTAL
Off-Road Equipment	5.9	24.3	8.3	25.0	1.9	0.1	65.6
On-Road Worker Trips	0.1	0.5	0.4	21.6	0.0	0.1	22.7
On-Road Truck Trips	30.5	120.2	6.8	9.4	18.1	0.3	185.3
Off-Gasing from Paving and Paint	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions (lb)	36.5	145.0	15.5	56.1	20.1	0.4	273.6
Average Daily Emissions (lb/day)[1]	0.0	0.2	0.0	0.1	0.0	0.0	0.4

Mitigated PM2.5 Emissions during Construction (lb/Phase)

Source	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating	TOTAL
Off-Road Equipment	5.9	24.3	8.3	25.0	1.9	0.1	65.6
On-Road Worker Trips	0.1	0.4	0.3	19.9	0.0	0.0	20.9
On-Road Truck Trips	29.2	115.0	6.5	9.0	17.3	0.3	177.3
Off-Gasing from Paving and Paint	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions (lb)	35.2	139.8	15.2	53.9	19.3	0.4	263.8
Average Daily Emissions (lb/day)[1]	0.0	0.2	0.0	0.1	0.0	0.0	0.3

[1] Average daily emissions based on the total duration of construction activities (780 work days).

Table G-2.3: Preliminary Project-Specific Construction Information

	Demolition			Site Preparation, Grading, and Piling			Foundation			Building Construction			Paving			Architectural Coating		
Total Work Days	42			110			42			546			20			20		
Total Workers per Day[1]	30			50			100			450			25			30		
Total Vendor Truck Trips[2]	840			550			1050			13650			60			100		
Total Soil Haul Truck Trips[3]	5000			20044			200			100			20					
Total Concrete Truck Trips[4]	20			270			3300			2500			50					
Equipment	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**	**# of Equipment**	**Hours/Day**	**Fuel Type**
Aerial Lifts																		
Air Compressors	2	8	Diesel	1	8	Diesel	1	8	Diesel	1	2	Diesel	1	4	Diesel			
Air Compressors	2	8	Electric	2	8	Electric	2	8	Electric	10	8	Electric				1	8	Electric
Bore/Drill Rigs	1	8	Electric															
Cement and Mortar Mixers							1	8	Diesel	1	6	Diesel	1	10	Diesel			
Concrete/Industrial Saws	1	8	Diesel				1	1	Diesel									
Cranes	2	8	Diesel	2	8	Diesel	1	4	Diesel	1	1	Diesel	1	2	Diesel			
Crawler Tractors																		
Crushing/Proc. Equipment																		
Dumpers/Tenders																		
Excavators[5]	2	8	Diesel	6	4	Diesel	2	8	Diesel	2	2.64	Diesel						
Forklifts	1	4	Propane	1	4	Propane	2	8	Propane	3	4	Propane				1	8	Propane
Generator Sets	1	4	Diesel	4	4	Diesel	4	8	Diesel	1	2.34	Diesel						
Graders				2	6	Diesel	1	4	Diesel									
Off-Highway Tractors																		
Off-Highway Trucks																		
Other Construction Equipment	1	1	Electric	15	8	Electric	15	8	Electric	30	8	Electric						
Other General Industrial Equipment							1	8	Diesel									
Other Material Handling Equipment				1	8	Electric	1	8	Electric	2	8	Electric	1	4	Electric			
Pavers													1	8	Diesel			
Paving Equipment													2	8	Diesel			
Plate Compactors				2	8	Propane	2	8	Propane	1	2.64	Propane	4	8	Propane			
Pressure Washers										1	1	Electric				1	1	Electric
Pumps	54	8	Electric	54	8	Electric	54	8	Electric	54	4	Electric	2	8	Electric	2	8	Electric
Rollers				1	8	Diesel	1	6	Diesel				2	6	Diesel			
Rough Terrain Forklifts	1	6	Diesel	2	4	Diesel	2	8	Diesel	2	4							
Rubber Tired Dozers	2	8	Diesel	2	4	Diesel	1	4	Diesel	1	2.64	Diesel	1	8	Diesel			
Rubber Tired Loaders	1	8	Diesel	2	8	Diesel	1	2	Diesel									
Scrapers													1	8	Diesel			
Signal Boards	4	8	Electric	4	8	Electric	4	8	Electric									
Skid Steer Loaders	1	8	Propane	1	2	Propane												
Surfacing Equipment																		
Sweepers/Scrubbers																		
Tractors/Loaders/Backhoes	3	8	Diesel	5	4	Diesel	3	8	Diesel	3	4	Diesel	1	8	Diesel			
Trenchers				1	4	Diesel												
Welders				2	4	Electric	2	8	Electric	33	5	Electric						
Slant Pile Drill				1	8	Diesel												
Soil Mix Drill Rig				1	8	Diesel												
Grout Plant				1	8	Diesel												
Soldier Pile Rig[6]				1	8	Diesel												
Tie Back Drill				1	8	Diesel												
Air Compressor for Tie Back Rig				1	8	Diesel												
Concrete Truck	See Note 7	See Note 7	Diesel	See Note 7	See Note 7	Diesel	See Note 7	See Note 7	Diesel	See Note 7	See Note 7	Diesel	See Note 7	See Note 7	Diesel			
Concrete Boom Pump	1	2	Diesel	1	4	Diesel	4	4	Diesel	3	3	Diesel	1	4	Diesel			
Scissor Lift							5	10	Electric	50	5	Electric	2	8	Electric	4	8	Electric
Tower Crane				1	8	Electric	2	10	Electric	4	12	Electric	4	2	Electric	4	2	Electric
Hoist (Construction Elevator)				1	4	Electric	1	8	Electric	2	12	Electric	2	12	Electric	2	12	Electric
Light Plant	4	6	Propane	4	6	Propane	4	6	Propane				2	8	Propane			
Recycling Plant	1	8		1	2													

Notes:

[1] In accordance with CalEEMod, assume single vehicle occupancy, a round trip distance of 21.6 miles, and a fleet mix of 50 percent light-duty auto, 25 percent light-duty truck type 1, and 25 percent light-duty truck type 2.

[2] In accordance with CalEEMod, assume a round trip distance of 14.6 miles and a fleet mix of 100 percent heavy heavy-duty trucks.

[3] In accordance with CalEEMod, assume a fleet mix of 100 percent heavy heavy-duty trucks. Conservatively assume a round trip distance of 110 miles to the Altamont Landfill in Livermore, which is near the border of the San Francisco Bay Area Air Basin.

[4] In accordance with CalEEMod, assume a round trip distance of 40 miles and a fleet mix of 100 percent heavy heavy-duty trucks.

[5] For the noise and vibration analysis, it will be conservatively assumed that excavators will be equipped with a hydraulic breaker (also known as a hoe ram) during bedrock removal.

[6] For the noise and vibration analysis, it will be conservatively assumed that impact pile driver methods will be used for pile installations.

[7] Assume 15 minutes onsite operation per concrete trip.

Potrero Yard Modernization Project
Table G-2.4: Off-Road Equipment Criteria Air Pollutant Emissions

Unmitigated Off-Road Equipment NOx Emissions (pounds)

Equipment	CalEEMod Equipment Type	Fuel Type	Horsepower	Tier Engine	Exhaust Control	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Aerial Lifts	Aerial Lifts	Diesel	63	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	Air Compressors	Diesel	78	Tier 2	Level 3 DPF	263.23	344.71	131.62	427.76	31.34	0.00
Air Compressors	Air Compressors	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	Bore/Drill Rigs	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Cement and Mortar Mixers	Cement and Mortar Mixers	Diesel	25	Tier 2	Level 3 DPF	0.00	0.00	47.97	467.73	28.56	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	Diesel	81	Tier 2	Level 3 DPF	207.87	0.00	25.98	0.00	0.00	0.00
Cranes	Cranes	Diesel	231	Tier 2	Level 3 DPF	411.50	1077.74	102.88	334.35	24.49	0.00
Crawler Tractors	Crawler Tractors	Diesel	212	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Crushing/Proc. Equipment	Crushing/Proc. Equipment	Diesel	85	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	Diesel	25	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	Excavators	Diesel	158	Tier 2	Level 3 DPF	370.59	1455.88	370.59	1588.23	0.00	0.00
Forklifts	Forklifts	Diesel	89	Tier 2	Level 3 DPF	31.29	81.94	125.15	1220.20	0.00	29.80
Generator Sets	Generator Sets	Diesel	84	Tier 2	Level 3 DPF	109.26	1144.62	874.07	832.45	0.00	0.00
Graders	Graders	Diesel	187	Tier 2	Level 3 DPF	0.00	925.11	117.74	0.00	0.00	0.00
Off-Highway Tractors	Off-Highway Tractors	Diesel	124	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Trucks	Off-Highway Trucks	Diesel	402	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Other Construction Equipment	Other Construction Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	Other General Industrial Equipment	Diesel	88	Tier 2	Level 3 DPF	0.00	0.00	105.18	0.00	0.00	0.00
Other Material Handling Equipment	Other Material Handling Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Pavers	Diesel	130	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	80.24	0.00
Paving Equipment	Paving Equipment	Diesel	132	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	139.67	0.00
Plate Compactors	Plate Compactors	Diesel	25	Tier 2	Level 3 DPF	0.00	192.95	73.67	157.87	70.16	0.00
Pressure Washers	Pressure Washers	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pumps	Pumps	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	Diesel	80	Tier 2	Level 3 DPF	0.00	279.89	80.15	0.00	76.33	0.00
Rough Terrain Forklifts	Rollers	Diesel	80	Tier 2	Level 3 DPF	80.15	279.89	213.74	1389.29	0.00	0.00
Rubber Tired Dozers	Rubber Tired Dozers	Diesel	247	Tier 2	Level 3 DPF	606.90	794.75	151.73	1300.50	144.50	0.00
Rubber Tired Loaders	Rubber Tired Loaders	Diesel	203	Tier 2	Level 3 DPF	224.46	1175.72	56.11	0.00	0.00	0.00
Scrapers	Scrapers	Diesel	367	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	235.29	0.00
Signal Boards	Signal Boards	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	Diesel	65	Tier 2	Level 3 DPF	84.55	55.36	0.00	0.00	0.00	0.00
Surfacing Equipment	Surfacing Equipment	Diesel	263	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	Diesel	64	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	Diesel	97	Tier 2	Level 3 DPF	378.51	826.10	378.51	2460.28	60.08	0.00
Trenchers	Trenchers	Diesel	78	Tier 2	Level 3 DPF	0.00	179.54	0.00	0.00	0.00	0.00
Welders	Welders	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Slant Pile Drill	Skid Steer Loaders	Diesel	65	Tier 2	Level 3 DPF	0.00	221.43	0.00	0.00	0.00	0.00
Soil Mix Drill Rig	Bore/Drill Rigs	Diesel	221	Tier 2	Level 3 DPF	0.00	888.87	0.00	0.00	0.00	0.00
Grout Plant	Cement and Mortar Mixers	Diesel	25	Tier 2	Level 3 DPF	0.00	125.64	0.00	0.00	0.00	0.00
Soldier Pile Rig	Bore/Drill Rigs	Diesel	221	Tier 2	Level 3 DPF	0.00	888.87	0.00	0.00	0.00	0.00
Tie Back Drill	Bore/Drill Rigs	Diesel	221	Tier 2	Level 3 DPF	0.00	888.87	0.00	0.00	0.00	0.00
Air Compressor for Tie Back Rig	Air Compressors	Diesel	78	Tier 2	Level 3 DPF	0.00	344.71	0.00	0.00	0.00	0.00
Concrete Truck	Off-Highway Trucks	Diesel	402	Tier 2	Level 3 DPF	6.38	86.08	1052.08	797.03	15.94	0.00
Concrete Boom Pump	Pumps	Diesel	84	Tier 2	Level 3 DPF	54.63	286.16	437.04	3195.83	52.03	0.00
Scissor Lift	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Tower Crane	Cranes	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Hoist (Construction Elevator)	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Light Plant	Signal Boards	Diesel	25	Tier 2	Level 3 DPF	210.74	551.93	210.74	0.00	66.90	0.00
Recycling Plant	Crushing/Proc. Equipment	Diesel	85	Tier 2	Level 3 DPF	233.07	152.61	0.00	0.00	0.00	0.00
					Project Emissions (lbs/phase)	3273.11	13249.37	4554.93	14171.52	1025.54	29.80
					Project Emissions (tons/phase)	1.64	6.62	2.28	7.09	0.51	0.01

Potrero Yard Modernization Project
Table G-2.4: Off-Road Equipment Criteria Air Pollutant Emissions

Unmitigated Off-Road Equipment ROG Emissions (pounds)

Equipment	CalEEMod Equipment Type	Fuel Type	Horsepower	Tier Engine	Exhaust Control	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Aerial Lifts	Aerial Lifts	Diesel	63	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	Air Compressors	Diesel	78	Tier 2	Level 3 DPF	1.27	1.67	0.64	2.07	0.15	0.00
Air Compressors	Air Compressors	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	Bore/Drill Rigs	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Cement and Mortar Mixers	Cement and Mortar Mixers	Diesel	25	Tier 2	Level 3 DPF	0.00	0.00	0.30	2.93	0.18	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	Diesel	81	Tier 2	Level 3 DPF	1.01	0.00	0.13	0.00	0.00	0.00
Cranes	Cranes	Diesel	231	Tier 2	Level 3 DPF	1.19	3.12	0.30	0.97	0.07	0.00
Crawler Tractors	Crawler Tractors	Diesel	212	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Crushing/Proc. Equipment	Crushing/Proc. Equipment	Diesel	85	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	Diesel	25	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	Excavators	Diesel	158	Tier 2	Level 3 DPF	1.69	6.63	1.69	7.24	0.00	0.00
Forklifts	Forklifts	Diesel	89	Tier 2	Level 3 DPF	0.15	0.40	0.61	5.91	0.00	0.14
Generator Sets	Generator Sets	Diesel	84	Tier 2	Level 3 DPF	0.53	5.54	4.23	4.03	0.00	0.00
Graders	Graders	Diesel	187	Tier 2	Level 3 DPF	0.00	2.68	0.34	0.00	0.00	0.00
Off-Highway Tractors	Off-Highway Tractors	Diesel	124	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Trucks	Off-Highway Trucks	Diesel	402	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Other Construction Equipment	Other Construction Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	Other General Industrial Equipment	Diesel	88	Tier 2	Level 3 DPF	0.00	0.00	0.51	0.00	0.00	0.00
Other Material Handling Equipment	Other Material Handling Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Pavers	Diesel	130	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.37	0.00
Paving Equipment	Paving Equipment	Diesel	132	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.64	0.00
Plate Compactors	Plate Compactors	Diesel	25	Tier 2	Level 3 DPF	0.00	1.21	0.46	0.99	0.44	0.00
Pressure Washers	Pressure Washers	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pumps	Pumps	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	Diesel	80	Tier 2	Level 3 DPF	0.00	1.36	0.39	0.00	0.37	0.00
Rough Terrain Forklifts	Rollers	Diesel	80	Tier 2	Level 3 DPF	0.39	1.36	1.03	6.73	0.00	0.00
Rubber Tired Dozers	Rubber Tired Dozers	Diesel	247	Tier 2	Level 3 DPF	1.75	2.30	0.44	3.76	0.42	0.00
Rubber Tired Loaders	Rubber Tired Loaders	Diesel	203	Tier 2	Level 3 DPF	0.65	3.40	0.16	0.00	0.00	0.00
Scrapers	Scrapers	Diesel	367	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.74	0.00
Signal Boards	Signal Boards	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	Diesel	65	Tier 2	Level 3 DPF	0.41	0.27	0.00	0.00	0.00	0.00
Surfacing Equipment	Surfacing Equipment	Diesel	263	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	Diesel	64	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	Diesel	97	Tier 2	Level 3 DPF	1.83	4.00	1.83	11.91	0.29	0.00
Trenchers	Trenchers	Diesel	78	Tier 2	Level 3 DPF	0.00	0.87	0.00	0.00	0.00	0.00
Welders	Welders	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Slant Pile Drill	Skid Steer Loaders	Diesel	65	Tier 2	Level 3 DPF	0.00	1.07	0.00	0.00	0.00	0.00
Soil Mix Drill Rig	Bore/Drill Rigs	Diesel	221	Tier 2	Level 3 DPF	0.00	2.57	0.00	0.00	0.00	0.00
Grout Plant	Cement and Mortar Mixers	Diesel	25	Tier 2	Level 3 DPF	0.00	0.79	0.00	0.00	0.00	0.00
Soldier Pile Rig	Bore/Drill Rigs	Diesel	221	Tier 2	Level 3 DPF	0.00	2.57	0.00	0.00	0.00	0.00
Tie Back Drill	Bore/Drill Rigs	Diesel	221	Tier 2	Level 3 DPF	0.00	2.57	0.00	0.00	0.00	0.00
Air Compressor for Tie Back Rig	Air Compressors	Diesel	78	Tier 2	Level 3 DPF	0.00	1.67	0.00	0.00	0.00	0.00
Concrete Truck	Off-Highway Trucks	Diesel	402	Tier 2	Level 3 DPF	0.02	0.27	3.33	2.52	0.05	0.00
Concrete Boom Pump	Pumps	Diesel	84	Tier 2	Level 3 DPF	0.26	1.39	2.12	15.47	0.25	0.00
Scissor Lift	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Tower Crane	Cranes	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Hoist (Construction Elevator)	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Light Plant	Signal Boards	Diesel	25	Tier 2	Level 3 DPF	1.32	3.46	1.32	0.00	0.42	0.00
Recycling Plant	Crushing/Proc. Equipment	Diesel	85	Tier 2	Level 3 DPF	1.13	0.74	0.00	0.00	0.00	0.00
					Project Emissions (lbs/phase)	13.61	51.88	19.82	64.53	4.39	0.14
					Project Emissions (tons/phase)	7.E-03	3.E-02	1.E-02	3.E-02	2.E-03	7.E-05

Potrero Yard Modernization Project
Table G-2.4: Off-Road Equipment Criteria Air Pollutant Emissions

Unmitigated Off-Road Equipment PM Emissions (pounds)

Equipment	CalEEMod Equipment Type	Fuel Type	Horsepower	Tier Engine	Exhaust Control	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Aerial Lifts	Aerial Lifts	Diesel	63	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	Air Compressors	Diesel	78	Tier 2	Level 3 DPF	1.60	2.09	0.80	2.59	0.19	0.00
Air Compressors	Air Compressors	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	Bore/Drill Rigs	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Cement and Mortar Mixers	Cement and Mortar Mixers	Diesel	25	Tier 2	Level 3 DPF	0.00	0.00	0.44	4.24	0.26	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	Diesel	81	Tier 2	Level 3 DPF	1.26	0.00	0.16	0.00	0.00	0.00
Cranes	Cranes	Diesel	231	Tier 2	Level 3 DPF	1.31	3.43	0.33	1.06	0.08	0.00
Crawler Tractors	Crawler Tractors	Diesel	212	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Crushing/Proc. Equipment	Crushing/Proc. Equipment	Diesel	85	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	Diesel	25	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	Excavators	Diesel	158	Tier 2	Level 3 DPF	1.71	6.70	1.71	7.31	0.00	0.00
Forklifts	Forklifts	Diesel	89	Tier 2	Level 3 DPF	0.19	0.50	0.76	7.40	0.00	0.18
Generator Sets	Generator Sets	Diesel	84	Tier 2	Level 3 DPF	0.66	6.94	5.30	5.05	0.00	0.00
Graders	Graders	Diesel	187	Tier 2	Level 3 DPF	0.00	2.94	0.37	0.00	0.00	0.00
Off-Highway Tractors	Off-Highway Tractors	Diesel	124	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Trucks	Off-Highway Trucks	Diesel	402	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Other Construction Equipment	Other Construction Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	Other General Industrial Equipment	Diesel	88	Tier 2	Level 3 DPF	0.00	0.00	0.64	0.00	0.00	0.00
Other Material Handling Equipment	Other Material Handling Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Pavers	Diesel	130	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.37	0.00
Paving Equipment	Paving Equipment	Diesel	132	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.64	0.00
Plate Compactors	Plate Compactors	Diesel	25	Tier 2	Level 3 DPF	0.00	1.75	0.67	1.43	0.64	0.00
Pressure Washers	Pressure Washers	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pumps	Pumps	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	Diesel	80	Tier 2	Level 3 DPF	0.00	1.70	0.49	0.00	0.46	0.00
Rough Terrain Forklifts	Rollers	Diesel	80	Tier 2	Level 3 DPF	0.49	1.70	1.30	8.42	0.00	0.00
Rubber Tired Dozers	Rubber Tired Dozers	Diesel	247	Tier 2	Level 3 DPF	1.93	2.53	0.48	4.14	0.46	0.00
Rubber Tired Loaders	Rubber Tired Loaders	Diesel	203	Tier 2	Level 3 DPF	0.71	3.74	0.18	0.00	0.00	0.00
Scrapers	Scrapers	Diesel	367	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.82	0.00
Signal Boards	Signal Boards	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	Diesel	65	Tier 2	Level 3 DPF	0.51	0.34	0.00	0.00	0.00	0.00
Surfacing Equipment	Surfacing Equipment	Diesel	263	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	Diesel	64	Tier 2	Level 3 DPF	0.00	0.00	0.00	0.00	0.00	0.00
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	Diesel	97	Tier 2	Level 3 DPF	2.29	5.01	2.29	14.92	0.36	0.00
Trenchers	Trenchers	Diesel	78	Tier 2	Level 3 DPF	0.00	1.09	0.00	0.00	0.00	0.00
Welders	Welders	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Slant Pile Drill	Skid Steer Loaders	Diesel	65	Tier 2	Level 3 DPF	0.00	1.34	0.00	0.00	0.00	0.00
Soil Mix Drill Rig	Bore/Drill Rigs	Diesel	221	Tier 2	Level 3 DPF	0.00	2.83	0.00	0.00	0.00	0.00
Grout Plant	Cement and Mortar Mixers	Diesel	25	Tier 2	Level 3 DPF	0.00	1.14	0.00	0.00	0.00	0.00
Soldier Pile Rig	Bore/Drill Rigs	Diesel	221	Tier 2	Level 3 DPF	0.00	2.83	0.00	0.00	0.00	0.00
Tie Back Drill	Bore/Drill Rigs	Diesel	221	Tier 2	Level 3 DPF	0.00	2.83	0.00	0.00	0.00	0.00
Air Compressor for Tie Back Rig	Air Compressors	Diesel	78	Tier 2	Level 3 DPF	0.00	2.09	0.00	0.00	0.00	0.00
Concrete Truck	Off-Highway Trucks	Diesel	402	Tier 2	Level 3 DPF	0.02	0.30	3.66	2.78	0.06	0.00
Concrete Boom Pump	Pumps	Diesel	84	Tier 2	Level 3 DPF	0.33	1.74	2.65	19.38	0.32	0.00
Scissor Lift	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Tower Crane	Cranes	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Hoist (Construction Elevator)	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Light Plant	Signal Boards	Diesel	25	Tier 2	Level 3 DPF	1.91	5.01	1.91	0.00	0.61	0.00
Recycling Plant	Crushing/Proc. Equipment	Diesel	85	Tier 2	Level 3 DPF	1.41	0.93	0.00	0.00	0.00	0.00
					Project Emissions (lbs/phase)	16.34	61.47	24.13	78.72	5.26	0.18
					Project Emissions (tons/phase)	0.008	0.031	0.012	0.039	0.003	0.000

Potrero Yard Modernization Project
Table G-2.5: Off-Road Equipment Criteria Air Pollutant Emissions

Mitigated Off-Road Equipment NOx Emissions (pounds)

Equipment	CalEEMod Equipment Type	Fuel Type	Horsepower	Tier Engine	Exhaust Control	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Aerial Lifts	Aerial Lifts	Diesel	63	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	Air Compressors	Diesel	78	Tier 4	---	14.41	18.87	7.20	23.41	1.72	0.00
Air Compressors	Air Compressors	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	Bore/Drill Rigs	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Cement and Mortar Mixers	Cement and Mortar Mixers	Diesel	25	Tier 4	---	0.00	0.00	28.49	277.81	16.96	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	Diesel	81	Tier 4	---	11.38	0.00	1.42	0.00	0.00	0.00
Cranes	Cranes	Diesel	231	Tier 4	---	25.78	67.52	6.45	20.95	1.53	0.00
Crawler Tractors	Crawler Tractors	Diesel	212	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Crushing/Proc. Equipment	Crushing/Proc. Equipment	Diesel	85	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	Diesel	25	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	Excavators	Diesel	158	Tier 4	---	23.11	90.77	23.11	99.03	0.00	0.00
Forklifts	Forklifts	Diesel	89	Tier 4	---	1.71	4.49	6.85	66.79	0.00	1.63
Generator Sets	Generator Sets	Diesel	84	Tier 4	---	5.98	62.65	47.84	45.57	0.00	0.00
Graders	Graders	Diesel	187	Tier 4	---	0.00	57.96	7.38	0.00	0.00	0.00
Off-Highway Tractors	Off-Highway Tractors	Diesel	124	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Trucks	Off-Highway Trucks	Diesel	402	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Other Construction Equipment	Other Construction Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	Other General Industrial Equipment	Diesel	88	Tier 4	---	0.00	0.00	5.76	0.00	0.00	0.00
Other Material Handling Equipment	Other Material Handling Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Pavers	Diesel	130	Tier 4	---	0.00	0.00	0.00	0.00	5.00	0.00
Paving Equipment	Paving Equipment	Diesel	132	Tier 4	---	0.00	0.00	0.00	0.00	8.71	0.00
Plate Compactors	Plate Compactors	Diesel	25	Tier 4	---	0.00	114.60	43.76	93.77	41.67	0.00
Pressure Washers	Pressure Washers	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pumps	Pumps	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	Diesel	80	Tier 4	---	0.00	15.32	4.39	0.00	4.18	0.00
Rough Terrain Forklifts	Rollers	Diesel	80	Tier 4	---	4.39	15.32	11.70	76.05	0.00	0.00
Rubber Tired Dozers	Rubber Tired Dozers	Diesel	247	Tier 4	---	38.02	49.79	9.51	81.48	9.05	0.00
Rubber Tired Loaders	Rubber Tired Loaders	Diesel	203	Tier 4	---	14.06	73.66	3.52	0.00	0.00	0.00
Scrapers	Scrapers	Diesel	367	Tier 4	---	0.00	0.00	0.00	0.00	16.14	0.00
Signal Boards	Signal Boards	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	Diesel	65	Tier 4	---	48.77	31.93	0.00	0.00	0.00	0.00
Surfacing Equipment	Surfacing Equipment	Diesel	263	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	Diesel	64	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	Diesel	97	Tier 4	---	20.72	45.22	20.72	134.67	3.29	0.00
Trenchers	Trenchers	Diesel	78	Tier 4	---	0.00	9.83	0.00	0.00	0.00	0.00
Welders	Welders	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Slant Pile Drill	Skid Steer Loaders	Diesel	65	Tier 4	---	0.00	127.73	0.00	0.00	0.00	0.00
Soil Mix Drill Rig	Bore/Drill Rigs	Diesel	221	Tier 4	---	0.00	55.69	0.00	0.00	0.00	0.00
Grout Plant	Cement and Mortar Mixers	Diesel	25	Tier 4	---	0.00	74.63	0.00	0.00	0.00	0.00
Soldier Pile Rig	Bore/Drill Rigs	Diesel	221	Tier 4	---	0.00	55.69	0.00	0.00	0.00	0.00
Tie Back Drill	Bore/Drill Rigs	Diesel	221	Tier 4	---	0.00	55.69	0.00	0.00	0.00	0.00
Air Compressor for Tie Back Rig	Air Compressors	Diesel	78	Tier 4	---	0.00	18.87	0.00	0.00	0.00	0.00
Concrete Truck	Off-Highway Trucks	Diesel	402	Tier 4	---	0.44	5.91	72.17	54.68	1.09	0.00
Concrete Boom Pump	Pumps	Diesel	84	Tier 4	---	2.99	15.66	23.92	174.93	2.85	0.00
Scissor Lift	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Tower Crane	Cranes	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Hoist (Construction Elevator)	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Light Plant	Signal Boards	Diesel	25	Tier 4	---	125.17	327.82	125.17	0.00	39.74	0.00
Recycling Plant	Crushing/Proc. Equipment	Diesel	85	Tier 4	---	12.76	8.35	0.00	0.00	0.00	0.00
					Project Emissions (lbs/phase)	349.68	1403.96	449.35	1149.12	151.93	1.63
					Project Emissions (tons/phase)	0.17	0.70	0.22	0.57	0.08	0.00

Potrero Yard Modernization Project
Table G-2.5: Off-Road Equipment Criteria Air Pollutant Emissions

Mitigated Off-Road Equipment ROG Emissions (pounds)

Equipment	CalEEMod Equipment Type	Fuel Type	Horsepower	Tier Engine	Exhaust Control	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Aerial Lifts	Aerial Lifts	Diesel	63	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	Air Compressors	Diesel	78	Tier 4	---	3.33	4.35	1.66	5.40	0.40	0.00
Air Compressors	Air Compressors	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	Bore/Drill Rigs	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Cement and Mortar Mixers	Cement and Mortar Mixers	Diesel	25	Tier 4	---	0.00	0.00	1.24	12.12	0.74	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	Diesel	81	Tier 4	---	2.63	0.00	0.33	0.00	0.00	0.00
Cranes	Cranes	Diesel	231	Tier 4	---	5.95	15.58	1.49	4.83	0.35	0.00
Crawler Tractors	Crawler Tractors	Diesel	212	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Crushing/Proc. Equipment	Crushing/Proc. Equipment	Diesel	85	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	Diesel	25	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	Excavators	Diesel	158	Tier 4	---	5.33	20.95	5.33	22.85	0.00	0.00
Forklifts	Forklifts	Diesel	89	Tier 4	---	0.40	1.04	1.58	15.41	0.00	0.38
Generator Sets	Generator Sets	Diesel	84	Tier 4	---	1.38	14.46	11.04	10.52	0.00	0.00
Graders	Graders	Diesel	187	Tier 4	---	0.00	13.38	1.70	0.00	0.00	0.00
Off-Highway Tractors	Off-Highway Tractors	Diesel	124	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Trucks	Off-Highway Trucks	Diesel	402	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Other Construction Equipment	Other Construction Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	Other General Industrial Equipment	Diesel	88	Tier 4	---	0.00	0.00	1.33	0.00	0.00	0.00
Other Material Handling Equipment	Other Material Handling Equipment	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Pavers	Diesel	130	Tier 4	---	0.00	0.00	0.00	0.00	1.15	0.00
Paving Equipment	Paving Equipment	Diesel	132	Tier 4	---	0.00	0.00	0.00	0.00	2.01	0.00
Plate Compactors	Plate Compactors	Diesel	25	Tier 4	---	0.00	5.00	1.91	4.09	1.82	0.00
Pressure Washers	Pressure Washers	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Pumps	Pumps	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	Diesel	80	Tier 4	---	0.00	3.54	1.01	0.00	0.96	0.00
Rough Terrain Forklifts	Rollers	Diesel	80	Tier 4	---	1.01	3.54	2.70	17.55	0.00	0.00
Rubber Tired Dozers	Rubber Tired Dozers	Diesel	247	Tier 4	---	8.77	11.49	2.19	18.80	2.09	0.00
Rubber Tired Loaders	Rubber Tired Loaders	Diesel	203	Tier 4	---	3.25	17.00	0.81	0.00	0.00	0.00
Scrapers	Scrapers	Diesel	367	Tier 4	---	0.00	0.00	0.00	0.00	3.72	0.00
Signal Boards	Signal Boards	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	Diesel	65	Tier 4	---	2.14	1.40	0.00	0.00	0.00	0.00
Surfacing Equipment	Surfacing Equipment	Diesel	263	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	Diesel	64	Tier 4	---	0.00	0.00	0.00	0.00	0.00	0.00
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	Diesel	97	Tier 4	---	4.78	10.43	4.78	31.08	0.76	0.00
Trenchers	Trenchers	Diesel	78	Tier 4	---	0.00	2.27	0.00	0.00	0.00	0.00
Welders	Welders	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Slant Pile Drill	Skid Steer Loaders	Diesel	65	Tier 4	---	0.00	5.59	0.00	0.00	0.00	0.00
Soil Mix Drill Rig	Bore/Drill Rigs	Diesel	221	Tier 4	---	0.00	12.85	0.00	0.00	0.00	0.00
Grout Plant	Cement and Mortar Mixers	Diesel	25	Tier 4	---	0.00	3.26	0.00	0.00	0.00	0.00
Soldier Pile Rig	Bore/Drill Rigs	Diesel	221	Tier 4	---	0.00	12.85	0.00	0.00	0.00	0.00
Tie Back Drill	Bore/Drill Rigs	Diesel	221	Tier 4	---	0.00	12.85	0.00	0.00	0.00	0.00
Air Compressor for Tie Back Rig	Air Compressors	Diesel	78	Tier 4	---	0.00	4.35	0.00	0.00	0.00	0.00
Concrete Truck	Off-Highway Trucks	Diesel	402	Tier 4	---	0.10	1.36	16.66	12.62	0.25	0.00
Concrete Boom Pump	Pumps	Diesel	84	Tier 4	---	0.69	3.61	5.52	40.37	0.66	0.00
Scissor Lift	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Tower Crane	Cranes	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Hoist (Construction Elevator)	Aerial Lifts	Electric	0	---	---	0.00	0.00	0.00	0.00	0.00	0.00
Light Plant	Signal Boards	Diesel	25	Tier 4	---	5.46	14.30	5.46	0.00	1.73	0.00
Recycling Plant	Crushing/Proc. Equipment	Diesel	85	Tier 4	---	2.94	1.93	0.00	0.00	0.00	0.00
					Project Emissions (lbs/phase)	48.15	197.38	66.75	195.65	16.65	0.38
					Project Emissions (tons/phase)	2.E-02	1.E-01	3.E-02	1.E-01	8.E-03	2.E-04

Potrero Yard Modernization Project
Table G-2.5: Off-Road Equipment Criteria Air Pollutant Emissions

Mitigated Off-Road Equipment PM Emissions (pounds)

Equipment	CalEEMod Equipment Type	Fuel Type	Horsepower	Tier Engine	Exhaust Control	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Aerial Lifts	Aerial Lifts	Diesel	63	Tier 4	---	0.000	0.000	0.000	0.000	0.000	0.000
Air Compressors	Air Compressors	Diesel	78	Tier 4	---	0.443	0.581	0.222	0.720	0.053	0.000
Air Compressors	Air Compressors	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Bore/Drill Rigs	Bore/Drill Rigs	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Cement and Mortar Mixers	Cement and Mortar Mixers	Diesel	25	Tier 4	---	0.000	0.000	0.083	0.808	0.049	0.000
Concrete/Industrial Saws	Concrete/Industrial Saws	Diesel	81	Tier 4	---	0.350	0.000	0.044	0.000	0.000	0.000
Cranes	Cranes	Diesel	231	Tier 4	---	0.793	2.078	0.198	0.645	0.047	0.000
Crawler Tractors	Crawler Tractors	Diesel	212	Tier 4	---	0.000	0.000	0.000	0.000	0.000	0.000
Crushing/Proc. Equipment	Crushing/Proc. Equipment	Diesel	85	Tier 4	---	0.000	0.000	0.000	0.000	0.000	0.000
Dumpers/Tenders	Dumpers/Tenders	Diesel	25	Tier 4	---	0.000	0.000	0.000	0.000	0.000	0.000
Excavators	Excavators	Diesel	158	Tier 4	---	0.711	2.793	0.711	3.047	0.000	0.000
Forklifts	Forklifts	Diesel	89	Tier 4	---	0.053	0.138	0.211	2.055	0.000	0.050
Generator Sets	Generator Sets	Diesel	84	Tier 4	---	0.184	1.928	1.472	1.402	0.000	0.000
Graders	Graders	Diesel	187	Tier 4	---	0.000	1.783	0.227	0.000	0.000	0.000
Off-Highway Tractors	Off-Highway Tractors	Diesel	124	Tier 4	---	0.000	0.000	0.000	0.000	0.000	0.000
Off-Highway Trucks	Off-Highway Trucks	Diesel	402	Tier 4	---	0.000	0.000	0.000	0.000	0.000	0.000
Other Construction Equipment	Other Construction Equipment	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Other General Industrial Equipment	Other General Industrial Equipment	Diesel	88	Tier 4	---	0.000	0.000	0.177	0.000	0.000	0.000
Other Material Handling Equipment	Other Material Handling Equipment	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Pavers	Pavers	Diesel	130	Tier 4	---	0.000	0.000	0.000	0.000	0.154	0.000
Paving Equipment	Paving Equipment	Diesel	132	Tier 4	---	0.000	0.000	0.000	0.000	0.268	0.000
Plate Compactors	Plate Compactors	Diesel	25	Tier 4	---	0.000	0.333	0.127	0.273	0.121	0.000
Pressure Washers	Pressure Washers	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Pumps	Pumps	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Rollers	Rollers	Diesel	80	Tier 4	---	0.000	0.471	0.135	0.000	0.129	0.000
Rough Terrain Forklifts	Rollers	Diesel	80	Tier 4	---	0.135	0.471	0.360	2.340	0.000	0.000
Rubber Tired Dozers	Rubber Tired Dozers	Diesel	247	Tier 4	---	1.170	1.532	0.292	2.507	0.279	0.000
Rubber Tired Loaders	Rubber Tired Loaders	Diesel	203	Tier 4	---	0.433	2.266	0.108	0.000	0.000	0.000
Scrapers	Scrapers	Diesel	367	Tier 4	---	0.000	0.000	0.000	0.000	0.497	0.000
Signal Boards	Signal Boards	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Skid Steer Loaders	Skid Steer Loaders	Diesel	65	Tier 4	---	0.142	0.093	0.000	0.000	0.000	0.000
Surfacing Equipment	Surfacing Equipment	Diesel	263	Tier 4	---	0.000	0.000	0.000	0.000	0.000	0.000
Sweepers/Scrubbers	Sweepers/Scrubbers	Diesel	64	Tier 4	---	0.000	0.000	0.000	0.000	0.000	0.000
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	Diesel	97	Tier 4	---	0.637	1.391	0.637	4.144	0.101	0.000
Trenchers	Trenchers	Diesel	78	Tier 4	---	0.000	0.302	0.000	0.000	0.000	0.000
Welders	Welders	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Slant Pile Drill	Skid Steer Loaders	Diesel	65	Tier 4	---	0.000	0.373	0.000	0.000	0.000	0.000
Soil Mix Drill Rig	Bore/Drill Rigs	Diesel	221	Tier 4	---	0.000	1.713	0.000	0.000	0.000	0.000
Grout Plant	Cement and Mortar Mixers	Diesel	25	Tier 4	---	0.000	0.217	0.000	0.000	0.000	0.000
Soldier Pile Rig	Bore/Drill Rigs	Diesel	221	Tier 4	---	0.000	1.713	0.000	0.000	0.000	0.000
Tie Back Drill	Bore/Drill Rigs	Diesel	221	Tier 4	---	0.000	1.713	0.000	0.000	0.000	0.000
Air Compressor for Tie Back Rig	Air Compressors	Diesel	78	Tier 4	---	0.000	0.581	0.000	0.000	0.000	0.000
Concrete Truck	Off-Highway Trucks	Diesel	402	Tier 4	---	0.013	0.182	2.221	1.682	0.034	0.000
Concrete Boom Pump	Pumps	Diesel	84	Tier 4	---	0.092	0.482	0.736	5.382	0.088	0.000
Scissor Lift	Aerial Lifts	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Tower Crane	Cranes	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Hoist (Construction Elevator)	Aerial Lifts	Electric	0	---	---	0.000	0.000	0.000	0.000	0.000	0.000
Light Plant	Signal Boards	Diesel	25	Tier 4	---	0.364	0.954	0.364	0.000	0.116	0.000
Recycling Plant	Crushing/Proc. Equipment	Diesel	85	Tier 4	---	0.393	0.257	0.000	0.000	0.000	0.000
					Project Emissions (lbs/phase)	5.914	24.347	8.326	25.005	1.934	0.050
					Project Emissions (tons/phase)	0.003	0.012	0.004	0.013	0.001	0.000

Potrero Yard Modernization Project
Table G-2.6: Worker Trip Criteria Air Pollutant Emissions

Unmitigated Worker Trip NOx Emissions

Project Emissions	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Project Emissions (lbs/phase)	2.7	12.0	9.2	536.2	1.1	1.3
Project Emissions (tons/phase)	1.E-03	6.E-03	5.E-03	3.E-01	5.E-04	7.E-04

Potrero Yard Modernization Project
Table G-2.6: Worker Trip Criteria Air Pollutant Emissions

Unmitigated Worker Trip ROG Emissions

Project Emissions	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Project Emissions (lbs/phase)	0.71	3.1	2.37	138.88	0.28	0.34
Project Emissions (tons/phase)	4.E-04	2.E-03	1.E-03	7.E-02	1.E-04	2.E-04

Potrero Yard Modernization Project
Table G-2.6: Worker Trip Criteria Air Pollutant Emissions

Unmitigated Worker Trip PM10 Emissions

Project Emissions	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Project Emissions (lbs/phase)	0.11	0.48	0.37	21.63	0.04	0.05
Project Emissions (tons/phase)	6.E-05	2.E-04	2.E-04	1.E-02	2.E-05	3.E-05

Potrero Yard Modernization Project
Table G-2.6: Worker Trip Criteria Air Pollutant Emissions

Unmitigated Worker Trip PM2.5 Emissions

Project Emissions	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Project Emissions (lbs/phase)	0.10	0.45	0.34	19.89	0.04	0.05
Project Emissions (tons/phase)	5.E-05	2.E-04	2.E-04	1.E-02	2.E-05	2.E-05

Potrero Yard Modernization Project
Table G-2.7: Truck Trip Criteria Air Pollutant Emissions

Unmitigated Truck Trip NOx Emissions (pounds)

Truck Trip Activity	One-Way Distance (miles)	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Total Vendor TruckTrips	7.3	189	124	237	237	3076	14
Total Soil Haul Truck Trips	55	5401	21652	460	216	108	22
Total Concrete Truck Trips	20	9	122	685	1495	1132	23
Project Emissions (lbs/phase)		5599	21898	1382	1947	4317	58
Project Emissions (tons/phase)		2.8	10.9	0.7	1.0	2.2	0.0

Potrero Yard Modernization Project
Table G-2.7: Truck Trip Criteria Air Pollutant Emissions

Unmitigated Truck Trip ROG Emissions (pounds)

Truck Trip Activity	One-Way Distance (miles)	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Total Vendor TruckTrips	7.3	5.7	3.7	7.1	7.1	92.5	0.4
Total Soil Haul Truck Trips	55	71.7	287.5	6.1	2.9	1.4	0.3
Total Concrete Truck Trips	20	0.2	2.4	13.3	29.0	22.0	0.4
Project Emissions (lbs/phase)		78	294	27	39	116	1
Project Emissions (tons/phase)		0.04	0.15	0.01	0.02	0.06	0.00

Potrero Yard Modernization Project
Table G-2.7: Truck Trip Criteria Air Pollutant Emissions

Unmitigated Truck Trip PM10 Emissions (pounds)

Truck Trip Activity	One-Way Distance (miles)	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Total Vendor TruckTrips	7.3	0.7	0.5	0.9	0.9	11.9	0.1
Total Soil Haul Truck Trips	55	29.7	119.1	2.5	1.2	0.6	0.1
Total Concrete Truck Trips	20	0.0	0.6	3.4	7.3	5.6	0.1
Project Emissions (lbs/phase)		30	120	7	9	18	0
Project Emissions (tons/phase)		0.02	0.06	0.00	0.00	0.01	0.00

Potrero Yard Modernization Project
Table G-2.7: Truck Trip Criteria Air Pollutant Emissions

Unmitigated Truck Trip PM2.5 Emissions (pounds)

Truck Trip Activity	One-Way Distance (miles)	Demolition	Site Preparation, Grading, Piling	Foundation	Building Construction	Paving	Architectural Coating
Total Vendor TruckTrips	7.3	0.7	0.5	0.9	0.9	11.4	0.1
Total Soil Haul Truck Trips	55	28.4	114.0	2.4	1.1	0.6	0.1
Total Concrete Truck Trips	20	0.0	0.6	3.2	7.0	5.3	0.1
Project Emissions (lbs/phase)		29	115	7	9	17	0
Project Emissions (tons/phase)		0.01	0.06	0.00	0.00	0.01	0.00

Table G-2.8 : EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: SAN FRANCISCO
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN.
Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	ROG_RUNEX	ROG_IDLEX	ROG_RESTLOSS	ROG_DIURN	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_PMTW	PM10_PMBW
SAN FRANCISCO	2023	LDA	Aggregated	Aggregated	GAS	161367.5	5500029.8	761671	0.0335	0.0000	0.0090	0.0000	0.1694	0.1682	0.0016	0.0000	0.0020	0.0158	0.0018	0.0000	0.0080	0.0368
SAN FRANCISCO	2023	LDT1	Aggregated	Aggregated	GAS	17686.5	532518.2	82418	0.0605	0.0000	0.0163	0.0000	0.2606	0.2683	0.0019	0.0000	0.0020	0.0158	0.0021	0.0000	0.0080	0.0368
SAN FRANCISCO	2023	LDT2	Aggregated	Aggregated	GAS	54830.8	1673679.2	257592	0.0561	0.0000	0.0133	0.0000	0.2455	0.2223	0.0016	0.0000	0.0020	0.0158	0.0018	0.0000	0.0080	0.0368
SAN FRANCISCO	2023	HHDT	Aggregated	Aggregated	DSL	1101.7	75402.7	7732	4.0681	42.9263	0.0360	2.5499	0.0000	0.0000	0.0231	0.0428	0.0087	0.0256	0.0241	0.0448	0.0348	0.0596

Potrero Yard Modernization Project
Table G-2.9: Off-Gassing Criteria Air Pollutant Emissions

Unmitigated Off-Gassing from Asphalt Paving

Land Use	Component	Square feet	Acre	Year of Asphalt Paving	VOC Emission Factor[1] (lb/acre)	Emissions (lb)
Industrial	Ramps and Circulation	463,000	10.63	2023	2.6	27.64
	Shared Basement Circulation	22,000	0.51	2023	2.6	1.31

Note:

[1] VOC emission factor consistent with the emission factor used in CalEEMod 2016.3.2. ROG and VOC can be used interchangeably for CEQA analysis.

Abbreviations:

CalEEMod = California Emissions Estimator Model

lb = pounds

ROG = reactive organic gases

VOC = volatile organic compounds

Reference:

California Air Pollution Control Officers Association (CAPCOA), 2016, CalEEMod User's Guide, Appendix A, Calculation Details for CalEEMod, October.

Potrero Yard Modernization Project
Table G-2.9: Off-Gassing Criteria Air Pollutant Emissions

Unmitigated Off-Gassing from Architectural Coatings

Land Use	Floor Area (SF)	Surface Area Factor	Total Surface Area (SF)	Interior Surface Area (SF)	Interior VOC Limit (g/L)	Exterior Surface Area (SF)	Exterior VOC Limit (g/L)	SF/L	L/gal	g/lb	Emissions (lb)
Nonresidential	756,000	2	1,512,000	1,134,000	100	378,000	150	180	3.785	454	7,878
Residential	544,000	2.7	1,468,800	1,101,600	100	367,200	150	180	3.785	454	7,653

Abbreviations:

VOC = volatile organic compounds

SF = square feet

lb = pounds

g/L = grams per liter

SF/L = square feet per liter

L/gal = liters per gallon

g/lb = grams per pound

Appendix G-3

Operation Criteria Air Pollutant Calculations and
Supporting Documentation

Overview: Includes two CalEEMod reports with unmitigated emission estimates of criteria air pollutants from energy use, area sources, and stationary sources for the existing land use and the proposed Potrero Yard Modernization Project. Also includes a third CalEEMod report with the mitigated emissions estimates of criteria air pollutants from the proposed emergency diesel generators. The CalEEMod reports also include estimates of total vehicle miles travelled, which were used to calculate criteria air pollutant emissions from on-road operational vehicles using the summarized EMFAC2017 emissions factors.

Potrero Yard Existing Conditions.v1

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	221.00	1000sqft	4.40	221,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	4.6	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2020
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

Land Use - Existing land use consistent with the project Notice of Preparation and Travel Demand study.

Construction Phase - No construction for existing conditions (default assumptions left in as a placeholder to run the model).

Vehicle Trips - Worker trip rates entered based on the Travel Demand report. CalEEMod used to calculated total vehicle miles travelled; however, then emissions were recalculated outside of CalEEMod using EMFAC2017.

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	5.07	4.40
tblVehicleTrips	ST_TR	1.32	5.23
tblVehicleTrips	SU_TR	0.68	5.23
tblVehicleTrips	WD_TR	6.97	5.23

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1603	1.5471	1.1926	2.4900e-003	0.1141	0.0752	0.1893	0.0499	0.0703	0.1202	0.0000	223.1586	223.1586	0.0457	0.0000	224.3004
2021	1.3313	1.6981	1.5771	3.4300e-003	0.0736	0.0771	0.1507	0.0200	0.0725	0.0925	0.0000	309.6531	309.6531	0.0562	0.0000	311.0574
Maximum	**1.3313**	**1.6981**	**1.5771**	**3.4300e-003**	**0.1141**	**0.0771**	**0.1893**	**0.0499**	**0.0725**	**0.1202**	**0.0000**	**309.6531**	**309.6531**	**0.0562**	**0.0000**	**311.0574**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1603	1.5471	1.1926	2.4900e-003	0.1141	0.0752	0.1893	0.0499	0.0703	0.1202	0.0000	223.1584	223.1584	0.0457	0.0000	224.3003
2021	1.3313	1.6981	1.5771	3.4300e-003	0.0736	0.0771	0.1507	0.0200	0.0725	0.0925	0.0000	309.6529	309.6529	0.0562	0.0000	311.0572
Maximum	**1.3313**	**1.6981**	**1.5771**	**3.4300e-003**	**0.1141**	**0.0771**	**0.1893**	**0.0499**	**0.0725**	**0.1202**	**0.0000**	**309.6529**	**309.6529**	**0.0562**	**0.0000**	**311.0572**

	ROG	NOx	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	**7-22-2020**	**10-21-2020**	1.0284	1.0284
2	**10-22-2020**	**1-21-2021**	0.8513	0.8513
3	**1-22-2021**	**4-21-2021**	0.7719	0.7719
4	**4-22-2021**	**7-21-2021**	0.7775	0.7775
5	**7-22-2021**	**9-30-2021**	1.3347	1.3347
		Highest	1.3347	1.3347

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	0.9786	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9500e-003	3.9500e-003	1.0000e-005	0.0000	4.2100e-003
Energy	0.0295	0.2681	0.2252	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	777.9299	777.9299	0.0276	9.9000e-003	781.5689
Mobile	0.3713	1.5495	4.3532	0.0152	1.2631	0.0210	1.2841	0.3405	0.0198	0.3603	0.0000	1,397.8247	1,397.8247	0.0606	0.0000	1,399.3384
Waste						0.0000	0.0000		0.0000	0.0000	55.6276	0.0000	55.6276	3.2875	0.0000	137.8151
Water						0.0000	0.0000		0.0000	0.0000	16.2137	80.4475	96.6611	1.6689	0.0401	150.3265
Total	**1.3793**	**1.8177**	**4.5805**	**0.0169**	**1.2631**	**0.0414**	**1.3045**	**0.3405**	**0.0402**	**0.3806**	**71.8413**	**2,256.2061**	**2,328.0474**	**5.0446**	**0.0500**	**2,469.0532**

2.2 Overall Operational

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	0.9786	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9500e-003	3.9500e-003	1.0000e-005	0.0000	4.2100e-003
Energy	0.0295	0.2681	0.2252	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	777.9299	777.9299	0.0276	9.9000e-003	781.5689
Mobile	0.3713	1.5495	4.3532	0.0152	1.2631	0.0210	1.2841	0.3405	0.0198	0.3603	0.0000	1,397.8247	1,397.8247	0.0606	0.0000	1,399.3384
Waste						0.0000	0.0000		0.0000	0.0000	55.6276	0.0000	55.6276	3.2875	0.0000	137.8151
Water						0.0000	0.0000		0.0000	0.0000	16.2137	80.4475	96.6611	1.6689	0.0401	150.3265
Total	**1.3793**	**1.8177**	**4.5805**	**0.0169**	**1.2631**	**0.0414**	**1.3045**	**0.3405**	**0.0402**	**0.3806**	**71.8413**	**2,256.2061**	**2,328.0474**	**5.0446**	**0.0500**	**2,469.0532**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/22/2020	8/18/2020	5	20	
2	Site Preparation	Site Preparation	8/19/2020	8/25/2020	5	5	
3	Grading	Grading	8/26/2020	9/4/2020	5	8	
4	Building Construction	Building Construction	9/5/2020	7/23/2021	5	230	
5	Paving	Paving	7/24/2021	8/18/2021	5	18	
6	Architectural Coating	Architectural Coating	8/19/2021	9/13/2021	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 331,500; Non-Residential Outdoor: 110,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	93.00	36.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	19.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386
Total	**0.0331**	**0.3320**	**0.2175**	**3.9000e-004**		**0.0166**	**0.0166**		**0.0154**	**0.0154**	**0.0000**	**33.9986**	**33.9986**	**9.6000e-003**	**0.0000**	**34.2386**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.0000e-004	3.3700e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.1265	1.1265	2.0000e-005	0.0000	1.1271
Total	**4.6000e-004**	**3.0000e-004**	**3.3700e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.1265**	**1.1265**	**2.0000e-005**	**0.0000**	**1.1271**

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	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385
Total	**0.0331**	**0.3320**	**0.2175**	**3.9000e-004**		**0.0166**	**0.0166**		**0.0154**	**0.0154**	**0.0000**	**33.9986**	**33.9986**	**9.6000e-003**	**0.0000**	**34.2385**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.0000e-004	3.3700e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.1265	1.1265	2.0000e-005	0.0000	1.1271
Total	**4.6000e-004**	**3.0000e-004**	**3.3700e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.1265**	**1.1265**	**2.0000e-005**	**0.0000**	**1.1271**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1060	0.0538	1.0000e-004		5.4900e-003	5.4900e-003		5.0500e-003	5.0500e-003	0.0000	8.3577	8.3577	2.7000e-003	0.0000	8.4253
Total	**0.0102**	**0.1060**	**0.0538**	**1.0000e-004**	**0.0452**	**5.4900e-003**	**0.0507**	**0.0248**	**5.0500e-003**	**0.0299**	**0.0000**	**8.3577**	**8.3577**	**2.7000e-003**	**0.0000**	**8.4253**

3.3 Site Preparation - 2020

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	1.4000e-004	9.0000e-005	1.0100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3380	0.3380	1.0000e-005	0.0000	0.3381
Total	**1.4000e-004**	**9.0000e-005**	**1.0100e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3380**	**0.3380**	**1.0000e-005**	**0.0000**	**0.3381**

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1060	0.0538	1.0000e-004		5.4900e-003	5.4900e-003		5.0500e-003	5.0500e-003	0.0000	8.3577	8.3577	2.7000e-003	0.0000	8.4252
Total	**0.0102**	**0.1060**	**0.0538**	**1.0000e-004**	**0.0452**	**5.4900e-003**	**0.0507**	**0.0248**	**5.0500e-003**	**0.0299**	**0.0000**	**8.3577**	**8.3577**	**2.7000e-003**	**0.0000**	**8.4252**

3.3 Site Preparation - 2020

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	1.4000e-004	9.0000e-005	1.0100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3380	0.3380	1.0000e-005	0.0000	0.3381
Total	**1.4000e-004**	**9.0000e-005**	**1.0100e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3380**	**0.3380**	**1.0000e-005**	**0.0000**	**0.3381**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1055	0.0642	1.2000e-004		5.0900e-003	5.0900e-003		4.6900e-003	4.6900e-003	0.0000	10.4235	10.4235	3.3700e-003	0.0000	10.5078
Total	**9.7200e-003**	**0.1055**	**0.0642**	**1.2000e-004**	**0.0262**	**5.0900e-003**	**0.0313**	**0.0135**	**4.6900e-003**	**0.0182**	**0.0000**	**10.4235**	**10.4235**	**3.3700e-003**	**0.0000**	**10.5078**

3.4 Grading - 2020

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	1.8000e-004	1.2000e-004	1.3500e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4506	0.4506	1.0000e-005	0.0000	0.4508
Total	**1.8000e-004**	**1.2000e-004**	**1.3500e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4506**	**0.4506**	**1.0000e-005**	**0.0000**	**0.4508**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1055	0.0642	1.2000e-004		5.0900e-003	5.0900e-003		4.6900e-003	4.6900e-003	0.0000	10.4235	10.4235	3.3700e-003	0.0000	10.5078
Total	**9.7200e-003**	**0.1055**	**0.0642**	**1.2000e-004**	**0.0262**	**5.0900e-003**	**0.0313**	**0.0135**	**4.6900e-003**	**0.0182**	**0.0000**	**10.4235**	**10.4235**	**3.3700e-003**	**0.0000**	**10.5078**

3.4 Grading - 2020

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	1.8000e-004	1.2000e-004	1.3500e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4506	0.4506	1.0000e-005	0.0000	0.4508
Total	**1.8000e-004**	**1.2000e-004**	**1.3500e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4506**	**0.4506**	**1.0000e-005**	**0.0000**	**0.4508**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0890	0.8058	0.7076	1.1300e-003		0.0469	0.0469		0.0441	0.0441	0.0000	97.2762	97.2762	0.0237	0.0000	97.8695
Total	**0.0890**	**0.8058**	**0.7076**	**1.1300e-003**		**0.0469**	**0.0469**		**0.0441**	**0.0441**	**0.0000**	**97.2762**	**97.2762**	**0.0237**	**0.0000**	**97.8695**

3.5 Building Construction - 2020

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	5.5600e-003	0.1893	0.0559	4.1000e-004	9.8800e-003	8.4000e-004	0.0107	2.8600e-003	8.0000e-004	3.6600e-003	0.0000	41.8538	41.8538	5.5800e-003	0.0000	41.9934
Worker	0.0119	7.9000e-003	0.0878	3.2000e-004	0.0309	2.4000e-004	0.0311	8.2100e-003	2.2000e-004	8.4300e-003	0.0000	29.3339	29.3339	6.4000e-004	0.0000	29.3499
Total	**0.0174**	**0.1972**	**0.1437**	**7.3000e-004**	**0.0407**	**1.0800e-003**	**0.0418**	**0.0111**	**1.0200e-003**	**0.0121**	**0.0000**	**71.1876**	**71.1876**	**6.2200e-003**	**0.0000**	**71.3433**

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	0.0890	0.8058	0.7076	1.1300e-003		0.0469	0.0469		0.0441	0.0441	0.0000	97.2761	97.2761	0.0237	0.0000	97.8694
Total	**0.0890**	**0.8058**	**0.7076**	**1.1300e-003**		**0.0469**	**0.0469**		**0.0441**	**0.0441**	**0.0000**	**97.2761**	**97.2761**	**0.0237**	**0.0000**	**97.8694**

3.5 Building Construction - 2020

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	5.5600e-003	0.1893	0.0559	4.1000e-004	9.8800e-003	8.4000e-004	0.0107	2.8600e-003	8.0000e-004	3.6600e-003	0.0000	41.8538	41.8538	5.5800e-003	0.0000	41.9934
Worker	0.0119	7.9000e-003	0.0878	3.2000e-004	0.0309	2.4000e-004	0.0311	8.2100e-003	2.2000e-004	8.4300e-003	0.0000	29.3339	29.3339	6.4000e-004	0.0000	29.3499
Total	**0.0174**	**0.1972**	**0.1437**	**7.3000e-004**	**0.0407**	**1.0800e-003**	**0.0418**	**0.0111**	**1.0200e-003**	**0.0121**	**0.0000**	**71.1876**	**71.1876**	**6.2200e-003**	**0.0000**	**71.3433**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1388	1.2725	1.2100	1.9700e-003		0.0700	0.0700		0.0658	0.0658	0.0000	169.0952	169.0952	0.0408	0.0000	170.1151
Total	**0.1388**	**1.2725**	**1.2100**	**1.9700e-003**		**0.0700**	**0.0700**		**0.0658**	**0.0658**	**0.0000**	**169.0952**	**169.0952**	**0.0408**	**0.0000**	**170.1151**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0200e-003	0.3013	0.0920	7.0000e-004	0.0172	6.8000e-004	0.0179	4.9600e-003	6.5000e-004	5.6100e-003	0.0000	71.8205	71.8205	9.5300e-003	0.0000	72.0587
Worker	0.0193	0.0123	0.1411	5.4000e-004	0.0537	4.1000e-004	0.0541	0.0143	3.7000e-004	0.0146	0.0000	49.1641	49.1641	1.0100e-003	0.0000	49.1893
Total	**0.0273**	**0.3136**	**0.2331**	**1.2400e-003**	**0.0708**	**1.0900e-003**	**0.0719**	**0.0192**	**1.0200e-003**	**0.0203**	**0.0000**	**120.9846**	**120.9846**	**0.0105**	**0.0000**	**121.2480**

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	0.1388	1.2725	1.2100	1.9700e-003		0.0700	0.0700		0.0658	0.0658	0.0000	169.0950	169.0950	0.0408	0.0000	170.1149
Total	**0.1388**	**1.2725**	**1.2100**	**1.9700e-003**		**0.0700**	**0.0700**		**0.0658**	**0.0658**	**0.0000**	**169.0950**	**169.0950**	**0.0408**	**0.0000**	**170.1149**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0200e-003	0.3013	0.0920	7.0000e-004	0.0172	6.8000e-004	0.0179	4.9600e-003	6.5000e-004	5.6100e-003	0.0000	71.8205	71.8205	9.5300e-003	0.0000	72.0587
Worker	0.0193	0.0123	0.1411	5.4000e-004	0.0537	4.1000e-004	0.0541	0.0143	3.7000e-004	0.0146	0.0000	49.1641	49.1641	1.0100e-003	0.0000	49.1893
Total	**0.0273**	**0.3136**	**0.2331**	**1.2400e-003**	**0.0708**	**1.0900e-003**	**0.0719**	**0.0192**	**1.0200e-003**	**0.0203**	**0.0000**	**120.9846**	**120.9846**	**0.0105**	**0.0000**	**121.2480**

3.6 Paving - 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	9.8500e-003	0.0976	0.1103	1.7000e-004		5.2100e-003	5.2100e-003		4.8100e-003	4.8100e-003	0.0000	14.7336	14.7336	4.6300e-003	0.0000	14.8493
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.8500e-003**	**0.0976**	**0.1103**	**1.7000e-004**		**5.2100e-003**	**5.2100e-003**		**4.8100e-003**	**4.8100e-003**	**0.0000**	**14.7336**	**14.7336**	**4.6300e-003**	**0.0000**	**14.8493**

3.6 Paving - 2021

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	5.1000e-004	3.3000e-004	3.7400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3035	1.3035	3.0000e-005	0.0000	1.3042
Total	**5.1000e-004**	**3.3000e-004**	**3.7400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.3035**	**1.3035**	**3.0000e-005**	**0.0000**	**1.3042**

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	9.8500e-003	0.0976	0.1103	1.7000e-004		5.2100e-003	5.2100e-003		4.8100e-003	4.8100e-003	0.0000	14.7335	14.7335	4.6300e-003	0.0000	14.8493
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.8500e-003**	**0.0976**	**0.1103**	**1.7000e-004**		**5.2100e-003**	**5.2100e-003**		**4.8100e-003**	**4.8100e-003**	**0.0000**	**14.7335**	**14.7335**	**4.6300e-003**	**0.0000**	**14.8493**

3.6 Paving - 2021

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	5.1000e-004	3.3000e-004	3.7400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3035	1.3035	3.0000e-005	0.0000	1.3042
Total	**5.1000e-004**	**3.3000e-004**	**3.7400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.3035**	**1.3035**	**3.0000e-005**	**0.0000**	**1.3042**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1524					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0137	0.0164	3.0000e-005		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
Total	**1.1544**	**0.0137**	**0.0164**	**3.0000e-005**		**8.5000e-004**	**8.5000e-004**		**8.5000e-004**	**8.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.6000e-004**	**0.0000**	**2.3019**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.9000e-004	3.1000e-004	3.5500e-003	1.0000e-005	1.3500e-003	1.0000e-005	1.3600e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2383	1.2383	3.0000e-005	0.0000	1.2390
Total	**4.9000e-004**	**3.1000e-004**	**3.5500e-003**	**1.0000e-005**	**1.3500e-003**	**1.0000e-005**	**1.3600e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.2383**	**1.2383**	**3.0000e-005**	**0.0000**	**1.2390**

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	1.1524					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0137	0.0164	3.0000e-005		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
Total	**1.1544**	**0.0137**	**0.0164**	**3.0000e-005**		**8.5000e-004**	**8.5000e-004**		**8.5000e-004**	**8.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.6000e-004**	**0.0000**	**2.3019**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.9000e-004	3.1000e-004	3.5500e-003	1.0000e-005	1.3500e-003	1.0000e-005	1.3600e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2383	1.2383	3.0000e-005	0.0000	1.2390
Total	**4.9000e-004**	**3.1000e-004**	**3.5500e-003**	**1.0000e-005**	**1.3500e-003**	**1.0000e-005**	**1.3600e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.2383**	**1.2383**	**3.0000e-005**	**0.0000**	**1.2390**

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	0.3713	1.5495	4.3532	0.0152	1.2631	0.0210	1.2841	0.3405	0.0198	0.3603	0.0000	1,397.8247	1,397.8247	0.0606	0.0000	1,399.3384
Unmitigated	0.3713	1.5495	4.3532	0.0152	1.2631	0.0210	1.2841	0.3405	0.0198	0.3603	0.0000	1,397.8247	1,397.8247	0.0606	0.0000	1,399.3384

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,155.83	1,155.83	1155.83	3,374,459	3,374,459
Total	1,155.83	1,155.83	1,155.83	3,374,459	3,374,459

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.607015	0.041018	0.191033	0.087570	0.015386	0.004865	0.027149	0.008727	0.004280	0.004624	0.006947	0.000926	0.000460

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	486.0432	486.0432	0.0220	4.5500e-003	487.9477
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	486.0432	486.0432	0.0220	4.5500e-003	487.9477
NaturalGas Mitigated	0.0295	0.2681	0.2252	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	291.8867	291.8867	5.5900e-003	5.3500e-003	293.6212
NaturalGas Unmitigated	0.0295	0.2681	0.2252	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	291.8867	291.8867	5.5900e-003	5.3500e-003	293.6212

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	5.46975e+006	0.0295	0.2681	0.2252	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	291.8867	291.8867	5.5900e-003	5.3500e-003	293.6212
Total		**0.0295**	**0.2681**	**0.2252**	**1.6100e-003**		**0.0204**	**0.0204**		**0.0204**	**0.0204**	**0.0000**	**291.8867**	**291.8867**	**5.5900e-003**	**5.3500e-003**	**293.6212**

5.2 Energy by Land Use - NaturalGas

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	5.46975e+006	0.0295	0.2681	0.2252	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	291.8867	291.8867	5.5900e-003	5.3500e-003	293.6212
Total		**0.0295**	**0.2681**	**0.2252**	**1.6100e-003**		**0.0204**	**0.0204**		**0.0204**	**0.0204**	**0.0000**	**291.8867**	**291.8867**	**5.5900e-003**	**5.3500e-003**	**293.6212**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.67076e+006	486.0432	0.0220	4.5500e-003	487.9477
Total		**486.0432**	**0.0220**	**4.5500e-003**	**487.9477**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.67076e+006	486.0432	0.0220	4.5500e-003	487.9477
Total		**486.0432**	**0.0220**	**4.5500e-003**	**487.9477**

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	0.9786	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9500e-003	3.9500e-003	1.0000e-005	0.0000	4.2100e-003
Unmitigated	0.9786	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9500e-003	3.9500e-003	1.0000e-005	0.0000	4.2100e-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	0.1152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8631					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9500e-003	3.9500e-003	1.0000e-005	0.0000	4.2100e-003
Total	**0.9786**	**2.0000e-005**	**2.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.9500e-003**	**3.9500e-003**	**1.0000e-005**	**0.0000**	**4.2100e-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	0.1152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8631					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9500e-003	3.9500e-003	1.0000e-005	0.0000	4.2100e-003
Total	**0.9786**	**2.0000e-005**	**2.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.9500e-003**	**3.9500e-003**	**1.0000e-005**	**0.0000**	**4.2100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	96.6611	1.6689	0.0401	150.3265
Unmitigated	96.6611	1.6689	0.0401	150.3265

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	51.1063 / 0	96.6611	1.6689	0.0401	150.3265
Total		**96.6611**	**1.6689**	**0.0401**	**150.3265**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	51.1063 / 0	96.6611	1.6689	0.0401	150.3265
Total		**96.6611**	**1.6689**	**0.0401**	**150.3265**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	55.6276	3.2875	0.0000	137.8151
Unmitigated	55.6276	3.2875	0.0000	137.8151

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	274.04	55.6276	3.2875	0.0000	137.8151
Total		**55.6276**	**3.2875**	**0.0000**	**137.8151**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	274.04	55.6276	3.2875	0.0000	137.8151
Total		**55.6276**	**3.2875**	**0.0000**	**137.8151**

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

Potrero Yard Operational.v1

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	52.00	1000sqft	0.00	52,000.00	0
General Light Industry	576.00	1000sqft	0.00	576,000.00	0
High Turnover (Sit Down Restaurant)	33.00	1000sqft	0.00	33,000.00	0
Apartments High Rise	575.00	Dwelling Unit	4.40	544,000.00	1645

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	4.6	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2026
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

Land Use - Land uses are consistent with the project Notice of Preparation and Travel Demand study.

Construction Phase - Construction emissions calculated outside of CalEEMod. The default assumptions used as a placeholder to be able to run the model.

Vehicle Trips - Trip rates based on Travel Demand report. Office trips included in Light Industry and Restaurant trips included in Residential. CalEEMod used to calculate total VMT, then emissions were recalculated outside of CalEEMod using EMFAC2017.

Woodstoves - Assume no woodstove or fireplaces.

Stationary Sources - Emergency Generators and Fire Pumps - The proposed project would include up to three new diesel backup generators with a maximum power of 1,000 kilowatts.

Potrero Yard Operational.v1 - San Francisco County, Annual

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Residential_Exterior	367,200.00	266.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,101,600.00	798.00
tblAreaCoating	Area_Residential_Exterior	367200	266
tblAreaCoating	Area_Residential_Interior	1101600	798
tblFireplaces	NumberGas	86.25	0.00
tblFireplaces	NumberNoFireplace	23.00	0.00
tblFireplaces	NumberWood	97.75	0.00
tblLandUse	LandUseSquareFeet	575,000.00	544,000.00
tblLandUse	LotAcreage	1.19	0.00
tblLandUse	LotAcreage	13.22	0.00
tblLandUse	LotAcreage	0.76	0.00
tblLandUse	LotAcreage	9.27	4.40
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	1,341.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	3.00
tblVehicleTrips	ST_TR	4.98	4.35
tblVehicleTrips	ST_TR	1.32	3.18
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	ST_TR	158.37	0.00
tblVehicleTrips	SU_TR	3.65	3.19
tblVehicleTrips	SU_TR	0.68	3.18
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	SU_TR	131.84	0.00
tblVehicleTrips	WD_TR	4.20	3.67
tblVehicleTrips	WD_TR	6.97	3.18

tblVehicleTrips	WD_TR	11.03	0.00
tblVehicleTrips	WD_TR	127.15	0.00
tblWoodstoves	NumberCatalytic	11.50	0.00
tblWoodstoves	NumberNoncatalytic	11.50	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					
2023	0.4485	3.7637	4.1120	0.0140	0.7984	0.1008	0.8992	0.2346	0.0946	0.3291	0.0000	1,318.4817	1,318.4817	0.1521	0.0000	1,322.2834
2024	3.4765	0.2045	0.2837	7.7000e-004	0.0373	6.9100e-003	0.0442	0.0100	6.4700e-003	0.0165	0.0000	70.7881	70.7881	9.7900e-003	0.0000	71.0328
Maximum	**3.4765**	**3.7637**	**4.1120**	**0.0140**	**0.7984**	**0.1008**	**0.8992**	**0.2346**	**0.0946**	**0.3291**	**0.0000**	**1,318.4817**	**1,318.4817**	**0.1521**	**0.0000**	**1,322.2834**

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					
2023	0.4485	3.7637	4.1120	0.0140	0.7984	0.1008	0.8992	0.2346	0.0946	0.3291	0.0000	1,318.4813	1,318.4813	0.1521	0.0000	1,322.2830
2024	3.4765	0.2045	0.2837	7.7000e-004	0.0373	6.9100e-003	0.0442	0.0100	6.4700e-003	0.0165	0.0000	70.7880	70.7880	9.7900e-003	0.0000	71.0327
Maximum	**3.4765**	**3.7637**	**4.1120**	**0.0140**	**0.7984**	**0.1008**	**0.8992**	**0.2346**	**0.0946**	**0.3291**	**0.0000**	**1,318.4813**	**1,318.4813**	**0.1521**	**0.0000**	**1,322.2830**

	ROG	NOx	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	1-9-2023	4-8-2023	0.9369	0.9369
2	4-9-2023	7-8-2023	1.1088	1.1088
3	7-9-2023	10-8-2023	1.1225	1.1225
4	10-9-2023	1-8-2024	1.1345	1.1345
5	1-9-2024	4-8-2024	3.4115	3.4115
		Highest	3.4115	3.4115

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	5.1797	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Energy	0.1392	1.2510	0.9550	7.5900e-003		0.0962	0.0962		0.0962	0.0962	0.0000	3,818.0090	3,818.0090	0.1367	0.0481	3,835.7584
Mobile	0.8163	3.3267	9.4291	0.0385	3.8324	0.0394	3.8718	1.0317	0.0368	1.0685	0.0000	3,550.7877	3,550.7877	0.1432	0.0000	3,554.3682
Stationary	0.1651	0.7381	0.4208	7.9000e-004		0.0243	0.0243		0.0243	0.0243	0.0000	76.5974	76.5974	0.0107	0.0000	76.8658
Waste						0.0000	0.0000		0.0000	0.0000	288.2066	0.0000	288.2066	17.0325	0.0000	714.0196
Water						0.0000	0.0000		0.0000	0.0000	60.2536	329.4274	389.6810	6.2035	0.1492	589.2332
Total	**6.3003**	**5.3650**	**15.0764**	**0.0471**	**3.8324**	**0.1836**	**4.0160**	**1.0317**	**0.1809**	**1.2126**	**348.4602**	**7,781.8074**	**8,130.2676**	**23.5335**	**0.1973**	**8,777.3988**

2.2 Overall Operational

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	5.1797	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Energy	0.1392	1.2510	0.9550	7.5900e-003		0.0962	0.0962		0.0962	0.0962	0.0000	3,818.0090	3,818.0090	0.1367	0.0481	3,835.7584
Mobile	0.8163	3.3267	9.4291	0.0385	3.8324	0.0394	3.8718	1.0317	0.0368	1.0685	0.0000	3,550.7877	3,550.7877	0.1432	0.0000	3,554.3682
Stationary	0.1651	0.7381	0.4208	7.9000e-004		0.0243	0.0243		0.0243	0.0243	0.0000	76.5974	76.5974	0.0107	0.0000	76.8658
Waste						0.0000	0.0000		0.0000	0.0000	288.2066	0.0000	288.2066	17.0325	0.0000	714.0196
Water						0.0000	0.0000		0.0000	0.0000	60.2536	329.4274	389.6810	6.2035	0.1492	589.2332
Total	**6.3003**	**5.3650**	**15.0764**	**0.0471**	**3.8324**	**0.1836**	**4.0160**	**1.0317**	**0.1809**	**1.2126**	**348.4602**	**7,781.8074**	**8,130.2676**	**23.5335**	**0.1973**	**8,777.3988**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/9/2023	2/3/2023	5	20	
2	Site Preparation	Site Preparation	2/4/2023	2/10/2023	5	5	
3	Grading	Grading	2/11/2023	2/22/2023	5	8	
4	Building Construction	Building Construction	2/23/2023	1/10/2024	5	230	
5	Paving	Paving	1/11/2024	2/5/2024	5	18	
6	Architectural Coating	Architectural Coating	2/6/2024	2/29/2024	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 798; Residential Outdoor: 266; Non-Residential Indoor: 991,500; Non-Residential Outdoor: 330,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	686.00	170.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	137.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**		**9.9800e-003**	**9.9800e-003**		**9.2800e-003**	**9.2800e-003**	**0.0000**	**33.9921**	**33.9921**	**9.5200e-003**	**0.0000**	**34.2301**

3.2 Demolition - 2023

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	3.8000e-004	2.2000e-004	2.7100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0055	1.0055	2.0000e-005	0.0000	1.0060
Total	**3.8000e-004**	**2.2000e-004**	**2.7100e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0055**	**1.0055**	**2.0000e-005**	**0.0000**	**1.0060**

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	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**		**9.9800e-003**	**9.9800e-003**		**9.2800e-003**	**9.2800e-003**	**0.0000**	**33.9920**	**33.9920**	**9.5200e-003**	**0.0000**	**34.2300**

3.2 Demolition - 2023

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	3.8000e-004	2.2000e-004	2.7100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0055	1.0055	2.0000e-005	0.0000	1.0060
Total	**3.8000e-004**	**2.2000e-004**	**2.7100e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0055**	**1.0055**	**2.0000e-005**	**0.0000**	**1.0060**

3.3 Site Preparation - 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					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0452**	**3.1700e-003**	**0.0483**	**0.0248**	**2.9100e-003**	**0.0277**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

3.3 Site Preparation - 2023

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-004	7.0000e-005	8.1000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3017	0.3017	1.0000e-005	0.0000	0.3018
Total	**1.1000e-004**	**7.0000e-005**	**8.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3017**	**0.3017**	**1.0000e-005**	**0.0000**	**0.3018**

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0452**	**3.1700e-003**	**0.0483**	**0.0248**	**2.9100e-003**	**0.0277**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

3.3 Site Preparation - 2023

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-004	7.0000e-005	8.1000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3017	0.3017	1.0000e-005	0.0000	0.3018
Total	**1.1000e-004**	**7.0000e-005**	**8.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3017**	**0.3017**	**1.0000e-005**	**0.0000**	**0.3018**

3.4 Grading - 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					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8400e-003	0.0717	0.0590	1.2000e-004		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	10.4243	10.4243	3.3700e-003	0.0000	10.5085
Total	**6.8400e-003**	**0.0717**	**0.0590**	**1.2000e-004**	**0.0262**	**3.1000e-003**	**0.0293**	**0.0135**	**2.8500e-003**	**0.0163**	**0.0000**	**10.4243**	**10.4243**	**3.3700e-003**	**0.0000**	**10.5085**

3.4 Grading - 2023

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	1.5000e-004	9.0000e-005	1.0900e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4022	0.4022	1.0000e-005	0.0000	0.4024
Total	**1.5000e-004**	**9.0000e-005**	**1.0900e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4022**	**0.4022**	**1.0000e-005**	**0.0000**	**0.4024**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8400e-003	0.0717	0.0590	1.2000e-004		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	10.4242	10.4242	3.3700e-003	0.0000	10.5085
Total	**6.8400e-003**	**0.0717**	**0.0590**	**1.2000e-004**	**0.0262**	**3.1000e-003**	**0.0293**	**0.0135**	**2.8500e-003**	**0.0163**	**0.0000**	**10.4242**	**10.4242**	**3.3700e-003**	**0.0000**	**10.5085**

3.4 Grading - 2023

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	1.5000e-004	9.0000e-005	1.0900e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4022	0.4022	1.0000e-005	0.0000	0.4024
Total	**1.5000e-004**	**9.0000e-005**	**1.0900e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4022**	**0.4022**	**1.0000e-005**	**0.0000**	**0.4024**

3.5 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	0.1746	1.5967	1.8031	2.9900e-003		0.0777	0.0777		0.0731	0.0731	0.0000	257.3033	257.3033	0.0612	0.0000	258.8335
Total	**0.1746**	**1.5967**	**1.8031**	**2.9900e-003**		**0.0777**	**0.0777**		**0.0731**	**0.0731**	**0.0000**	**257.3033**	**257.3033**	**0.0612**	**0.0000**	**258.8335**

3.5 Building Construction - 2023

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	0.0435	1.6979	0.6255	4.7900e-003	0.1233	2.4400e-003	0.1258	0.0357	2.3300e-003	0.0380	0.0000	496.2426	496.2426	0.0660	0.0000	497.8916
Worker	0.1935	0.1134	1.3777	5.6400e-003	0.6017	4.4300e-003	0.6061	0.1601	4.0800e-003	0.1641	0.0000	510.4475	510.4475	9.2700e-003	0.0000	510.6793
Total	**0.2371**	**1.8113**	**2.0032**	**0.0104**	**0.7250**	**6.8700e-003**	**0.7319**	**0.1957**	**6.4100e-003**	**0.2021**	**0.0000**	**1,006.6900**	**1,006.6900**	**0.0752**	**0.0000**	**1,008.5708**

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	0.1746	1.5967	1.8031	2.9900e-003		0.0777	0.0777		0.0731	0.0731	0.0000	257.3030	257.3030	0.0612	0.0000	258.8332
Total	**0.1746**	**1.5967**	**1.8031**	**2.9900e-003**		**0.0777**	**0.0777**		**0.0731**	**0.0731**	**0.0000**	**257.3030**	**257.3030**	**0.0612**	**0.0000**	**258.8332**

3.5 Building Construction - 2023

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	0.0435	1.6979	0.6255	4.7900e-003	0.1233	2.4400e-003	0.1258	0.0357	2.3300e-003	0.0380	0.0000	496.2426	496.2426	0.0660	0.0000	497.8916
Worker	0.1935	0.1134	1.3777	5.6400e-003	0.6017	4.4300e-003	0.6061	0.1601	4.0800e-003	0.1641	0.0000	510.4475	510.4475	9.2700e-003	0.0000	510.6793
Total	**0.2371**	**1.8113**	**2.0032**	**0.0104**	**0.7250**	**6.8700e-003**	**0.7319**	**0.1957**	**6.4100e-003**	**0.2021**	**0.0000**	**1,006.6900**	**1,006.6900**	**0.0752**	**0.0000**	**1,008.5708**

3.5 Building Construction - 2024

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	5.8900e-003	0.0538	0.0647	1.1000e-004		2.4500e-003	2.4500e-003		2.3100e-003	2.3100e-003	0.0000	9.2740	9.2740	2.1900e-003	0.0000	9.3288
Total	**5.8900e-003**	**0.0538**	**0.0647**	**1.1000e-004**		**2.4500e-003**	**2.4500e-003**		**2.3100e-003**	**2.3100e-003**	**0.0000**	**9.2740**	**9.2740**	**2.1900e-003**	**0.0000**	**9.3288**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-003	0.0597	0.0223	1.7000e-004	4.4400e-003	8.0000e-005	4.5300e-003	1.2800e-003	8.0000e-005	1.3700e-003	0.0000	17.7167	17.7167	2.3700e-003	0.0000	17.7761
Worker	6.6300e-003	3.7200e-003	0.0465	2.0000e-004	0.0217	1.6000e-004	0.0218	5.7700e-003	1.5000e-004	5.9100e-003	0.0000	17.6622	17.6622	3.0000e-004	0.0000	17.6698
Total	**8.1300e-003**	**0.0634**	**0.0688**	**3.7000e-004**	**0.0261**	**2.4000e-004**	**0.0264**	**7.0500e-003**	**2.3000e-004**	**7.2800e-003**	**0.0000**	**35.3789**	**35.3789**	**2.6700e-003**	**0.0000**	**35.4458**

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	5.8900e-003	0.0538	0.0647	1.1000e-004		2.4500e-003	2.4500e-003		2.3100e-003	2.3100e-003	0.0000	9.2740	9.2740	2.1900e-003	0.0000	9.3288
Total	**5.8900e-003**	**0.0538**	**0.0647**	**1.1000e-004**		**2.4500e-003**	**2.4500e-003**		**2.3100e-003**	**2.3100e-003**	**0.0000**	**9.2740**	**9.2740**	**2.1900e-003**	**0.0000**	**9.3288**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-003	0.0597	0.0223	1.7000e-004	4.4400e-003	8.0000e-005	4.5300e-003	1.2800e-003	8.0000e-005	1.3700e-003	0.0000	17.7167	17.7167	2.3700e-003	0.0000	17.7761
Worker	6.6300e-003	3.7200e-003	0.0465	2.0000e-004	0.0217	1.6000e-004	0.0218	5.7700e-003	1.5000e-004	5.9100e-003	0.0000	17.6622	17.6622	3.0000e-004	0.0000	17.6698
Total	**8.1300e-003**	**0.0634**	**0.0688**	**3.7000e-004**	**0.0261**	**2.4000e-004**	**0.0264**	**7.0500e-003**	**2.3000e-004**	**7.2800e-003**	**0.0000**	**35.3789**	**35.3789**	**2.6700e-003**	**0.0000**	**35.4458**

3.6 Paving - 2024

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	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9300e-003**	**0.0745**	**0.1100**	**1.7000e-004**		**3.5900e-003**	**3.5900e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.4000e-004	3.0500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1586	1.1586	2.0000e-005	0.0000	1.1591
Total	**4.3000e-004**	**2.4000e-004**	**3.0500e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1586**	**1.1586**	**2.0000e-005**	**0.0000**	**1.1591**

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	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9300e-003**	**0.0745**	**0.1100**	**1.7000e-004**		**3.5900e-003**	**3.5900e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.4000e-004	3.0500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1586	1.1586	2.0000e-005	0.0000	1.1591
Total	**4.3000e-004**	**2.4000e-004**	**3.0500e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1586**	**1.1586**	**2.0000e-005**	**0.0000**	**1.1591**

3.7 Architectural Coating - 2024

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	3.4495					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**3.4511**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.7 Architectural Coating - 2024

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	2.9800e-003	1.6700e-003	0.0209	9.0000e-005	9.7400e-003	7.0000e-005	9.8100e-003	2.5900e-003	7.0000e-005	2.6600e-003	0.0000	7.9364	7.9364	1.4000e-004	0.0000	7.9398
Total	**2.9800e-003**	**1.6700e-003**	**0.0209**	**9.0000e-005**	**9.7400e-003**	**7.0000e-005**	**9.8100e-003**	**2.5900e-003**	**7.0000e-005**	**2.6600e-003**	**0.0000**	**7.9364**	**7.9364**	**1.4000e-004**	**0.0000**	**7.9398**

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	3.4495					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**3.4511**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.7 Architectural Coating - 2024

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	2.9800e-003	1.6700e-003	0.0209	9.0000e-005	9.7400e-003	7.0000e-005	9.8100e-003	2.5900e-003	7.0000e-005	2.6600e-003	0.0000	7.9364	7.9364	1.4000e-004	0.0000	7.9398
Total	**2.9800e-003**	**1.6700e-003**	**0.0209**	**9.0000e-005**	**9.7400e-003**	**7.0000e-005**	**9.8100e-003**	**2.5900e-003**	**7.0000e-005**	**2.6600e-003**	**0.0000**	**7.9364**	**7.9364**	**1.4000e-004**	**0.0000**	**7.9398**

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	0.8163	3.3267	9.4291	0.0385	3.8324	0.0394	3.8718	1.0317	0.0368	1.0685	0.0000	3,550.7877	3,550.7877	0.1432	0.0000	3,554.3682
Unmitigated	0.8163	3.3267	9.4291	0.0385	3.8324	0.0394	3.8718	1.0317	0.0368	1.0685	0.0000	3,550.7877	3,550.7877	0.1432	0.0000	3,554.3682

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	2,110.25	2,501.25	1834.25	4,911,792	4,911,792
General Light Industry	1,831.68	1,831.68	1831.68	5,347,610	5,347,610
General Office Building	0.00	0.00	0.00		
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00		
Total	3,941.93	4,332.93	3,665.93	10,259,403	10,259,403

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 High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
General Light Industry	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
General Office Building	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
High Turnover (Sit Down Restaurant)	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549

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	2,440.0212	2,440.0212	0.1103	0.0228	2,449.5819
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,440.0212	2,440.0212	0.1103	0.0228	2,449.5819
NaturalGas Mitigated	0.1392	1.2510	0.9550	7.5900e-003		0.0962	0.0962		0.0962	0.0962	0.0000	1,377.9879	1,377.9879	0.0264	0.0253	1,386.1766
NaturalGas Unmitigated	0.1392	1.2510	0.9550	7.5900e-003		0.0962	0.0962		0.0962	0.0962	0.0000	1,377.9879	1,377.9879	0.0264	0.0253	1,386.1766

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	5.02e+006	0.0271	0.2313	0.0984	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	267.8862	267.8862	5.1300e-003	4.9100e-003	269.4781
General Light Industry	1.4256e+007	0.0769	0.6988	0.5870	4.1900e-003		0.0531	0.0531		0.0531	0.0531	0.0000	760.7545	760.7545	0.0146	0.0140	765.2752
General Office Building	1.00516e+006	5.4200e-003	0.0493	0.0414	3.0000e-004		3.7400e-003	3.7400e-003		3.7400e-003	3.7400e-003	0.0000	53.6392	53.6392	1.0300e-003	9.8000e-004	53.9579
High Turnover (Sit Down Restaurant)	5.54136e+006	0.0299	0.2716	0.2282	1.6300e-003		0.0206	0.0206		0.0206	0.0206	0.0000	295.7081	295.7081	5.6700e-003	5.4200e-003	297.4653
Total		**0.1392**	**1.2510**	**0.9550**	**7.6000e-003**		**0.0962**	**0.0962**		**0.0962**	**0.0962**	**0.0000**	**1,377.9879**	**1,377.9879**	**0.0264**	**0.0253**	**1,386.1766**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	5.02e+006	0.0271	0.2313	0.0984	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	267.8862	267.8862	5.1300e-003	4.9100e-003	269.4781
General Light Industry	1.4256e+007	0.0769	0.6988	0.5870	4.1900e-003		0.0531	0.0531		0.0531	0.0531	0.0000	760.7545	760.7545	0.0146	0.0140	765.2752
General Office Building	1.00516e+006	5.4200e-003	0.0493	0.0414	3.0000e-004		3.7400e-003	3.7400e-003		3.7400e-003	3.7400e-003	0.0000	53.6392	53.6392	1.0300e-003	9.8000e-004	53.9579
High Turnover (Sit Down Restaurant)	5.54136e+006	0.0299	0.2716	0.2282	1.6300e-003		0.0206	0.0206		0.0206	0.0206	0.0000	295.7081	295.7081	5.6700e-003	5.4200e-003	297.4653
Total		**0.1392**	**1.2510**	**0.9550**	**7.6000e-003**		**0.0962**	**0.0962**		**0.0962**	**0.0962**	**0.0000**	**1,377.9879**	**1,377.9879**	**0.0264**	**0.0253**	**1,386.1766**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.42764e+006	706.2296	0.0319	6.6100e-003	708.9968
General Light Industry	4.35456e+006	1,266.7914	0.0573	0.0119	1,271.7551
General Office Building	648960	188.7899	8.5400e-003	1.7700e-003	189.5296
High Turnover (Sit Down Restaurant)	956340	278.2103	0.0126	2.6000e-003	279.3004
Total		**2,440.0212**	**0.1103**	**0.0228**	**2,449.5819**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.42764e+006	706.2296	0.0319	6.6100e-003	708.9968
General Light Industry	4.35456e+006	1,266.7914	0.0573	0.0119	1,271.7551
General Office Building	648960	188.7899	8.5400e-003	1.7700e-003	189.5296
High Turnover (Sit Down Restaurant)	956340	278.2103	0.0126	2.6000e-003	279.3004
Total		**2,440.0212**	**0.1103**	**0.0228**	**2,449.5819**

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	5.1797	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Unmitigated	5.1797	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536

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	0.3450					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.7061					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1286	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Total	**5.1797**	**0.0492**	**4.2715**	**2.3000e-004**		**0.0237**	**0.0237**		**0.0237**	**0.0237**	**0.0000**	**6.9859**	**6.9859**	**6.7100e-003**	**0.0000**	**7.1536**

6.2 Area by SubCategory

Mitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Architectural Coating	0.3450					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.7061					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1286	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Total	**5.1797**	**0.0492**	**4.2715**	**2.3000e-004**		**0.0237**	**0.0237**		**0.0237**	**0.0237**	**0.0000**	**6.9859**	**6.9859**	**6.7100e-003**	**0.0000**	**7.1536**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	389.6810	6.2035	0.1492	589.2332
Unmitigated	389.6810	6.2035	0.1492	589.2332

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	37.4636 / 23.6183	94.9056	1.2245	0.0296	134.3394
General Light Industry	133.2 / 0	251.9313	4.3498	0.1045	391.8013
General Office Building	9.24215 / 5.66455	23.2480	0.3021	7.3000e-003	32.9755
High Turnover (Sit Down Restaurant)	10.0166 / 0.639358	19.5962	0.3271	7.8600e-003	30.1169
Total		**389.6810**	**6.2035**	**0.1492**	**589.2331**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	37.4636 / 23.6183	94.9056	1.2245	0.0296	134.3394
General Light Industry	133.2 / 0	251.9313	4.3498	0.1045	391.8013
General Office Building	9.24215 / 5.66455	23.2480	0.3021	7.3000e-003	32.9755
High Turnover (Sit Down Restaurant)	10.0166 / 0.639358	19.5962	0.3271	7.8600e-003	30.1169
Total		**389.6810**	**6.2035**	**0.1492**	**589.2331**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	288.2066	17.0325	0.0000	714.0196
Unmitigated	288.2066	17.0325	0.0000	714.0196

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	264.5	53.6911	3.1731	0.0000	133.0175
General Light Industry	714.24	144.9843	8.5683	0.0000	359.1924
General Office Building	48.36	9.8166	0.5802	0.0000	24.3203
High Turnover (Sit Down Restaurant)	392.7	79.7146	4.7110	0.0000	197.4894
Total		**288.2066**	**17.0325**	**0.0000**	**714.0196**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	264.5	53.6911	3.1731	0.0000	133.0175
General Light Industry	714.24	144.9843	8.5683	0.0000	359.1924
General Office Building	48.36	9.8166	0.5802	0.0000	24.3203
High Turnover (Sit Down Restaurant)	392.7	79.7146	4.7110	0.0000	197.4894
Total		**288.2066**	**17.0325**	**0.0000**	**714.0196**

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
Emergency Generator	3	1	50	1341	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	

10.1 Stationary Sources

Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.1651	0.7381	0.4208	7.9000e-004		0.0243	0.0243		0.0243	0.0243	0.0000	76.5974	76.5974	0.0107	0.0000	76.8658
Total	**0.1651**	**0.7381**	**0.4208**	**7.9000e-004**		**0.0243**	**0.0243**		**0.0243**	**0.0243**	**0.0000**	**76.5974**	**76.5974**	**0.0107**	**0.0000**	**76.8658**

11.0 Vegetation

Potrero Yard Operational.v1 (Tier 4 Diesel Generators)

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	52.00	1000sqft	0.00	52,000.00	0
General Light Industry	576.00	1000sqft	0.00	576,000.00	0
High Turnover (Sit Down Restaurant)	33.00	1000sqft	0.00	33,000.00	0
Apartments High Rise	575.00	Dwelling Unit	4.40	544,000.00	1645

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	4.6	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2026
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

Potrero Yard Operational.v1 (Tier 4 Diesel Generators) - San Francisco County, Annual

Project Characteristics -

Land Use - Land uses are consistent with the project Notice of Preparation and Travel Demand study.

Construction Phase - Construction emissions calculated outside of CalEEMod. The default assumptions used as a placeholder to be able to run the model.

Vehicle Trips - Trip rates based on Travel Demand report. Office trips included in Light Industry and Restaurant trips included in Residential. CalEEMod used to calculate total VMT, then emissions were recalculated outside of CalEEMod using EMFAC2017.

Woodstoves - Assume no woodstove or fireplaces.

Stationary Sources - Emergency Generators and Fire Pumps - The proposed project would include up to three new diesel backup generators with a maximum power of 1,000 kilowatts.

Stationary Sources - Emergency Generators and Fire Pumps EF - Mitigation Measure: EPA Tier 4 Final PM emission standard for emergency generators.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Residential_Exterior	367,200.00	266.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,101,600.00	798.00
tblAreaCoating	Area_Residential_Exterior	367200	266
tblAreaCoating	Area_Residential_Interior	1101600	798
tblFireplaces	NumberGas	86.25	0.00
tblFireplaces	NumberNoFireplace	23.00	0.00
tblFireplaces	NumberWood	97.75	0.00
tblLandUse	LandUseSquareFeet	575,000.00	544,000.00
tblLandUse	LotAcreage	1.19	0.00
tblLandUse	LotAcreage	13.22	0.00
tblLandUse	LotAcreage	0.76	0.00
tblLandUse	LotAcreage	9.27	4.40
tblStationaryGeneratorsPumpsEF	PM10_EF	0.15	0.02
tblStationaryGeneratorsPumpsEF	PM2_5_EF	0.15	0.02
tblVehicleTrips	ST_TR	4.98	4.35
tblVehicleTrips	ST_TR	1.32	3.18
tblVehicleTrips	ST_TR	2.46	0.00

tblVehicleTrips	ST_TR	158.37	0.00
tblVehicleTrips	SU_TR	3.65	3.19
tblVehicleTrips	SU_TR	0.68	3.18
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	SU_TR	131.84	0.00
tblVehicleTrips	WD_TR	4.20	3.67
tblVehicleTrips	WD_TR	6.97	3.18
tblVehicleTrips	WD_TR	11.03	0.00
tblVehicleTrips	WD_TR	127.15	0.00
tblWoodstoves	NumberCatalytic	11.50	0.00
tblWoodstoves	NumberNoncatalytic	11.50	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					
2023	0.4485	3.7637	4.1120	0.0140	0.7984	0.1008	0.8992	0.2346	0.0946	0.3291	0.0000	1,318.4817	1,318.4817	0.1521	0.0000	1,322.2834
2024	3.4765	0.2045	0.2837	7.7000e-004	0.0373	6.9100e-003	0.0442	0.0100	6.4700e-003	0.0165	0.0000	70.7881	70.7881	9.7900e-003	0.0000	71.0328
Maximum	**3.4765**	**3.7637**	**4.1120**	**0.0140**	**0.7984**	**0.1008**	**0.8992**	**0.2346**	**0.0946**	**0.3291**	**0.0000**	**1,318.4817**	**1,318.4817**	**0.1521**	**0.0000**	**1,322.2834**

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					
2023	0.4485	3.7637	4.1120	0.0140	0.7984	0.1008	0.8992	0.2346	0.0946	0.3291	0.0000	1,318.4813	1,318.4813	0.1521	0.0000	1,322.2830
2024	3.4765	0.2045	0.2837	7.7000e-004	0.0373	6.9100e-003	0.0442	0.0100	6.4700e-003	0.0165	0.0000	70.7880	70.7880	9.7900e-003	0.0000	71.0327
Maximum	**3.4765**	**3.7637**	**4.1120**	**0.0140**	**0.7984**	**0.1008**	**0.8992**	**0.2346**	**0.0946**	**0.3291**	**0.0000**	**1,318.4813**	**1,318.4813**	**0.1521**	**0.0000**	**1,322.2830**

	ROG	NOx	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	1-9-2023	4-8-2023	0.9369	0.9369
2	4-9-2023	7-8-2023	1.1088	1.1088
3	7-9-2023	10-8-2023	1.1225	1.1225
4	10-9-2023	1-8-2024	1.1345	1.1345
5	1-9-2024	4-8-2024	3.4115	3.4115
		Highest	3.4115	3.4115

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	5.1797	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Energy	0.1392	1.2510	0.9550	7.5900e-003		0.0962	0.0962		0.0962	0.0962	0.0000	3,818.0090	3,818.0090	0.1367	0.0481	3,835.7584
Mobile	0.8163	3.3267	9.4291	0.0385	3.8324	0.0394	3.8718	1.0317	0.0368	1.0685	0.0000	3,550.7877	3,550.7877	0.1432	0.0000	3,554.3682
Stationary	0.1651	0.7381	0.4208	7.9000e-004		3.6200e-003	3.6200e-003		3.6200e-003	3.6200e-003	0.0000	76.5974	76.5974	0.0107	0.0000	76.8658
Waste						0.0000	0.0000		0.0000	0.0000	288.2066	0.0000	288.2066	17.0325	0.0000	714.0196
Water						0.0000	0.0000		0.0000	0.0000	60.2536	329.4274	389.6810	6.2035	0.1492	589.2332
Total	**6.3003**	**5.3650**	**15.0764**	**0.0471**	**3.8324**	**0.1629**	**3.9953**	**1.0317**	**0.1603**	**1.1920**	**348.4602**	**7,781.8074**	**8,130.2676**	**23.5335**	**0.1973**	**8,777.3988**

2.2 Overall Operational

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	5.1797	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Energy	0.1392	1.2510	0.9550	7.5900e-003		0.0962	0.0962		0.0962	0.0962	0.0000	3,818.0090	3,818.0090	0.1367	0.0481	3,835.7584
Mobile	0.8163	3.3267	9.4291	0.0385	3.8324	0.0394	3.8718	1.0317	0.0368	1.0685	0.0000	3,550.7877	3,550.7877	0.1432	0.0000	3,554.3682
Stationary	0.1651	0.7381	0.4208	7.9000e-004		3.6200e-003	3.6200e-003		3.6200e-003	3.6200e-003	0.0000	76.5974	76.5974	0.0107	0.0000	76.8658
Waste						0.0000	0.0000		0.0000	0.0000	288.2066	0.0000	288.2066	17.0325	0.0000	714.0196
Water						0.0000	0.0000		0.0000	0.0000	60.2536	329.4274	389.6810	6.2035	0.1492	589.2332
Total	**6.3003**	**5.3650**	**15.0764**	**0.0471**	**3.8324**	**0.1629**	**3.9953**	**1.0317**	**0.1603**	**1.1920**	**348.4602**	**7,781.8074**	**8,130.2676**	**23.5335**	**0.1973**	**8,777.3988**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/9/2023	2/3/2023	5	20	
2	Site Preparation	Site Preparation	2/4/2023	2/10/2023	5	5	
3	Grading	Grading	2/11/2023	2/22/2023	5	8	
4	Building Construction	Building Construction	2/23/2023	1/10/2024	5	230	
5	Paving	Paving	1/11/2024	2/5/2024	5	18	
6	Architectural Coating	Architectural Coating	2/6/2024	2/29/2024	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 798; Residential Outdoor: 266; Non-Residential Indoor: 991,500; Non-Residential Outdoor: 330,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	686.00	170.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	137.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**		**9.9800e-003**	**9.9800e-003**		**9.2800e-003**	**9.2800e-003**	**0.0000**	**33.9921**	**33.9921**	**9.5200e-003**	**0.0000**	**34.2301**

3.2 Demolition - 2023

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	3.8000e-004	2.2000e-004	2.7100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0055	1.0055	2.0000e-005	0.0000	1.0060
Total	**3.8000e-004**	**2.2000e-004**	**2.7100e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0055**	**1.0055**	**2.0000e-005**	**0.0000**	**1.0060**

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	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**		**9.9800e-003**	**9.9800e-003**		**9.2800e-003**	**9.2800e-003**	**0.0000**	**33.9920**	**33.9920**	**9.5200e-003**	**0.0000**	**34.2300**

3.2 Demolition - 2023

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	3.8000e-004	2.2000e-004	2.7100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0055	1.0055	2.0000e-005	0.0000	1.0060
Total	**3.8000e-004**	**2.2000e-004**	**2.7100e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0055**	**1.0055**	**2.0000e-005**	**0.0000**	**1.0060**

3.3 Site Preparation - 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					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0452**	**3.1700e-003**	**0.0483**	**0.0248**	**2.9100e-003**	**0.0277**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

3.3 Site Preparation - 2023

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-004	7.0000e-005	8.1000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3017	0.3017	1.0000e-005	0.0000	0.3018
Total	**1.1000e-004**	**7.0000e-005**	**8.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3017**	**0.3017**	**1.0000e-005**	**0.0000**	**0.3018**

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0452**	**3.1700e-003**	**0.0483**	**0.0248**	**2.9100e-003**	**0.0277**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

3.3 Site Preparation - 2023

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-004	7.0000e-005	8.1000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3017	0.3017	1.0000e-005	0.0000	0.3018
Total	**1.1000e-004**	**7.0000e-005**	**8.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3017**	**0.3017**	**1.0000e-005**	**0.0000**	**0.3018**

3.4 Grading - 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					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8400e-003	0.0717	0.0590	1.2000e-004		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	10.4243	10.4243	3.3700e-003	0.0000	10.5085
Total	**6.8400e-003**	**0.0717**	**0.0590**	**1.2000e-004**	**0.0262**	**3.1000e-003**	**0.0293**	**0.0135**	**2.8500e-003**	**0.0163**	**0.0000**	**10.4243**	**10.4243**	**3.3700e-003**	**0.0000**	**10.5085**

3.4 Grading - 2023

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	1.5000e-004	9.0000e-005	1.0900e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4022	0.4022	1.0000e-005	0.0000	0.4024
Total	**1.5000e-004**	**9.0000e-005**	**1.0900e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4022**	**0.4022**	**1.0000e-005**	**0.0000**	**0.4024**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8400e-003	0.0717	0.0590	1.2000e-004		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	10.4242	10.4242	3.3700e-003	0.0000	10.5085
Total	**6.8400e-003**	**0.0717**	**0.0590**	**1.2000e-004**	**0.0262**	**3.1000e-003**	**0.0293**	**0.0135**	**2.8500e-003**	**0.0163**	**0.0000**	**10.4242**	**10.4242**	**3.3700e-003**	**0.0000**	**10.5085**

3.4 Grading - 2023

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	1.5000e-004	9.0000e-005	1.0900e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4022	0.4022	1.0000e-005	0.0000	0.4024
Total	**1.5000e-004**	**9.0000e-005**	**1.0900e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4022**	**0.4022**	**1.0000e-005**	**0.0000**	**0.4024**

3.5 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	0.1746	1.5967	1.8031	2.9900e-003		0.0777	0.0777		0.0731	0.0731	0.0000	257.3033	257.3033	0.0612	0.0000	258.8335
Total	**0.1746**	**1.5967**	**1.8031**	**2.9900e-003**		**0.0777**	**0.0777**		**0.0731**	**0.0731**	**0.0000**	**257.3033**	**257.3033**	**0.0612**	**0.0000**	**258.8335**

3.5 Building Construction - 2023

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	0.0435	1.6979	0.6255	4.7900e-003	0.1233	2.4400e-003	0.1258	0.0357	2.3300e-003	0.0380	0.0000	496.2426	496.2426	0.0660	0.0000	497.8916
Worker	0.1935	0.1134	1.3777	5.6400e-003	0.6017	4.4300e-003	0.6061	0.1601	4.0800e-003	0.1641	0.0000	510.4475	510.4475	9.2700e-003	0.0000	510.6793
Total	**0.2371**	**1.8113**	**2.0032**	**0.0104**	**0.7250**	**6.8700e-003**	**0.7319**	**0.1957**	**6.4100e-003**	**0.2021**	**0.0000**	**1,006.6900**	**1,006.6900**	**0.0752**	**0.0000**	**1,008.5708**

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	0.1746	1.5967	1.8031	2.9900e-003		0.0777	0.0777		0.0731	0.0731	0.0000	257.3030	257.3030	0.0612	0.0000	258.8332
Total	**0.1746**	**1.5967**	**1.8031**	**2.9900e-003**		**0.0777**	**0.0777**		**0.0731**	**0.0731**	**0.0000**	**257.3030**	**257.3030**	**0.0612**	**0.0000**	**258.8332**

3.5 Building Construction - 2023

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	0.0435	1.6979	0.6255	4.7900e-003	0.1233	2.4400e-003	0.1258	0.0357	2.3300e-003	0.0380	0.0000	496.2426	496.2426	0.0660	0.0000	497.8916
Worker	0.1935	0.1134	1.3777	5.6400e-003	0.6017	4.4300e-003	0.6061	0.1601	4.0800e-003	0.1641	0.0000	510.4475	510.4475	9.2700e-003	0.0000	510.6793
Total	**0.2371**	**1.8113**	**2.0032**	**0.0104**	**0.7250**	**6.8700e-003**	**0.7319**	**0.1957**	**6.4100e-003**	**0.2021**	**0.0000**	**1,006.6900**	**1,006.6900**	**0.0752**	**0.0000**	**1,008.5708**

3.5 Building Construction - 2024

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	5.8900e-003	0.0538	0.0647	1.1000e-004		2.4500e-003	2.4500e-003		2.3100e-003	2.3100e-003	0.0000	9.2740	9.2740	2.1900e-003	0.0000	9.3288
Total	**5.8900e-003**	**0.0538**	**0.0647**	**1.1000e-004**		**2.4500e-003**	**2.4500e-003**		**2.3100e-003**	**2.3100e-003**	**0.0000**	**9.2740**	**9.2740**	**2.1900e-003**	**0.0000**	**9.3288**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-003	0.0597	0.0223	1.7000e-004	4.4400e-003	8.0000e-005	4.5300e-003	1.2800e-003	8.0000e-005	1.3700e-003	0.0000	17.7167	17.7167	2.3700e-003	0.0000	17.7761
Worker	6.6300e-003	3.7200e-003	0.0465	2.0000e-004	0.0217	1.6000e-004	0.0218	5.7700e-003	1.5000e-004	5.9100e-003	0.0000	17.6622	17.6622	3.0000e-004	0.0000	17.6698
Total	**8.1300e-003**	**0.0634**	**0.0688**	**3.7000e-004**	**0.0261**	**2.4000e-004**	**0.0264**	**7.0500e-003**	**2.3000e-004**	**7.2800e-003**	**0.0000**	**35.3789**	**35.3789**	**2.6700e-003**	**0.0000**	**35.4458**

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	5.8900e-003	0.0538	0.0647	1.1000e-004		2.4500e-003	2.4500e-003		2.3100e-003	2.3100e-003	0.0000	9.2740	9.2740	2.1900e-003	0.0000	9.3288
Total	**5.8900e-003**	**0.0538**	**0.0647**	**1.1000e-004**		**2.4500e-003**	**2.4500e-003**		**2.3100e-003**	**2.3100e-003**	**0.0000**	**9.2740**	**9.2740**	**2.1900e-003**	**0.0000**	**9.3288**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-003	0.0597	0.0223	1.7000e-004	4.4400e-003	8.0000e-005	4.5300e-003	1.2800e-003	8.0000e-005	1.3700e-003	0.0000	17.7167	17.7167	2.3700e-003	0.0000	17.7761
Worker	6.6300e-003	3.7200e-003	0.0465	2.0000e-004	0.0217	1.6000e-004	0.0218	5.7700e-003	1.5000e-004	5.9100e-003	0.0000	17.6622	17.6622	3.0000e-004	0.0000	17.6698
Total	**8.1300e-003**	**0.0634**	**0.0688**	**3.7000e-004**	**0.0261**	**2.4000e-004**	**0.0264**	**7.0500e-003**	**2.3000e-004**	**7.2800e-003**	**0.0000**	**35.3789**	**35.3789**	**2.6700e-003**	**0.0000**	**35.4458**

3.6 Paving - 2024

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	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9300e-003**	**0.0745**	**0.1100**	**1.7000e-004**		**3.5900e-003**	**3.5900e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.4000e-004	3.0500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1586	1.1586	2.0000e-005	0.0000	1.1591
Total	**4.3000e-004**	**2.4000e-004**	**3.0500e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1586**	**1.1586**	**2.0000e-005**	**0.0000**	**1.1591**

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	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9300e-003**	**0.0745**	**0.1100**	**1.7000e-004**		**3.5900e-003**	**3.5900e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.4000e-004	3.0500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1586	1.1586	2.0000e-005	0.0000	1.1591
Total	**4.3000e-004**	**2.4000e-004**	**3.0500e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1586**	**1.1586**	**2.0000e-005**	**0.0000**	**1.1591**

3.7 Architectural Coating - 2024

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	3.4495					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**3.4511**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.7 Architectural Coating - 2024

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	2.9800e-003	1.6700e-003	0.0209	9.0000e-005	9.7400e-003	7.0000e-005	9.8100e-003	2.5900e-003	7.0000e-005	2.6600e-003	0.0000	7.9364	7.9364	1.4000e-004	0.0000	7.9398
Total	**2.9800e-003**	**1.6700e-003**	**0.0209**	**9.0000e-005**	**9.7400e-003**	**7.0000e-005**	**9.8100e-003**	**2.5900e-003**	**7.0000e-005**	**2.6600e-003**	**0.0000**	**7.9364**	**7.9364**	**1.4000e-004**	**0.0000**	**7.9398**

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	3.4495					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**3.4511**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.7 Architectural Coating - 2024

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	2.9800e-003	1.6700e-003	0.0209	9.0000e-005	9.7400e-003	7.0000e-005	9.8100e-003	2.5900e-003	7.0000e-005	2.6600e-003	0.0000	7.9364	7.9364	1.4000e-004	0.0000	7.9398
Total	**2.9800e-003**	**1.6700e-003**	**0.0209**	**9.0000e-005**	**9.7400e-003**	**7.0000e-005**	**9.8100e-003**	**2.5900e-003**	**7.0000e-005**	**2.6600e-003**	**0.0000**	**7.9364**	**7.9364**	**1.4000e-004**	**0.0000**	**7.9398**

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	0.8163	3.3267	9.4291	0.0385	3.8324	0.0394	3.8718	1.0317	0.0368	1.0685	0.0000	3,550.7877	3,550.7877	0.1432	0.0000	3,554.3682
Unmitigated	0.8163	3.3267	9.4291	0.0385	3.8324	0.0394	3.8718	1.0317	0.0368	1.0685	0.0000	3,550.7877	3,550.7877	0.1432	0.0000	3,554.3682

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	2,110.25	2,501.25	1834.25	4,911,792	4,911,792
General Light Industry	1,831.68	1,831.68	1831.68	5,347,610	5,347,610
General Office Building	0.00	0.00	0.00		
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00		
Total	3,941.93	4,332.93	3,665.93	10,259,403	10,259,403

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 High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
General Light Industry	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
General Office Building	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
High Turnover (Sit Down Restaurant)	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549

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	2,440.0212	2,440.0212	0.1103	0.0228	2,449.5819
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,440.0212	2,440.0212	0.1103	0.0228	2,449.5819
NaturalGas Mitigated	0.1392	1.2510	0.9550	7.5900e-003		0.0962	0.0962		0.0962	0.0962	0.0000	1,377.9879	1,377.9879	0.0264	0.0253	1,386.1766
NaturalGas Unmitigated	0.1392	1.2510	0.9550	7.5900e-003		0.0962	0.0962		0.0962	0.0962	0.0000	1,377.9879	1,377.9879	0.0264	0.0253	1,386.1766

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	5.02e+006	0.0271	0.2313	0.0984	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	267.8862	267.8862	5.1300e-003	4.9100e-003	269.4781
General Light Industry	1.4256e+007	0.0769	0.6988	0.5870	4.1900e-003		0.0531	0.0531		0.0531	0.0531	0.0000	760.7545	760.7545	0.0146	0.0140	765.2752
General Office Building	1.00516e+006	5.4200e-003	0.0493	0.0414	3.0000e-004		3.7400e-003	3.7400e-003		3.7400e-003	3.7400e-003	0.0000	53.6392	53.6392	1.0300e-003	9.8000e-004	53.9579
High Turnover (Sit Down Restaurant)	5.54136e+006	0.0299	0.2716	0.2282	1.6300e-003		0.0206	0.0206		0.0206	0.0206	0.0000	295.7081	295.7081	5.6700e-003	5.4200e-003	297.4653
Total		**0.1392**	**1.2510**	**0.9550**	**7.6000e-003**		**0.0962**	**0.0962**		**0.0962**	**0.0962**	**0.0000**	**1,377.9879**	**1,377.9879**	**0.0264**	**0.0253**	**1,386.1766**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	5.02e+006	0.0271	0.2313	0.0984	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	267.8862	267.8862	5.1300e-003	4.9100e-003	269.4781
General Light Industry	1.4256e+007	0.0769	0.6988	0.5870	4.1900e-003		0.0531	0.0531		0.0531	0.0531	0.0000	760.7545	760.7545	0.0146	0.0140	765.2752
General Office Building	1.00516e+006	5.4200e-003	0.0493	0.0414	3.0000e-004		3.7400e-003	3.7400e-003		3.7400e-003	3.7400e-003	0.0000	53.6392	53.6392	1.0300e-003	9.8000e-004	53.9579
High Turnover (Sit Down Restaurant)	5.54136e+006	0.0299	0.2716	0.2282	1.6300e-003		0.0206	0.0206		0.0206	0.0206	0.0000	295.7081	295.7081	5.6700e-003	5.4200e-003	297.4653
Total		**0.1392**	**1.2510**	**0.9550**	**7.6000e-003**		**0.0962**	**0.0962**		**0.0962**	**0.0962**	**0.0000**	**1,377.9879**	**1,377.9879**	**0.0264**	**0.0253**	**1,386.1766**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.42764e+006	706.2296	0.0319	6.6100e-003	708.9968
General Light Industry	4.35456e+006	1,266.7914	0.0573	0.0119	1,271.7551
General Office Building	648960	188.7899	8.5400e-003	1.7700e-003	189.5296
High Turnover (Sit Down Restaurant)	956340	278.2103	0.0126	2.6000e-003	279.3004
Total		**2,440.0212**	**0.1103**	**0.0228**	**2,449.5819**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.42764e+006	706.2296	0.0319	6.6100e-003	708.9968
General Light Industry	4.35456e+006	1,266.7914	0.0573	0.0119	1,271.7551
General Office Building	648960	188.7899	8.5400e-003	1.7700e-003	189.5296
High Turnover (Sit Down Restaurant)	956340	278.2103	0.0126	2.6000e-003	279.3004
Total		**2,440.0212**	**0.1103**	**0.0228**	**2,449.5819**

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	5.1797	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Unmitigated	5.1797	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536

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	0.3450					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.7061					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1286	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Total	**5.1797**	**0.0492**	**4.2715**	**2.3000e-004**		**0.0237**	**0.0237**		**0.0237**	**0.0237**	**0.0000**	**6.9859**	**6.9859**	**6.7100e-003**	**0.0000**	**7.1536**

6.2 Area by SubCategory

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	0.3450					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.7061					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1286	0.0492	4.2715	2.3000e-004		0.0237	0.0237		0.0237	0.0237	0.0000	6.9859	6.9859	6.7100e-003	0.0000	7.1536
Total	**5.1797**	**0.0492**	**4.2715**	**2.3000e-004**		**0.0237**	**0.0237**		**0.0237**	**0.0237**	**0.0000**	**6.9859**	**6.9859**	**6.7100e-003**	**0.0000**	**7.1536**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	389.6810	6.2035	0.1492	589.2332
Unmitigated	389.6810	6.2035	0.1492	589.2332

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	37.4636 / 23.6183	94.9056	1.2245	0.0296	134.3394
General Light Industry	133.2 / 0	251.9313	4.3498	0.1045	391.8013
General Office Building	9.24215 / 5.66455	23.2480	0.3021	7.3000e-003	32.9755
High Turnover (Sit Down Restaurant)	10.0166 / 0.639358	19.5962	0.3271	7.8600e-003	30.1169
Total		**389.6810**	**6.2035**	**0.1492**	**589.2331**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	37.4636 / 23.6183	94.9056	1.2245	0.0296	134.3394
General Light Industry	133.2 / 0	251.9313	4.3498	0.1045	391.8013
General Office Building	9.24215 / 5.66455	23.2480	0.3021	7.3000e-003	32.9755
High Turnover (Sit Down Restaurant)	10.0166 / 0.639358	19.5962	0.3271	7.8600e-003	30.1169
Total		**389.6810**	**6.2035**	**0.1492**	**589.2331**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	288.2066	17.0325	0.0000	714.0196
Unmitigated	288.2066	17.0325	0.0000	714.0196

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	264.5	53.6911	3.1731	0.0000	133.0175
General Light Industry	714.24	144.9843	8.5683	0.0000	359.1924
General Office Building	48.36	9.8166	0.5802	0.0000	24.3203
High Turnover (Sit Down Restaurant)	392.7	79.7146	4.7110	0.0000	197.4894
Total		**288.2066**	**17.0325**	**0.0000**	**714.0196**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	264.5	53.6911	3.1731	0.0000	133.0175
General Light Industry	714.24	144.9843	8.5683	0.0000	359.1924
General Office Building	48.36	9.8166	0.5802	0.0000	24.3203
High Turnover (Sit Down Restaurant)	392.7	79.7146	4.7110	0.0000	197.4894
Total		**288.2066**	**17.0325**	**0.0000**	**714.0196**

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
Emergency Generator	3	1	50	1341	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.1651	0.7381	0.4208	7.9000e-004		3.6200e-003	3.6200e-003		3.6200e-003	3.6200e-003	0.0000	76.5974	76.5974	0.0107	0.0000	76.8658
Total	**0.1651**	**0.7381**	**0.4208**	**7.9000e-004**		**3.6200e-003**	**3.6200e-003**		**3.6200e-003**	**3.6200e-003**	**0.0000**	**76.5974**	**76.5974**	**0.0107**	**0.0000**	**76.8658**

11.0 Vegetation

Potrero Yard Modernization Project
On-Road Criteria Air Pollutant Emissions

Unmitigated On-Road Criteria Air pollutant Emissions

Summart of Input Paramters

Scenario	Land Use	Annual VMT[1]	Daily VMT	Daily Trips	Fleet Mix	
					LDA	MHD
Existing	General Light Industry	3,374,459	9,245	1,156	95%	5%
Project	General Light Industry	5,347,610	14,651	2,109	95%	5%
Project	Apartments High Rise	4,911,792	13,457	1,833	95%	5%

Notes: VMT = vehicle miles travelled; LDA = light-duty autmobile; MHD = medium-heavy-duty truck

[1] Annual VMT estimated using CalEEMod.

Running Exhaust Emissions (pounds/day)

Scenario	Land Use	NOx	PM2.5	PM10	ROG
Existing	General Light Industry	4.24	0.12	0.13	0.49
Project	General Light Industry	3.24	0.06	0.06	0.21
Project	Apartments High Rise	2.98	0.05	0.05	0.19

Idling Emissions (pounds/day)

Scenario	Land Use	NOx	PM2.5	PM10	ROG
Existing	General Light Industry	1.55	0.00	0.00	0.02
Project	General Light Industry	1.70	0.00	0.00	0.02
Project	Apartments High Rise	1.48	0.00	0.00	0.02

Tire Wear Emissions (pounds/day)

Scenario	Land Use	NOx	PM2.5	PM10	ROG
Existing	General Light Industry	0.00	0.04	0.17	0.00
Project	General Light Industry	0.00	0.07	0.26	0.00
Project	Apartments High Rise	0.00	0.06	0.24	0.00

Brake Wear Emissions (pounds/day)

Scenario	Land Use	NOx	PM2.5	PM10	ROG
Existing	General Light Industry	0.00	0.36	0.84	0.00
Project	General Light Industry	0.00	0.57	1.34	0.00
Project	Apartments High Rise	0.00	0.53	1.23	0.00

Resuspended Dust Emissions (pounds/day)

Scenario	Land Use	NOx	PM2.5	PM10	ROG
Existing	General Light Industry		0.48	3.21	
Project	General Light Industry		0.63	4.22	
Project	Apartments High Rise		0.58	3.88	

Total Emissions (pounds/day)

Scenario	Land Use	NOx	PM2.5	PM10	ROG
Existing	General Light Industry	5.79	1.01	4.36	0.51
Project	General Light Industry	3.24	1.33	5.88	0.23
Project	Apartments High Rise	4.45	1.22	5.40	0.21

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: SAN FRANCISCO
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operat

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX
SAN FRANCISCO	2020	LDA	Aggregated	Aggregated	GAS	154153	5467924	725649	0.049	0.000	0.002	0.000	0.002	0.016	0.002	0.000	0.008	0.037	0.014	0.000
SAN FRANCISCO	2020	MHDT	Aggregated	Aggregated	DSL	3806	200119	34169	3.238	12.160	0.084	0.031	0.003	0.056	0.088	0.033	0.012	0.130	0.212	0.160

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: SAN FRANCISCO
Calendar Year: 2026
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX
SAN FRANCISCO	2026	LDA	Aggregated	Aggregated	GAS	168431	5512785	795306	0.026	0.000	0.001	0.000	0.002	0.016	0.002	0.000	0.008	0.037	0.006	0.000
SAN FRANCISCO	2026	MHDT	Aggregated	Aggregated	DSL	5101	274129	44892	1.521	7.313	0.007	0.005	0.003	0.056	0.007	0.005	0.012	0.130	0.011	0.103

Appendix G-4

Air Dispersion Modeling and Health Risk Assessment Calculations
and Supporting Documentation

Overview: Includes AERMOD source input summary files; unit-emission contouring results at the Maximally Exposed Individual Resident (MEIR); local on-road emission rate calculations during construction and operation; and unit-emission conversion factors for each source of air pollution. Supporting documentation also includes as summary of traffic volumes estimated on roadway segments by Fehr and Peers for light-duty vehicles, trucks, and buses, as well as EMFAC2017 emissions factors used to calculate on-road vehicle emissions.

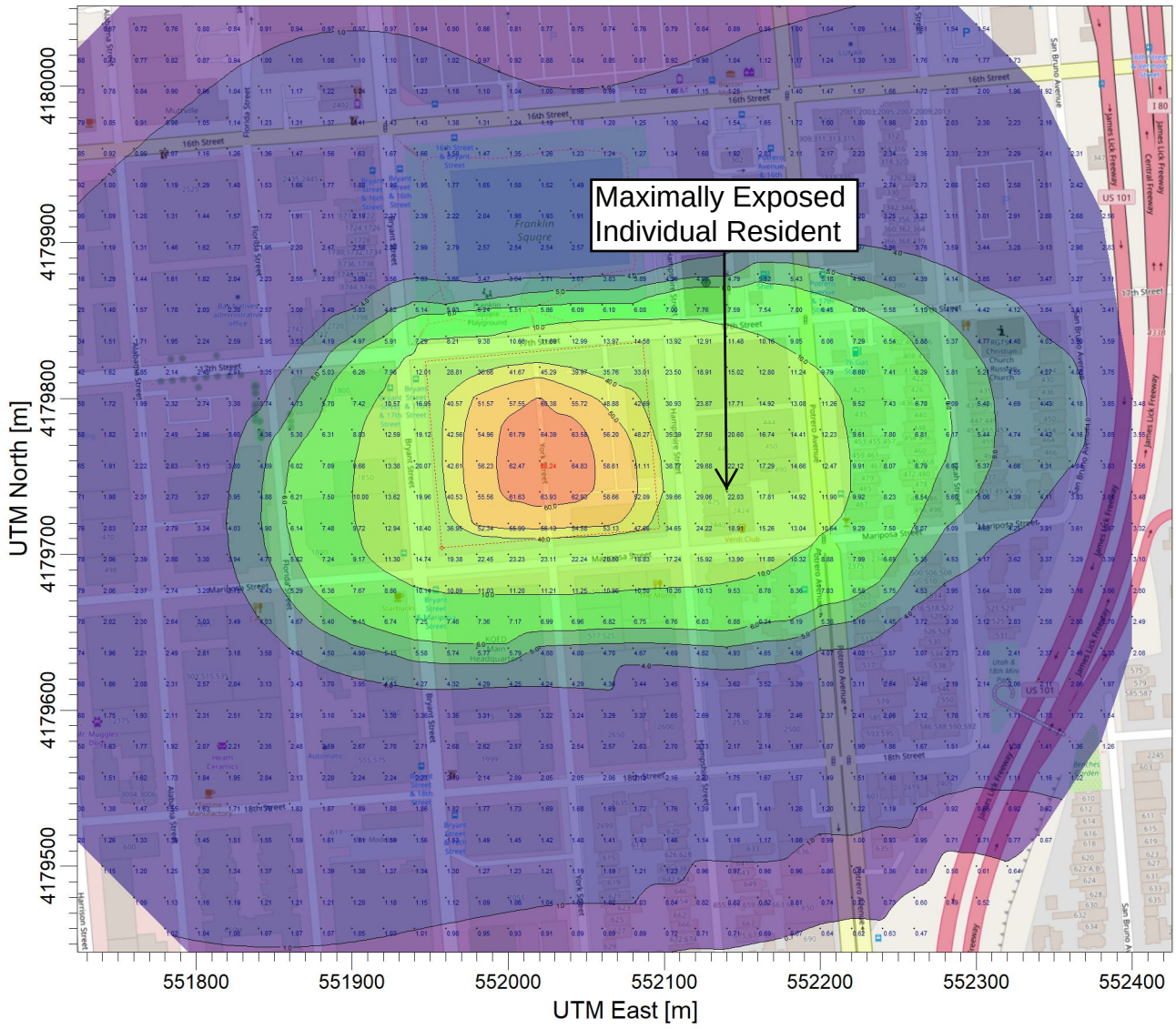
Source Pathway - Source Inputs

Diesel Off-Road Construction Equipment: Area Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Length of X Side [m]	Length of Y Side [m]	Orientation Angle from North [deg]	Initial Vertical Dim. [m]
AREA	AREA1	551957.23	4179704.27	14.75	5.00	0.00006	140.00	120.00	-5.00	1.40

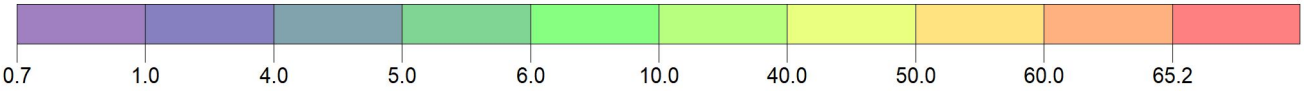
PROJECT TITLE:

Potrero Yard Modernization Project
Off-Road Construction Equipment Unit Emission Rate Results



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 65.2 [ug/m^3] at (552020.00, 4179760.00)



COMMENTS:	SOURCES: **1**		
	RECEPTORS: **1190**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:4,414 0 0.1 km	
	MAX: **65.2 ug/m^3**		PROJECT NO.:

Source Pathway - Source Inputs

Source Pathway - Source Inputs

On-Road Construction Truck Trips: Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL1	551932.03	4179828.88	18.80	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL2	551945.16	4179829.89	18.84	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL3	551972.28	4179832.28	19.95	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL4	551959.14	4179831.26	19.36	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL5	551987.33	4179833.60	20.34	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL6	552000.47	4179834.61	21.23	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL7	552027.58	4179837.00	21.92	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL8	552014.44	4179835.99	21.64	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL9	552041.03	4179837.72	22.88	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL10	552054.17	4179838.73	22.98	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL11	552081.28	4179841.11	23.10	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL12	552068.14	4179840.10	23.09	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL13	552096.33	4179842.44	22.94	2.00	1.00000	5.16		1.20	2.30

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL14	551943.91	4179688.00	14.51	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL15	552066.05	4179697.84	15.83	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL16	552093.16	4179700.23	16.06	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL17	552080.03	4179699.22	15.97	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL18	552108.22	4179701.55	16.23	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL19	551957.05	4179689.01	14.48	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL20	551984.16	4179691.39	15.00	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL21	551971.03	4179690.38	14.73	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL22	551999.21	4179692.72	15.29	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL23	552012.35	4179693.73	15.48	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL24	552039.46	4179696.11	15.71	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL25	552026.33	4179695.10	15.62	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL26	552052.91	4179696.83	15.76	2.00	1.00000	5.16		1.20	2.30

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL27	551943.07	4179700.36	14.56	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL28	551941.73	4179712.70	14.91	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL29	551940.89	4179725.07	15.35	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL30	551940.18	4179737.98	15.79	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL31	551939.34	4179750.34	16.26	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL32	551937.99	4179762.68	16.74	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL33	551937.15	4179775.05	17.17	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL34	551936.35	4179785.60	17.55	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL35	551935.51	4179797.97	17.95	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL36	551934.17	4179810.31	18.33	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL37	551933.33	4179822.67	18.68	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL38	552113.57	4179703.48	16.27	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL39	552112.73	4179715.85	16.46	2.00	1.00000	5.16		1.20	2.30

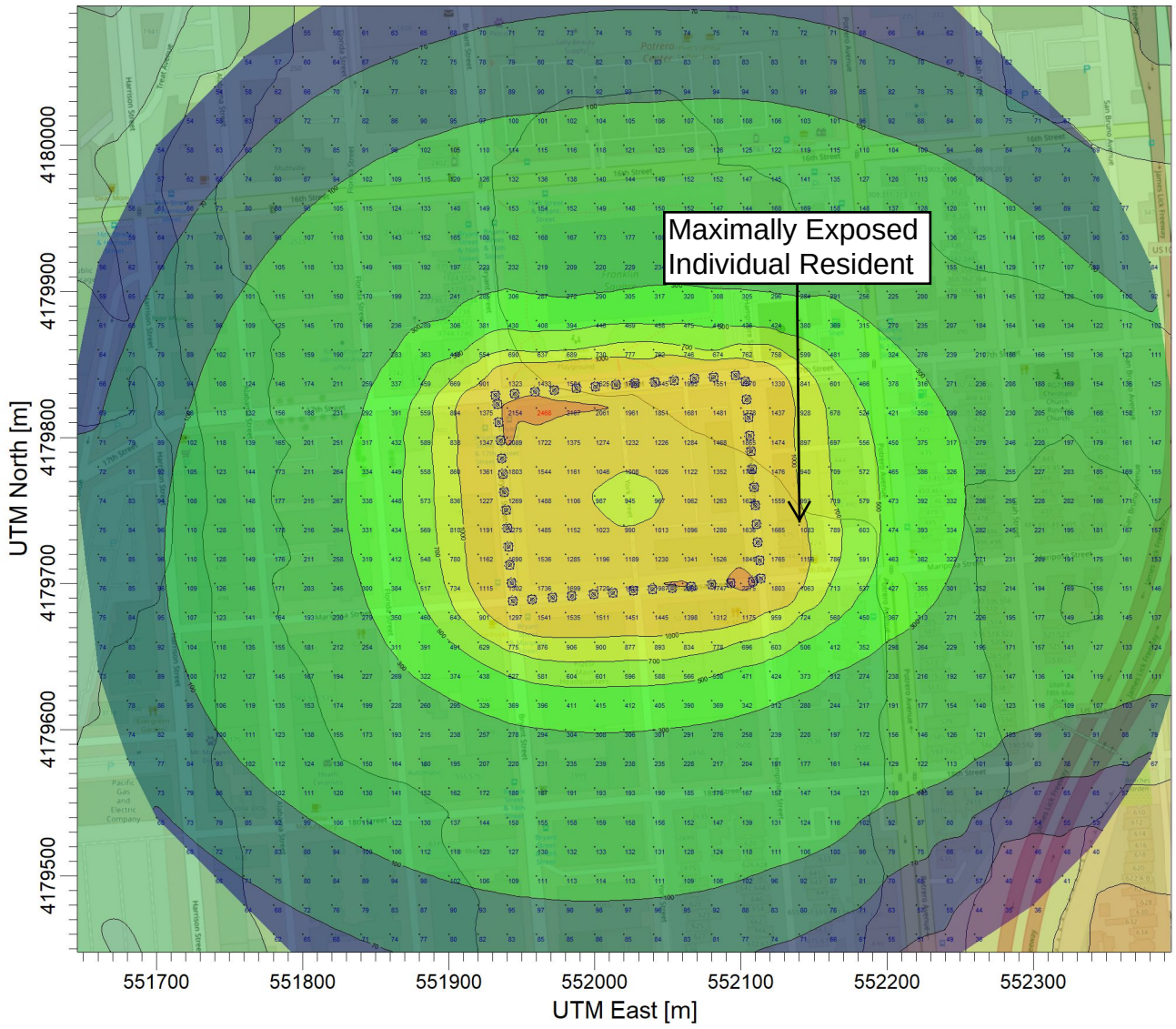
Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL40	552111.38	4179728.18	17.06	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL41	552110.54	4179740.55	17.67	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL42	552109.83	4179753.46	18.33	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL43	552108.99	4179765.83	18.93	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL44	552107.65	4179778.17	19.55	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL45	552106.81	4179790.53	20.14	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL46	552106.01	4179801.09	20.64	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL47	552105.17	4179813.45	21.46	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL48	552103.82	4179825.79	22.35	2.00	1.00000	5.16		1.20	2.30
VOLUME	VOL49	552102.98	4179838.16	22.78	2.00	1.00000	5.16		1.20	2.30

PROJECT TITLE:

Potrero Yard Modernization Project
On-Road Construction Trucks Unit Emission Rate Results



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 2468 [ug/m^3] at (551960.00, 4179820.00)

35 50 70 100 300 500 700 1000 2000 2468

COMMENTS:	SOURCES: **49**		
	RECEPTORS: **1190**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:4,709 0 0.1 km	
	MAX: **2468 ug/m^3**		PROJECT NO.:

Source Pathway - Source Inputs

Source Pathway - Source Inputs

AERMOD

On-Road Operational Vehicle Trips: Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	M09	552066.05	4179697.84	15.83	2.00	1.00000	5.16		1.20	2.30
VOLUME	M11	552093.16	4179700.23	16.06	2.00	1.00000	5.16		1.20	2.30
VOLUME	M10	552080.03	4179699.22	15.97	2.00	1.00000	5.16		1.20	2.30
VOLUME	M12	552106.03	4179701.00	16.21	2.00	1.00000	5.16		1.20	2.30
VOLUME	M01	551957.05	4179689.01	14.48	2.00	1.00000	5.16		1.20	2.30
VOLUME	M03	551984.16	4179691.39	15.00	2.00	1.00000	5.16		1.20	2.30
VOLUME	M02	551971.03	4179690.38	14.73	2.00	1.00000	5.16		1.20	2.30
VOLUME	M04	551999.21	4179692.72	15.29	2.00	1.00000	5.16		1.20	2.30
VOLUME	M05	552012.35	4179693.73	15.48	2.00	1.00000	5.16		1.20	2.30
VOLUME	M07	552039.46	4179696.11	15.71	2.00	1.00000	5.16		1.20	2.30
VOLUME	M06	552026.33	4179695.10	15.62	2.00	1.00000	5.16		1.20	2.30
VOLUME	M08	552052.91	4179696.83	15.76	2.00	1.00000	5.16		1.20	2.30
VOLUME	H01	552113.57	4179709.50	16.34	2.00	1.00000	5.16		1.20	2.30

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	H02	552112.73	4179721.87	16.74	2.00	1.00000	5.16		1.20	2.30
VOLUME	H03	552111.38	4179734.20	17.35	2.00	1.00000	5.16		1.20	2.30
VOLUME	H04	552110.54	4179746.57	18.00	2.00	1.00000	5.16		1.20	2.30
VOLUME	H05	552109.83	4179759.21	18.60	2.00	1.00000	5.16		1.20	2.30
VOLUME	H06	552108.99	4179771.58	19.21	2.00	1.00000	5.16		1.20	2.30
VOLUME	H07	552107.65	4179783.91	19.83	2.00	1.00000	5.16		1.20	2.30
VOLUME	H08	552106.81	4179796.28	20.39	2.00	1.00000	5.16		1.20	2.30
VOLUME	H09	552106.01	4179806.83	21.00	2.00	1.00000	5.16		1.20	2.30
VOLUME	H10	552105.17	4179819.20	21.88	2.00	1.00000	5.16		1.20	2.30
VOLUME	H11	552103.82	4179831.54	22.64	2.00	1.00000	5.16		1.20	2.30
VOLUME	M13	552122.77	4179702.67	16.23	2.00	1.00000	5.16		1.20	2.30
VOLUME	M14	552135.90	4179703.69	16.77	2.00	1.00000	5.16		1.20	2.30
VOLUME	M16	552163.01	4179706.07	18.87	2.00	1.00000	5.16		1.20	2.30

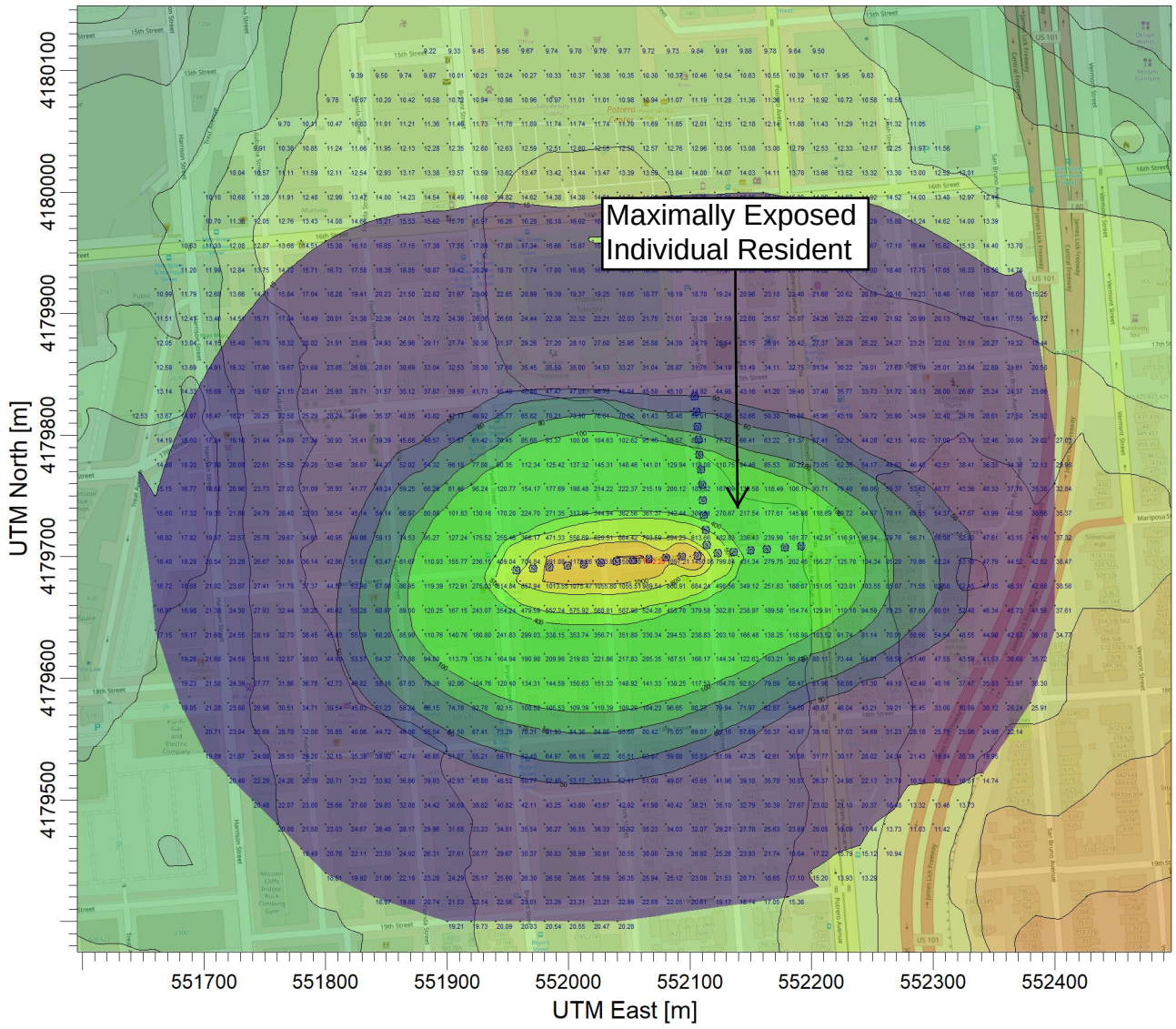
Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	M15	552149.88	4179705.06	17.85	2.00	1.00000	5.16		1.20	2.30
VOLUME	M17	552178.07	4179707.39	19.94	2.00	1.00000	5.16		1.20	2.30
VOLUME	M18	552191.20	4179708.41	20.92	2.00	1.00000	5.16		1.20	2.30

PROJECT TITLE:

Potrero Yard Modernization Project
On-Road Operational Vehicle Unit Emission Rate Results (Mariposa Street West)



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: MWEST ug/m^3

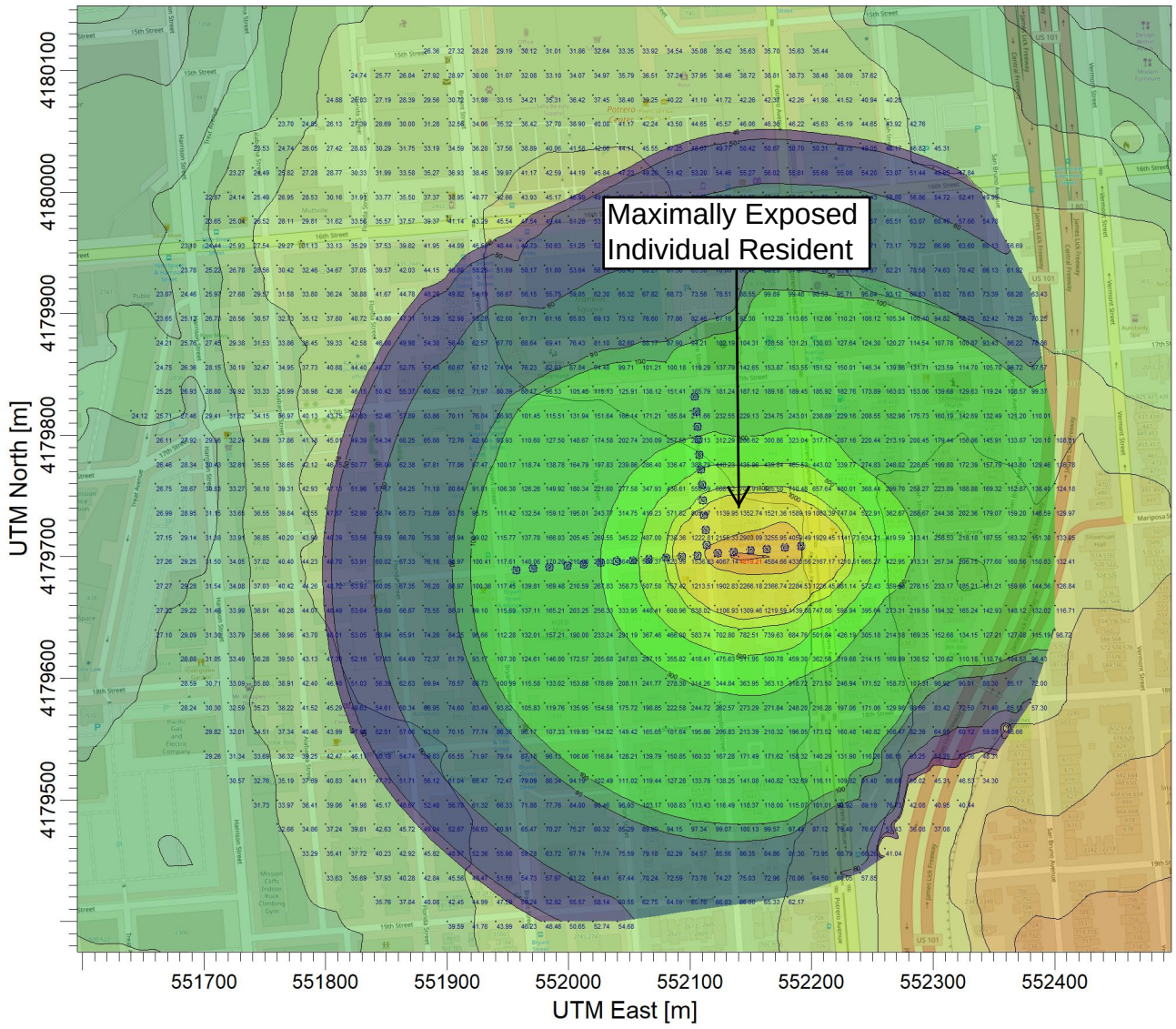
Max: 1542 [ug/m^3] at (552060.00, 4179700.00)

15 50 60 80 100 400 500 800 1000 1500 1542

COMMENTS:	SOURCES: **29**		
	RECEPTORS: **1190**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:5,663 0 0.2 km	
	MAX: **1542 ug/m^3**		PROJECT NO.:

PROJECT TITLE:

Potrero Yard Modernization Project
On-Road Operational Vehicle Unit Emission Rate Results (Mariposa Street East)



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: MEAST ug/m^3

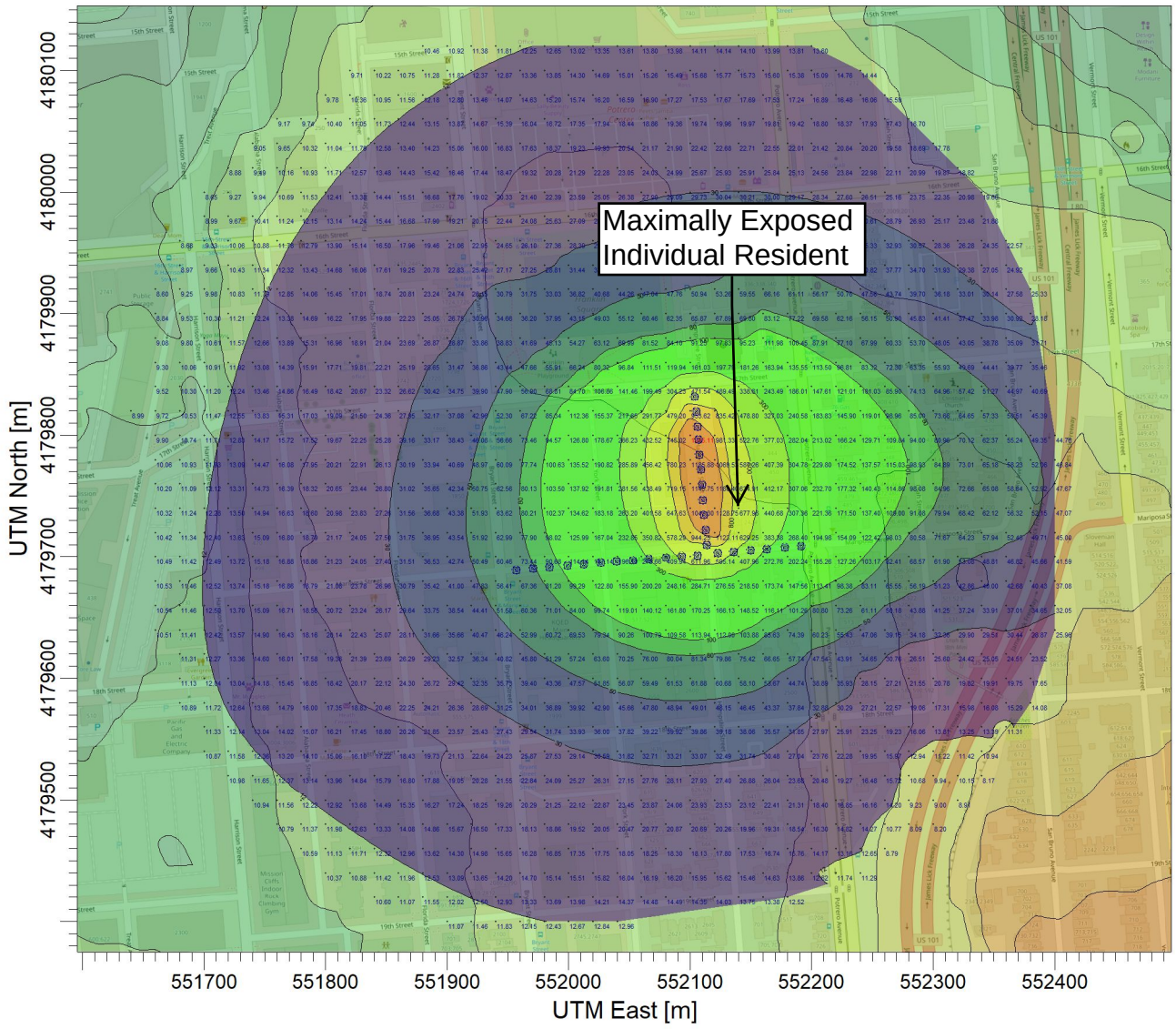
Max: 4819 [ug/m^3] at (552140.00, 4179700.00)

48 50 60 90 100 300 500 800 1000 3000 4500 4819

COMMENTS:	SOURCES: **29**	
	RECEPTORS: **1190**	
	OUTPUT TYPE: **Concentration**	SCALE: 1:5,663 0 0.2 km
	MAX: **4819 ug/m^3**	PROJECT NO.:

PROJECT TITLE:

Potrero Yard Modernization Project
On-Road Operational Vehicle Unit Emission Rate Results (Hampshire Street)



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: HNORTH ug/m^3

Max: 1245 [ug/m^3] at (552100.00, 4179800.00)

12 30 50 80 100 300 500 800 1000 1245

COMMENTS:	SOURCES: **29**		
	RECEPTORS: **1190**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:5,663 0 0.2 km	
	MAX: **1245 ug/m^3**		PROJECT NO.:

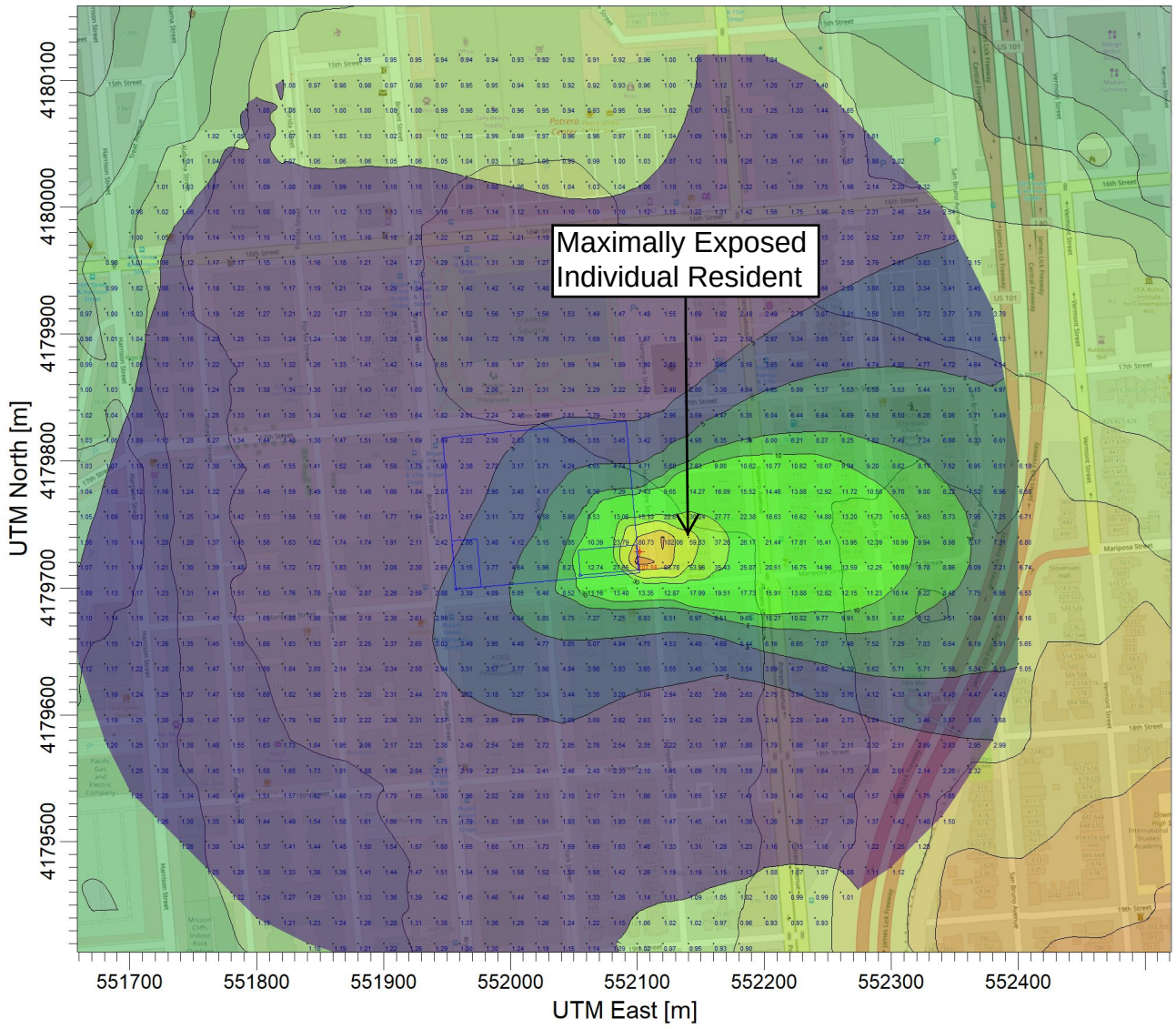
Source Pathway - Source Inputs

Diesel Emergency Generators: Point Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Gas Exit Temp. [K]	Gas Exit Velocity [m/s]	Stack Inside Diameter [m]
POINT	STCK1	552101.45	4179728.31	17.08	3.66	1.00000	739.80	45.30	0.18
		Emergency Generators Unit Emissions							

PROJECT TITLE:

Potrero Yard Modernization Project
Emergency Diesel Generators Unit Emission Rate Results



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 108 [ug/m^3] at (552100.00, 4179720.00)

1 3 5 8 10 30 50 80 100 108

COMMENTS:	SOURCES: **1**	
	RECEPTORS: **1190**	
	OUTPUT TYPE: **Concentration**	SCALE: 1:5,423 — 0 — 0.2 km
	MAX: **108 ug/m^3**	PROJECT NO.:

Potrero Yard Modernization Project
Table G-4.1: On-Road Construction Truck Emissions for Health Risk Assessment

Calculations of On-Road Construction Truck Emissions for the Health Risk Assessment

Total Construction Truck Trips	47,754
Distance Around Project Site (miles)	0.4
Total Miles Travelled around Project Site	19,102
Total DPM emissions around Project Site (grams)	461
Average Daily DPM Emissions around Project Site (grams/day)	0.59
Total $PM_{2.5}$ emissions around Project Site (grams)	2,091
Average Daily $PM_{2.5}$ Emissions around Project Site (grams/day)	2.68

Notes:
Diesel particulate matter (DPM) emissions based on EMFAC2017 running exhaust PM10 emission rates for heavy-heavy-duty trucks (HHDT).
Total $PM_{2.5}$ emissions based on EMFAC2017 running exhaust, tire wear, and brake wear emissions rates for HHDT
and a resuspended dust emission factor of 1.91.
Emissions per day based on the total duration of construction (780 work days).

Potrero Yard Modernization Project
Table G-4.2: On-Road Operational Vehicle Emissions for Health Risk Assessment

Calculations of On-Road Operational Vehicle Emissions for the Health Risk Assessment

Roadway	Vehicle Type	Fuel Type	Trip Length	Daily Traffic Volume	% of Total Traffic Volume	Daily VMT	DPM (g/day)	$PM_{2.5}$ (g/day)	TOG (g/day)
Mariposa Street West of Hampshire Street	Bus	Electric	0.11	1290	3%	4.3	--	0.299	--
Mariposa Street West of Hampshire Street	LDA	Gas	0.11	1290	96%	136.2	--	4.993	1.2150
Mariposa Street West of Hampshire Street	MHD	Diesel	0.11	1290	1%	1.4	0.01024	0.178	--
Mariposa Street East of Hampshire Street	Bus	Electric	0.06	1060	3%	1.9	--	0.134	--
Mariposa Street East of Hampshire Street	LDA	Gas	0.06	1060	96%	61.1	--	2.238	0.5446
Mariposa Street East of Hampshire Street	MHD	Diesel	0.06	1060	1%	0.6	0.00459	0.080	--
Hampshire Street North of Mariposa Street	Bus	Electric	0.09	230	3%	0.6	--	0.044	--
Hampshire Street North of Mariposa Street	LDA	Gas	0.09	230	96%	19.9	--	0.728	0.1772
Hampshire Street North of Mariposa Street	MHD	Diesel	0.09	230	1%	0.2	0.00149	0.026	--

Notes:

g/d = grams per day

The net increase in traffic volumes along roadway segments provided by the traffic consultant.

Diesel particulate matter (DPM) emissions based on EMFAC2017 running exhaust PM10 emission rates for Medium-heavy-duty trucks (MHDT).

Total $PM_{2.5}$ emissions based on EMFAC2017 running exhaust, tire wear, and brake wear emissions rates for light-duty automobiles (LDA), MHDT, and urban buses (UBUS) and a resuspended dust emission factor of 1.91. The buses are electric and would not generate exhaust emissions.

Total organic gas (TOG) emissions based on EMFAC2017 running exhaust for LDA.

Potrero Yard Modernization Project
Operational and Cumulative Traffic Data and Model Outputs

Roadway	Location	Direction	Existing Volume - No Project		Existing Volume - Plus Project		Cumulative Volume - Plus Project	
			PM Peak Hour Volume	Approximate Daily Volume	PM Peak Hour Volume	Approximate Daily Volume	PM Peak Hour Volume	Approximate Daily Volume
16th St	East of Bryant St	EB	570	5,700	570	5,700	660	6,600
		WB	1,030	10,300	1,033	10,330	1,110	11,100
	West of Bryant St	EB	490	4,900	501	5,010	580	5,800
		WB	949	9,490	955	9,550	1,040	10,400
	East of Potrero Ave	EB	579	5,790	437	4,370	710	7,100
		WB	779	7,790	797	7,970	820	8,200
	West of Potrero Ave	EB	570	5,700	570	5,700	660	6,600
		WB	1,030	10,300	1,033	10,330	1,110	11,100
17th St	East of Bryant St	EB	274	2,740	291	2,910	340	3,400
		WB	372	3,720	376	3,760	500	5,000
	West of Bryant St	EB	272	2,720	287	2,870	330	3,300
		WB	274	2,740	282	2,820	380	3,800
	East of Hampshire St	EB	287	2,870	290	2,900	350	3,500
		WB	386	3,860	386	3,860	520	5,200
	West of Hampshire St	EB	274	2,740	291	2,910	340	3,400
		WB	372	3,720	376	3,760	500	5,000
Mariposa St	East of Bryant St	EB	114	1,140	158	1,580	210	2,100
		WB	185	1,850	214	2,140	370	3,700
	West of Bryant St	EB	113	1,130	128	1,280	190	1,900
		WB	125	1,250	133	1,330	230	2,300
	East of Hampshire St	EB	111	1,110	163	1,630	220	2,200
		WB	163	1,630	217	2,170	370	3,700
	West of Hampshire St	EB	189	1,890	247	2,470	320	3,200
		WB	163	1,630	234	2,340	360	3,600
	East of York St	EB	189	1,890	247	2,470	320	3,200
		WB	163	1,630	234	2,340	360	3,600
	West of York St	EB	114	1,140	158	1,580	210	2,100
		WB	185	1,850	214	2,140	370	3,700
Bryant St	North of 16th St	NB	489	4,890	504	5,040	560	5,600
		SB	329	3,290	349	3,490	410	4,100
	South of 16th St	NB	420	4,200	438	4,380	520	5,200
		SB	280	2,800	311	3,110	360	3,600
	North of 17th St	NB	420	4,200	438	4,380	520	5,200
		SB	280	2,800	311	3,110	360	3,600
	South of 17th St	NB	317	3,170	338	3,380	420	4,200
		SB	304	3,040	334	3,340	410	4,100
	North of Mariposa St	NB	317	3,170	338	3,380	420	4,200
		SB	304	3,040	334	3,340	410	4,100
	South of Mariposa St	NB	287	2,870	287	2,870	330	3,300
		SB	328	3,280	328	3,280	440	4,400
Potrero Ave	North of 16th St	NB	553	5,530	565	5,650	620	6,200
		SB	1,089	10,890	1,101	11,010	1,400	14,000
	South of 16th St	NB	716	7,160	752	7,520	820	8,200
		SB	961	9,610	991	9,910	1,230	12,300
Hampshire St	North of 17th St	NB	5	50	5	50	20	200
		SB	18	180	18	180	30	300
	South of 17th St	NB	39	390	45	450	80	800
		SB	59	590	76	760	110	1,100
	North of Mariposa St	NB	39	390	45	450	80	800
		SB	59	590	76	760	110	1,100
	South of Mariposa St	NB	49	490	49	490	70	700
		SB	81	810	81	810	130	1,300
York St	North of Mariposa St	NB	5	50	129	1,290	140	1,400
		SB	-	-	94	940	100	1,000
	South of Mariposa St	NB	39	390	48	480	70	700
		SB	36	360	43	430	70	700

Potrero Yard Modernization Project
Operational and Cumulative Traffic Data and Model Outputs

	Intersection	Heavy Vehicle %				Bus %				Non-Bus Heavy Vehicle %			
		NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB
1	16th St/ Bryant St	3%	3%	8%	4%	1%	1%	1%	1%	2%	2%	7%	3%
2	17th St/ Bryant St	3%	4%	3%	1%	2%	3%	2%	1%	1%	1%	1%	0%
3	Mariposa St/ Bryant St	3%	4%	3%	2%	1%	3%	1%	1%	2%	1%	2%	1%
4	Mariposa St/ York St	3%	--	4%	2%	1%		3%	1%	2%		1%	1%
5	17th St/ Hampshire St	0%	0%	4%	1%			2%		0%	0%	2%	1%
6	Mariposa St/ Hampshire St	4%	0%	3%	2%	1%		3%	1%	3%	0%	0%	1%
7	16th St/ Potrero Ave	4%	4%	9%	5%	2%	2%	2%	2%	2%	2%	7%	3%

* Based on PM Peak hour existing counts

Project Trips:	Daily
% Non-Bus HV	1%
% Bus	3%

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: SAN FRANCISCO
Calendar Year: 2026
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM2.5_RUNEX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_PMTW	PM10_PMBW	TOG_RUNEX
SAN FRANCISCO	2026	LDA	Aggregated	Aggregated	GAS	0.001	0.002	0.016	0.002	0.008	0.037	0.009
SAN FRANCISCO	2026	MHDT	Aggregated	Aggregated	DSL	0.007	0.003	0.056	0.007	0.012	0.130	0.012
SAN FRANCISCO	2026	UBUS	2026	Aggregated	DSL	0.006	0.009	0.028	0.006	0.035	0.066	0.081

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Table G-4.3: Unit-Emission Rate Conversion Factors for each Air Pollutant Source

Scenario	Source	Pollutant	Source Type	Source Count	Hour Per Day	Total Emissions (grams/day)	Total Emissions (grams/second)	Unit Conversion Factor
Unmitigated	Off-Road Construction Equipment	DPM	Area	1	13	108.221	0.0023124	2.31E-03
	Off-Road Construction Equipment	PM2.5	Area	1	13	108.221	0.0023124	2.31E-03
	On-Road Construction Trucks	DPM	Volume	49	13	0.591	0.0000126	2.58E-07
	On-Road Construction Trucks	PM2.5	Volume	49	13	2.681	0.0000573	1.17E-06
	On-Road Operational Vehicles (Hampshire Street)	DPM	Volume	11	24	0.001	0.0000000	1.57E-09
	On-Road Operational Vehicles (Hampshire Street)	TOG	Volume	11	24	0.177	0.0000021	1.86E-07
	On-Road Operational Vehicles (Hampshire Street)	PM2.5	Volume	11	24	0.798	0.0000092	8.40E-07
	On-Road Operational Vehicles (Mariposa Street East)	DPM	Volume	6	24	0.005	0.0000001	8.85E-09
	On-Road Operational Vehicles (Mariposa Street East)	TOG	Volume	6	24	0.545	0.0000063	1.05E-06
	On-Road Operational Vehicles (Mariposa Street East)	PM2.5	Volume	6	24	2.452	0.0000284	4.73E-06
	On-Road Operational Vehicles (Mariposa Street West)	DPM	Volume	12	24	0.010	0.0000001	9.88E-09
	On-Road Operational Vehicles (Mariposa Street West)	TOG	Volume	12	24	1.215	0.0000141	1.17E-06
	On-Road Operational Vehicles (Mariposa Street West)	PM2.5	Volume	12	24	5.471	0.0000633	5.28E-06
	Emergency Diesel Generators	DPM	Point	1	24	60.397	0.0006990	6.99E-04
	Emergency Diesel Generators	PM2.5	Point	1	24	60.397	0.0006990	6.99E-04
Mitigated	Off-Road Construction Equipment (All Tier 4)	DPM	Area	1	13	38.136	0.0008149	8.15E-04
	Off-Road Construction Equipment (All Tier 4)	PM2.5	Area	1	13	38.136	0.0008149	8.15E-04
	Emergency Diesel Generators (All Tier 4)	DPM	Point	1	24	8.997	0.0001041	1.04E-04
	Emergency Diesel Generators (All Tier 4)	PM2.5	Point	1	24	8.997	0.0001041	1.04E-04

Appendix G-5

Project Update to the Citywide Health Risk Assessment Database
(electronically submitted to the San Francisco
Environmental Planning Department)

Appendix G-6

Air Quality Modeling Uncertainties

1. AIR QUALITY MODELING UNCERTAINTIES

In accordance with the Air Quality and Health Risk Assessment Methodology prepared for the Potrero Yard Modernization Project, this following is a summary the modeling uncertainties for the air quality analysis.

1.1 Emissions Estimates

There are a number of uncertainties associated with the estimation of emissions from each of the source categories considered that may affect the subsequent estimation of exposure concentrations and risk characterization. For example, uncertainties associated with the estimation of emissions from on-road motor vehicles may affect the subsequent estimation of exposure concentrations and risk characterization. Emission factors from EMFAC2017 were used to estimate on-road vehicle emissions for cars and trucks and, as with any emissions model, there were also uncertainties associated with these. For example, on September 27, 2019, the U.S. Environmental Protection Agency and the National Highway Traffic Safety Administration published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program.[1] The SAFE Vehicle Rule Part One revokes California's authority to set its own greenhouse gas emission standards and zero-emission vehicle mandates, which affects some of the underlying assumptions in the EMFAC2017 model. Since these changes would not affect light-duty gasoline-powered cars, which represent about 95 percent of the new vehicle trips generated by the proposed project, the effect of the SAFE ruling on the project's on-road vehicle emission estimates would likely be negligible.

1.2 Modeling Approach

In addition to uncertainty associated with emission estimates, there is also uncertainty associated with the estimated exposure concentrations. The limitations of the AERMOD air dispersion model provide a source of uncertainty in the estimation of exposure concentrations. According to U.S. Environmental Protection Agency, errors due to the limitation of the algorithms implemented in the air dispersion model in the highest estimated concentrations of +/-10 percent to 40 percent are typical.[2] In San Francisco, with its many multi-story and high-rise buildings, urban flow patterns are likely influenced by recirculation and channeling in urban canyons. The dispersion modeling does not account for such patterns. Not capturing these effects and using meteorological data from a single monitoring site to represent transport throughout the City add to errors and uncertainties in the modeling approach.

1.3 Risk Characterization Methods

Numerous assumptions must be made in order to estimate human exposure to chemicals. These assumptions include parameters such as breathing rates, exposure time and frequency, exposure duration, and human activity patterns. While a mean value derived from scientifically defensible studies is a reasonable estimate of central tendency, the exposure variables used in this assessment are only estimates. The California Environmental Protection Agency (CalEPA) and Office of Environmental Health Hazard Assessment (OEHHA) cancer potency factors (CPFs) for toxic air contaminants were used to

[1] 84 Fed. Reg. 51,310.

[2] U.S. Environmental Protection Agency. 2005. Guideline on Air Quality Models (Revised). 40 Code of Federal Regulations, Part 51, Appendix W. Office of Air Quality Planning and Standards. November 2005.

estimate cancer risks associated with exposures to diesel particulate matter for the emission sources modeled. However, the CPF values for diesel particulate matter are uncertain in both the estimation of response and dose. Public health and regulatory organizations such as the U.S. Environmental Protection Agency agree that diesel exhaust may cause cancer in humans. However, there is significant uncertainty in the value applied for the CPF. Furthermore, this evaluation quantifies risk based on the maximally exposed individual resident, while some receptor locations may be workplaces or recreational areas where the overall exposure would be significantly less. The method applied to estimate cancer risk includes the age-specific exposure factors recommended by CalEPA/OEHHA which increases the effective CPF to account for increased sensitivity of the young to cancer-causing pollutants. However, there may be pollutants in the urban environment whose cancer toxicity is magnified in ways that are not accounted for because of the presence of other pollutants (synergic effects) or because of pre-existing conditions or sensitivities. Furthermore, there may be pollutants whose toxicity is not yet recognized or quantified and, as such, is unaccounted for in this risk assessment.