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# MEMO

Date: **April 1, 2022**

To: **Mike Campbell, Project Manager, David J Powers & Associates**

From: **Michael Keinath**

Subject: **CEQA AIR QUALITY AND HEALTH RISK ASSESSMENT FOR THE BLOCK 21 MIXED-USE, SAN MATEO, CALIFORNIA**

Ramboll US Consulting, Inc. (Ramboll) conducted California Environmental Quality Act (CEQA) air quality and health risk analyses for the proposed Block 21 Mixed-Use Project at 500 East 3rd Avenue in San Mateo, California (the "Project").

According to the Project sponsor, the Project would include the demolition of all existing on-site structures and the construction of approximately 180,950 square feet of office uses and 111 residential units with 15% of them devoted to very-low income levels. Parking would consist of two below-grade levels throughout the site. Nearby uses to the site include residential uses and commercial uses surrounding the building in all directions; California State Highway 82 along with Caltrain and heavy rail tracks to the west; and U.S Route 101 to the east. The Project would include an emergency generator at the southern portion of the site.

The existing and proposed land uses at the Project site are listed in **Table 1**.

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## CEQA THRESHOLDS OF SIGNIFICANCE

The City of San Mateo is the lead agency responsible for Project approval. Per City of San Mateo requirements, Ramboll evaluated the Project in accordance with the current Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines, which were updated in May 2017.[1] These guidelines present methods for evaluating compliance with CEQA as well as thresholds for determining significance. With respect to the Project, the BAAQMD thresholds of significance are as follows:

[1] BAAQMD. 2017. California Environmental Quality Act (CEQA) Air Quality Guidelines. May. Available online at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

| BAAQMD CEQA Thresholds of Significance | |
|---|---|
| **Criteria Air Pollutants (and Precursors)** | **Construction-Related Average Daily Emissions (lbs/day)** |
| ROG | 54 |
| $NO_X$ | 54 |
| $PM_{10}$ | 82 (exhaust only) |
| $PM_{2.5}$ | 54 (exhaust only) |
| $PM_{10}/PM_{2.5}$ (fugitive dust) | Best Management Practices |
| CO (local concentration) | None |
| Risks and Hazards for New Sources and Receptors (Individual Project) | Compliance with Qualified Community Risk Reduction Plan<br><br>OR<br><br>Increased cancer risk of >10.0 in a million<br>Increased non-cancer risk of > 1.0 HI (chronic or acute)<br>Ambient $PM_{2.5}$ increase: > 0.3 µg/$m^3$ annual average<br>Zone of Influence: 1,000-foot radius from fence line of source or receptor |
| Risks and Hazards for New Sources and Receptors (Cumulative Threshold) | Compliance with Qualified Community Risk Reduction Plan<br><br>OR<br><br>Increased cancer risk of >100 in a million (from all local sources)<br>Increased non-cancer risk of >10 HI (from all local sources) (chronic)<br>Ambient $PM_{2.5}$ increase: > 0.8 µg/$m^3$ annual average (from all local sources)<br><br>Zone of Influence: 1,000-foot radius from fence line of source or receptor |
| Odors | None |

Abbreviations:
CO = Carbon Monoxide
Lbs = pounds
MT of $CO_2e$/yr = metric tons of carbon dioxide equivalent per year
MT $CO_2e$/SP/yr = metric tons carbon dioxide equivalent per service population per year
NOx = oxides of nitrogen
$PM_{2.5}$ = Particulate Matter less than 2.5 microns
$PM_{10}$ = Particulate Matter less than 2.5 microns
ROG = Reactive Organic Gas
µg/$m^3$ = micrograms per cubic meter.

Since the City of San Mateo has separately arranged for a GHG analysis, this Technical Memorandum only evaluates construction Criteria Air Pollutants (CAP) emissions and health effects of TACs emitted during Project construction and operation, including a cumulative assessment from all sources within

the zone of influence. The memorandum also includes the health effects of the Project's emergency generator and offsite sources on future onsite residents of the proposed Project.

The BAAQMD operational emissions screening size for mid-rise apartments is 494 dwelling units and for general office building is 346,000 square feet. Because the Project is below both operational criteria pollutant screening levels, an operational CAP assessment is not included in this memorandum.

## SUMMARY OF RESULTS

Unmitigated construction emissions are presented in **Table 2**. As shown in the table, Unmitigated CAP emissions for construction are below the BAAQMD thresholds of significance. Construction emissions are reduced with the implementation of construction equipment mitigation, designed to mitigate the health risk impacts from the Project. Mitigated construction emissions are also presented in **Table 3**. Health risk impacts from the Project and on a cumulative basis are shown in **Tables 4** through **5**, respectively. With the implementation of construction equipment mitigation, which requires cranes, forklifts, generator sets and welders to use Tier 4 Final diesel engines, the mitigated health risk impacts are also below the BAAQMD thresholds of significance.

## DATA SOURCES AND EMISSIONS METHODOLOGIES

The following sections describe the input data and methodologies used in the construction and operational emissions analysis. Detailed information for each section can be found in the referenced tables and appendices.

### Construction CAP Emissions Estimation

Ramboll utilized the California Emission Estimator Model version 2020.4.0 (CalEEMod®)[2] to quantify all construction CAP emissions. CalEEMod® is a statewide program designed to calculate both CAP and GHG emissions for development projects in California. CalEEMod® provides a simple platform to calculate both construction emissions and operational emissions from a land use project. It calculates both the daily maximum and annual average for CAPs as well as total or annual GHG emissions.

CalEEMod® utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. CalEEMod® uses sources such as the US Environmental Protection Agency (USEPA) AP-42 emission factors,[3] California Air Resources Board's (CARB) on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC) and the Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle.

Construction emissions from the Project include both on-site, off-road heavy equipment as well as off-site, on-road vehicle travel. As described below, Ramboll updated several default assumptions to Project-specific information to generate emission estimates with CalEEMod®, for consistency with BAAQMD and California Air Pollution Control Officer Association (CAPCOA) methods. Where project-specific data were not available, Ramboll used CalEEMod® defaults for the land uses shown in **Table 1**. The construction phasing, equipment, and trip rate assumptions are shown in **Tables 6, 7**, and **8**. It was assumed that construction would start as early as 2022. Under the unmitigated scenario, Project construction is assumed to use statewide fleet-average tier diesel engines for all equipment.

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[2] California Air Pollution Control Officers Association (CAPCOA). 2020. California Emissions Estimator Model. Available at: http://www.CalEEMod.com/.

[3] The USEPA maintains a compilation of Air pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: http://epa.gov/ttnchie1/ap42/.

Construction equipment during a given construction year in the OFFROAD model is a mix of Tier 1, 2, 3, Tier 4 Interim and Tier 4 Final engines based on statewide equipment inventory for that given year. This assumes that the Project would use construction equipment as available and not specify a particular engine Tier level. Emissions from paving off-gas and architectural coating emissions were also estimated using methodologies consistent with CalEEMod® and summarized in Tables **9** and **10**.

**Updates to CalEEMod® Default Assumptions**

In preparing Project construction emissions, several updates were made to modify the CalEEMod® default factors and assumptions. These include the following areas:

- Under the mitigated scenario, Project construction is assumed to use fleet-average tier diesel engines for all equipment, except for cranes, forklifts, generator sets and welders, which would use Tier 4 Final diesel engines or better (for example, this could include natural gas generators or electric welders).
- Off-road equipment hours were updated to reflect utilization of each equipment per phase as provided by the Project sponsor.
- Haul truck trips for demolition were calculated by CalEEMod® based on the amount of demolition required for construction. The haul truck trips for grading were estimated by the Project sponsor based on soil exported and imported during construction. These estimates are shown in **Table 8**.

**LOCAL COMMUNITY RISK AND HAZARD IMPACTS**

**Local Carbon Monoxide (CO) Impacts**

According to the 2017 BAAQMD CEQA Guidelines, the Project would result in less-than-significant localized CO concentrations if it meets the following criteria:

1. Is consistent with county and local congestion management plans, and
2. Does not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour.

Based on the traffic volume data provided by the Project sponsor (see **Appendix B**), the project would generate 134 vehicle trips per hour and 37 vehicle trips per hour during morning and evening rush hours, respectively. Thus, operational impacts from Project CO emissions would be less than significant.

**Toxic Air Contaminant (TAC) Emissions**

The TAC emissions associated with the Project construction were calculated with the following assumptions and exceptions:

1. Diesel Particulate Matter (DPM): DPM emissions were used to evaluate the cancer risk and non-cancer chronic HI from Project construction. In this analysis, both onsite (i.e., construction equipment) and local offsite (i.e., construction mobile sources) particulate matter less than 10 microns ($PM_{10}$) exhaust emissions[4] were calculated as DPM and modeled within the Project boundary (as discussed in the next section). This analysis also conservatively assumed the small fraction of non-diesel $PM_{10}$ (i.e., $PM_{10}$ emissions from gasoline fueled passenger vehicles) was DPM, which has greater human health impacts.
2. $PM_{2.5}$: Exhaust and fugitive particulate matter less 2.5 microns ($PM_{2.5}$) emissions were used to evaluate the $PM_{2.5}$ concentration due to the Project construction. Fugitive PM emissions were

[4] Local offsite (mobile source) emissions were conservatively calculated by including CalEEMod® on-road emissions for the entire default trip length in the screening model.

calculated using CalEEMod® methodologies as shown in **Tables 11-13**. The modeled emissions were calculated using the same conservative assumptions as the DPM calculation.

Total modeled emissions are presented in **Table 16** as total $PM_{10}$ and $PM_{2.5}$ from construction.

TAC emissions from Project operation were estimated for the proposed emergency generator. Based on the model information provided by the Project sponsor, horsepower, exhaust temperature, outlet size and other data were collected from the model's specification sheet.[5] Project emissions for the emergency generators are based on the BAAQMD rule limiting the hours of non-emergency operation for emergency standby diesel engines to a maximum of 50 hours per year of testing and maintenance, which is consistent with the maximum allowed testing time from the Airborne Toxic Control Measure for Stationary Compression Ignition Engines.[6] Annual emissions of $PM_{10}$ and $PM_{2.5}$ from the proposed generator were estimated using CalEEMod® default load factor and emission factors, documented in **Appendix A**. Similar to construction TAC sources, $PM_{10}$ exhaust emissions from the proposed generator were conservatively calculated as DPM. Modelling parameters for the proposed emergency generator are summarized in **Table 14**.

BAAQMD recommends analyzing TAC emissions from roadways with over 10,000 vehicles per day. As discussed above, per the traffic generation assessment conducted by the transportation consultant. (see **Appendix B**), the Project is expected to result in a net reduction of 271 daily trips compared to the existing land uses on the Project site. Therefore, the Project would not generate 10,000 vehicles per day, so TAC emissions from operational mobile sources is not needed.

**Health Risk Assessment**

Ramboll analyzed Project construction-related and operational health risks by estimating ambient air concentrations of DPM and $PM_{2.5}$. To estimate air concentrations of DPM and $PM_{2.5}$, Ramboll used AERMOD, a steady-state Gaussian plume model developed by USEPA for regulatory applications. AERMOD requires emission source locations and release parameters, receptor locations, and processed meteorological data. The operational and construction source parameters are shown in **Table 14** and **Table 15**, respectively. Ramboll used five years of meteorological data from the San Francisco International Airport, which was the nearest dataset available to the Project.

Turbulent eddies can form on the downwind side of buildings and may cause a plume from a stack or point source located near the building to be drawn towards the ground to a greater degree than if the building were not present. This is referred to as the "building downwash" effect. The effect can increase the resulting ground-level pollutant concentrations downwind of a building. AERMOD takes this effect into account for sources modeled as point sources. The dimensions and locations of the Project and the multi-story buildings adjacent to and southwest of the Project site were included, as shown in **Figure 1**, to allow AERMOD to incorporate algorithms to evaluate the downwash effect on dispersion of point sources. Building heights were obtained from the plans of the proposed Project and the adjacent buildings. The direction-specific building downwash dimensions were determined by the latest version (04274) of the Building Profile Input Program, PRIME (BPIP PRIME). Point sources were used only to model the Project generator, so building downwash was only evaluated in the Project operational generator modeling.

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[5] Generac. SD 300 10.3 300kW Industrial Diesel Generator Set. Available at: https://legacy.genconnect.generac.com/Media/vwDoc.axd?d=e644b3bf-2436-4826-a311-28a9b3415c5f. Accessed: March 2022.

[6] California Air Resources Board (CARB). 2011. Final Regulations Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines. Available at: https://ww2.arb.ca.gov/sites/default/files/classic/diesel/documents/finalreg2011.pdf. Accessed: March 2022.

The AERMOD input files are provided electronically as **Appendix C**. The receptor and source setup are shown in **Figure 1**. It should be noted that the on-site receptor and the residential receptors on the block southwest to the Project site were determined to be fourth-floor receptors, while other receptors are at ground-level.

**Modeled Emissions**

Based on the construction schedule provided by the Project sponsor, the Project will be completed in one phase.

All emissions from Project construction and operation were summed by year and modeled on an annual basis for off-site receptors. These modeled emission rates are shown in **Table 16**.

**Exposure Parameters and Cancer Risk Calculation**

In February 2015, 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.[7] The BAAQMD has issued HRA Guidelines formally adopting the OEHHA 2015 Guidance Manual.[8] This analysis followed the recommended methodology from the 2015 OEHHA Hot Spots Guidance.

Ramboll conservatively evaluated Project impacts due to construction emissions using default exposure assumptions for a resident child from OEHHAunless otherwise noted.[9] The resident child scenario assumes a much higher daily breathing rate and age-sensitivity factor (ASF)[10] than other sensitive receptor populations and therefore is the most conservative scenario to evaluate for this analysis. For the construction and operation exposure scenario, off-site residential receptors exposed to the entire construction period and 30 years of Project operation were evaluated to determine the maximum health impacts of the Project; for the operation-only scenario, the Project residential receptors were assumed to be exposed at the start of Project operation for 30 years. Other sensitive receptor locations were identified using a report from Environmental Data Resources (EDR). The EDR report identified daycares, childcares, and elementary schools in Project vicinity. Exposure periods for each of the non-residential sensitive land uses are assumed to be the same as the age range accepted at the location. The exposure parameters used to estimate excess lifetime cancer risks for the nearby sensitive receptors are presented in **Tables 17**.

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

$$IF_{inh} = \frac{DBR * FAH * EF * ED * CF * ASF * FY}{AT}$$

Where:

$IF_{inh}$ = Intake Factor for Inhalation ($m^3$/kg-day)

DBR = Daily Breathing Rate (L/kg-day)

FAH = Fraction of Time at Home (unitless)

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

[8] BAAQMD, 2020. Health Risk Assessment Modeling Protocol. December.

[9] BAAQMD. 2010. BAAQMD Air Toxics NSR Program Health Risk Screening Analysis (HRSA) Guidelines. January.

[10] *Ibid.*

EF = Exposure Frequency (days/year)

ED = Exposure Duration (years)

AT = Averaging Time (days)

CF = Conversion Factor, 0.001 ($m^3$/L)

ASF = Age Sensitivity Factor (unitless)

FY = Fraction of Year, to correct annualization of partial year emissions

The chemical intake or dose is estimated by multiplying the inhalation intake factor, $IF_{inh}$, by the chemical concentration in air, $C_i$. When coupled with the chemical concentration, this calculation is mathematically equivalent to the dose algorithm given in the OEHHA Hot Spots guidance.[11]

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. This HRA evaluated theoretical exposures to TACs for two categories of potential adverse health effects, cancer and non-cancer endpoints. Toxicity values 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.

Excess lifetime cancer risk and chronic hazard quotient (HQs) calculations for Project construction and operation utilized the toxicity values for DPM. Toxicity values for DPM are as presented in **Table 18**. [12]

Cancer risk and chronic HI were calculated from ambient annual concentrations using intake factors, cancer potency factors, and chronic reference exposure levels calculated consistent with the 2015 OEHHA Hot Spots Guidance[13] and 2020 BAAQMD guidance.[14]

As shown in **Table 4**, the unmitigated cancer risk from Project construction and operation at the maximally exposed individual resident (MEIR) receptor is calculated to be 16.9 in 1 million, which would exceed the BAAQMD's threshold of 10 in 1 million. The unmitigated cancer at the maximally exposed individual student (MEIS) receptor is calculated to be 8.3 in 1 million, which would not exceed the applicable threshold. Unmitigated construction activities and operation would result in a non-cancer hazard index of 0.03 (threshold of 1.0), and maximum $PM_{2.5}$ concentration of 0.04 micrograms per cubic meter (µg/$m^3$) (threshold of 0.3 µg/$m^3$) at the MEIR. Mitigated construction activities and operation would also result in a non-cancer hazard index of 0.01 and maximum $PM_{2.5}$ concentration of 0.04 µg/$m^3$ at the MEIS. Project operation would also result in a maximum cancer risk of 1.9 in 1 million, a non-cancer hazard index less than 0.01, and maximum $PM_{2.5}$ concentration less than 0.01 µg/$m^3$ at the Project's MEIR.

Under the mitigated scenario, the cancer risk from Project construction and operation at the MEIR receptor is calculated to be 8.7 in 1 million. The other health risks at the MEIR and MEIS are also shown in Table 3 and are below the BAAQMD thresholds. Therefore, with the use of Tier 4 Final diesel engines, or equivalent lower emitting equipment, for cranes, forklifts, generator sets and welders, the Project's health risks on on-site and off-site sensitive receptors are all below the BAAQMD thresholds

[11] Cal/EPA. 2003. The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Office of Environmental Health Hazard Assessment. August.

[12] Cal/EPA. 2020. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. October. http://www.arb.ca.gov/toxics/healthval/contable.pdf

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

[14] BAAQMD, 2020. Health Risk Assessment Modeling Protocol. December.

of significance; thus, health risk impacts associated with construction and operation of the Project are less than significant with the engine tier requirement as a mitigation measure. There may be other methods for reducing emissions below thresholds (e.g., implementing Tier 4 Final requirements on other categories of equipment), but further analysis would be necessary to confirm they would meet the threshold. The location of the off-site MEIR and MEIS, and the on-site MEIR is shown in **Figure 2**.

**Cumulative Health Risk Assessment**

In accordance with BAAQMD CEQA guidelines, Ramboll conducted a cumulative HRA for both offsite sensitive receptors and new onsite sensitive receptors created by the Project. The cumulative assessment tabulates the impact of Project-related risks plus existing offsite sources (stationary and mobile) at the off-site MEIR location. The cumulative assessment for onsite receptors is determined at the location of the maximum total risk from the proposed emergency generator. The evaluation requires the identification of any stationary and mobile sources within 1,000 feet of the Project boundary. In addition to the evaluation of each single source, the combined health risk from all TAC and $PM_{2.5}$ sources are evaluated.

Sources evaluated in the cumulative health risk assessment include any BAAQMD permitted stationary source, roadways with over 10,000 vehicles per day, and any other major source of emissions within the zone of influence such as railways. The BAAQMD provides tools with conservative estimates of impacts from these sources, including a stationary source tool and raster files for railways major streets, and highways.

BAAQMD's highway raster file includes impacts from highways in the Bay Area while the major street raster file includes impacts from all roadways with daily traffic above 30,000 vehicles per day. BAAQMD previously had a roadway screening analysis calculator that could be used to calculate impacts of roadways between 10,000 and 30,000 vehicles per day, but BAAQMD has since removed this roadway screening analysis calculator from their website. There is currently no alternative BAAQMD tool available for quantifying these results. There are no roadways with daily traffic between 10,000 and 30,000 vehicles per day within 1,000 feet of the MEIRs so the impacts from non-major street, non-highway roadways were not calculated.

The raster files and stationary source screening tools were used to estimate the health impacts from all highways, major streets, railways, and stationary sources and combined with the impacts from all other sources at the construction offsite MEIR and on-site cumulative MEIR.

The combined impact from all the sources results in a cancer risk of 62 in 1 million at the on-site MEIR, 68 in 1 million at the off-site MEIR, and 65 in 1 million at the off-site MEIS, compared to a threshold of 100 in 1 million. The combined non-cancer hazard index at all sensitive receptors are less than 0.1 (threshold of 10). The combined maximum $PM_{2.5}$ concentrations are 0.25 at the on-site MEIR, 0.26 at the off-site MEIR, and 0.24 at the off-site MEIS, compared to a threshold of 0.8 $\mu g/m^3$). Details of each source included in the cumulative analysis are presented in **Table 5**. These results are all below the BAAQMD cumulative thresholds of significance; thus, the cumulative health risk impacts associated with the Project are less than significant.

**CLOSING**

The analysis presented above represents emissions and health risk impacts from construction of the proposed Project. The Project does not exceed any BAAQMD CEQA significance thresholds, with the mitigation measure requiring Tier 4 Final diesel engines for the equipment categories of cranes, forklifts, generator sets, and welders. Other equivalent or better construction requirements may be available to reduce the Project's impacts to the same extent as the mitigation measure. Possible alternative measures include the use of natural gas or propane generators, electric welders, and use

of cleaner diesel engines on selected pieces of construction equipment. These alternative measures will require additional emissions analysis to demonstrate the same effectiveness as the mitigation measure.

Attachments:

Tables

Figures

Appendix A: CalEEMod® Output File for Project's Emergency Generator

Appendix B: Traffic Study

Appendix C: AERMOD Input Files (provided Electronically)

# TABLES

**Table 1**
**Land Use Summary for Existing Conditions and Proposed Project**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Project Description Land Use Type | CalEEMod® Land Use Type | CalEEMod® Land Use Subtype | Value | Units | Square Footage | Acreage |
|---|---|---|---|---|---|---|
| Residential Space[1] | Residential | Apartments Mid Rise | 111 | Dwelling Units | 90,170 | 2.07 |
| Office Space | Commerical | General Office Building | 180 | 1000sqft | 179,904 | 4.13 |
| Parking Lot (2 Below-Grade Parking) | Parking | Enclosed Parking with Elevator | 407 | Spaces | 152,896 | 3.51 |

**Notes:**

1. Number of residential units provided in the Prelimiary Project Assessment Application; acreage is the CalEEMod default acreage for mid-rise apartments with the specified number of units.

**Abbreviations:**

CalEEMod® - California Emissions Estimator Model®

**Table 2**
**Estimated Unmitigated Emissions from Proposed Project Construction**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

**Summary of Unmitigated Construction Emissions by Source (tons/year) [1]**

| Construction Subphase | Year | Source | Unmitigated CAP Emissions[1] | | | |
|---|---|---|---|---|---|---|
| | | | ROG | NOx | $PM_{10}$ | $PM_{2.5}$ |
| | | | ton/yr | | | |
| Demolition | 2022 | On-Site Exhaust | 0.0254 | 0.256 | 1.1E-02 | 1.1E-02 |
| | | Mobile Exhaust | 0.0001 | 0.005 | 1.7E-04 | 7.6E-05 |
| | | Fugitive Dust | -- | -- | 5.2E-04 | 7.9E-05 |
| Site Preparation | 2022 | On-Site Exhaust | 0.0169 | 0.184 | 8.7E-03 | 8.0E-03 |
| | | Mobile Exhaust | 3.4E-05 | 0.002 | 6.2E-05 | 2.7E-05 |
| | | Fugitive Dust | -- | -- | 2.8E-04 | 4.3E-05 |
| Grading | 2022 | On-Site Exhaust | 0.0128 | 0.138 | 6.1E-03 | 5.6E-03 |
| | | Mobile Exhaust | 0.0052 | 0.341 | 1.4E-02 | 6.1E-03 |
| | | Fugitive Dust | -- | -- | 1.1E-02 | 1.6E-03 |
| Building Construction | 2022 | On-Site Exhaust | 0.0822 | 0.724 | 3.4E-02 | 3.2E-02 |
| | | Mobile Exhaust | 0.0053 | 0.274 | 9.6E-03 | 4.2E-03 |
| | | Fugitive Dust | -- | -- | 3.6E-02 | 5.3E-03 |
| | 2023 | On-Site Exhaust | 0.0634 | 0.572 | 2.5E-02 | 2.3E-02 |
| | | Mobile Exhaust | 0.0037 | 0.205 | 7.9E-03 | 3.5E-03 |
| | | Fugitive Dust | -- | -- | 3.0E-02 | 4.5E-03 |
| Paving | 2023 | On-Site Exhaust | 0.0006 | 0.005 | 2.9E-04 | 2.6E-04 |
| | | Mobile Exhaust | 0.0001 | 0.003 | 1.3E-04 | 5.7E-05 |
| | | Fugitive Dust | -- | -- | 4.9E-04 | 7.4E-05 |
| | | Paving Off-Gassing | 0.0049 | -- | -- | -- |
| Architectural Coating | 2023 | On-Site Exhaust | 0.0005 | 0.006 | 4.1E-04 | 3.8E-04 |
| | | Mobile Exhaust | 0.0002 | 0.009 | 3.7E-04 | 1.6E-04 |
| | | Fugitive Dust | -- | -- | 1.2E-03 | 1.8E-04 |
| | | Architectural Coating | 1.57 | -- | -- | -- |

**Daily Average Unmitigated Construction Emissions (pounds/day) [1]**

| Year | Number of workdays | ROG | NOx | PM10 (Exhaust) | PM2.5 (Exhaust) |
|---|---|---|---|---|---|
| | | lb/day | | | |
| 2022 | 175 | 1.7 | 22.0 | 1.0 | 0.8 |
| 2023 | 145 | 22.7 | 11.0 | 0.5 | 0.4 |
| BAAQMD Thresholds[2] | | 54 | 54 | 82 | 54 |

**Notes:**

1. Construction emissions were estimated with methodology equivalent to CalEEMod® 2020.4.0. On-Site Exhaust represents emissions from offroad equipment, while mobile exhaust includes emissions from worker, vendor, and hauling trucks. For PM, the construction emissions of fugitive dust include the entrained roadway dust.

2. Thresholds are from BAAQMD Guidance for Assessing and Mitigating Air Quality Impacts. For PM, this includes construction exhaust and fugitive emissions.

**Abbreviations:**

BAAQMD - Bay Area Air Quality Management District
CalEEMod® - California Emissions Estimator Model®
CAP - Criteria Air Pollutants
CEQA - California Environmental Quality Act
NOx - nitrogen oxides
$PM_{10}$ - particulate matter less than 10 microns
$PM_{2.5}$ - particulate matter less than 2.5 microns
ROG - reactive organic gases

**References:**

California Emissions Estimator Model (CalEEMod). 2020.4.0. CAPCOA. 2020. Available online at: http://www.caleemod.com

**Table 3**
**Estimated Mitigated Emissions from Proposed Project Construction**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

**Summary of Mitigated Construction Emissions by Source (tons/year)[1]**

| Construction Subphase | Year | Source | Mitigated CAP Emissions[1] | | | |
|---|---|---|---|---|---|---|
| | | | ROG | NOx | $PM_{10}$ | $PM_{2.5}$ |
| | | | ton/yr | | | |
| Demolition | 2022 | On-Site Exhaust | 0.0254 | 0.256 | 1.1E-02 | 1.1E-02 |
| | | Mobile Exhaust | 0.0001 | 0.005 | 1.7E-04 | 7.6E-05 |
| | | Fugitive Dust | -- | -- | 5.2E-04 | 7.9E-05 |
| Site Preparation | 2022 | On-Site Exhaust | 0.0169 | 0.184 | 8.7E-03 | 8.0E-03 |
| | | Mobile Exhaust | 3.4E-05 | 0.002 | 6.2E-05 | 2.7E-05 |
| | | Fugitive Dust | -- | -- | 2.8E-04 | 4.3E-05 |
| Grading | 2022 | On-Site Exhaust | 0.0128 | 0.138 | 6.1E-03 | 5.6E-03 |
| | | Mobile Exhaust | 0.0052 | 0.341 | 1.4E-02 | 6.1E-03 |
| | | Fugitive Dust | -- | -- | 1.1E-02 | 1.6E-03 |
| Building Construction | 2022 | On-Site Exhaust | 0.0226 | 0.212 | 7.5E-03 | 7.0E-03 |
| | | Mobile Exhaust | 0.0053 | 0.274 | 9.6E-03 | 4.2E-03 |
| | | Fugitive Dust | -- | -- | 3.6E-02 | 5.3E-03 |
| | 2023 | On-Site Exhaust | 0.0182 | 0.170 | 5.4E-03 | 5.1E-03 |
| | | Mobile Exhaust | 0.0037 | 0.205 | 7.9E-03 | 3.5E-03 |
| | | Fugitive Dust | -- | -- | 3.0E-02 | 4.5E-03 |
| Paving | 2023 | On-Site Exhaust | 0.0006 | 0.005 | 2.9E-04 | 2.6E-04 |
| | | Mobile Exhaust | 0.0001 | 0.003 | 1.3E-04 | 5.7E-05 |
| | | Fugitive Dust | -- | -- | 4.9E-04 | 7.4E-05 |
| | | Paving Off-Gassing | 0.0049 | -- | -- | -- |
| Architectural Coating | 2023 | On-Site Exhaust | 0.0005 | 0.006 | 4.1E-04 | 3.8E-04 |
| | | Mobile Exhaust | 0.0002 | 0.009 | 3.7E-04 | 1.6E-04 |
| | | Fugitive Dust | -- | -- | 1.2E-03 | 1.8E-04 |
| | | Architectural Coating | 1.57 | -- | -- | -- |

**Daily Average Mitigated Construction Emissions (pounds/day) [1]**

| Year | Number of workdays | ROG | NOx | PM10 (Exhaust) | PM2.5 (Exhaust) |
|---|---|---|---|---|---|
| | | lb/day | | | |
| 2022 | 175 | 1.0 | 16.1 | 0.7 | 0.5 |
| 2023 | 145 | 22.1 | 5.5 | 0.2 | 0.1 |
| BAAQMD Thresholds[2] | | 54 | 54 | 82 | 54 |

**Notes:**

1. Construction emissions were estimated with methodology equivalent to CalEEMod® 2020.4.0. On-Site Exhaust represents emissions from offroad equipment, while mobile exhaust includes emissions from worker, vendor, and hauling trucks. For PM, the construction emissions of fugitive dust include the entrained roadway dust.

2. Thresholds are from BAAQMD Guidance for Assessing and Mitigating Air Quality Impacts. For PM, this includes construction exhaust and fugitive emissions.

**Abbreviations:**

BAAQMD - Bay Area Air Quality Management District
CalEEMod® - California Emissions Estimator Model®
CAP - Criteria Air Pollutants
CEQA - California Environmental Quality Act
NOx - nitrogen oxides
$PM_{10}$ - particulate matter less than 10 microns
$PM_{2.5}$ - particulate matter less than 2.5 microns
ROG - reactive organic gases

**References:**

California Emissions Estimator Model (CalEEMod). 2020.4.0. CAPCOA. 2020. Available online at: http://www.caleemod.com

**Table 4**
**Maximum Project Excess Lifetime Cancer Risk, Chronic HI and PM2.5**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| | Project Construction + Operation | | | | | | Project Operation | | |
|---|---|---|---|---|---|---|---|---|---|
| | Off-Site Resident | | | Off-Site Daycare Child | | | On-Site Resident | | |
| **Source Category** | **Excess Lifetime Cancer Risk[1]** | **Chronic HI** | **Annual average $PM_{2.5}$** | **Excess Lifetime Cancer Risk[1]** | **Chronic HI** | **Annual average $PM_{2.5}$** | **Excess Lifetime Cancer Risk[1]** | **Chronic HI** | **Annual average $PM_{2.5}$** |
| | **in a million** | **unitless ratio** | **µg/m$^3$** | **in a million** | **unitless ratio** | **µg/m$^3$** | **in a million** | **unitless ratio** | **µg/m$^3$** |
| Unmitigated off-road construction equipment exhaust | 15.3 | 0.03 | 0.039 | 8.1 | 0.022 | 0.034 | -- | -- | -- |
| Mitigated off-road construction equipment exhaust | 7.0 | 0.01 | 0.009 | 3.9 | 0.005 | 0.008 | -- | -- | -- |
| On-road construction mobile vehicles | 0.1 | 0.00 | 0.000 | 0.03 | 0.000 | 0.000 | -- | -- | -- |
| Emergency Generator | 1.6 | 0.00 | 0.002 | 0.1 | 0.00 | 0.002 | 1.9 | 0.00 | 0.003 |
| **Unmitigated Total** | **16.94** | **0.03** | **0.04** | **8.3** | **0.02** | **0.04** | **1.9** | **0.00** | **0.00** |
| **Mitigated Total** | **8.66** | **0.01** | **0.01** | **4.0** | **0.01** | **0.01** | **--** | **--** | **--** |
| **Significance Threshold** | **10** | **1** | **0.3** | **10** | **1** | **0.3** | **10** | **1** | **0.3** |
| **Mitigated scenario exceed threshold?** | **No** | **No** | **No** | **No** | **No** | **No** | **No** | **No** | **No** |
| | | | | | | | | | |
| UTMx | 560100 | | | 560160 | | | 560080 | | |
| UTMy | 4157840 | | | 4157860 | | | 4157900 | | |

**Note:**

1. Excess lifetime cancer risk and chronic HI from construction sources represent the incremental increase in activity expected as a result of the Project.
2. Excess lifetime cancer risks were estimated using the following equation:

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

   Where:

   $Risk_{inh}$ = Cancer Risk for the Inhalation Pathway (unitless)

   $C_i$ = Annual Average Air Concentration for Chemical "i" ug/m$^3$

   CF = Conversion Factor (mg/ug)

   $IF_{inh}$ = Intake Factor for Inhalantion (m$^3$/kg-day)

   $CPF_i$ = Cancer Potency Factor (mg/kg-day)$^{-1}$

   ASF = Age Sensitivity Factor (unitless)
3. Chronic HI for each receptor was estimated using the following equation:

$HI_{inh} = \Sigma C_i$ / cREL

Where:

$HI_{inh}$ = Chronic HI for the Inhalation Pathway (unitless)

$C_i$ = Annual Average Air Concentration for Chemical "i" ($ug/m^3$)

cREL = Chronic Reference Exposure Level ($ug/m^3$)

**Abbreviations:**

µg - microgram

$m^3$ - cubic meter

PM - particulate matter

OEHHA - Office of Environmental Health Hazard Assessment

**Reference:**

BAAQMD. 2017. California Environmental Quality Act Air Quality Guidelines. May. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

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

**Table 5**
**Cumulative Risks and Hazards at MEIRs and MEIS**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Receptor Type | Source | Lifetime Excess Cancer Risk[1] (in a million) | Noncancer Chronic HI[1] | $PM_{2.5}$ Concentration[1] ($\mu g/m^3$) |
|---|---|---|---|---|
| Off-Site Resident | Existing Stationary Sources | 9.24 | 0.04 | 8.45E-05 |
| | Highway[2] | 7.66 | -- | 0.16 |
| | Major Streets[2] | 0.15 | -- | 0.0038 |
| | Railways[2] | 42.72 | -- | 0.082 |
| | Project Construction + Operation | 8.66 | 0.01 | 0.01 |
| | **Total** | **68** | **0.05** | **0.26** |
| | **Exceeds Threshold?** | **NO** | **NO** | **NO** |
| Off-Site Daycare Child | Existing Stationary Sources | 19.64 | 8.64E-02 | 6.04E-05 |
| | Highway[2] | 7.94 | -- | 0.17 |
| | Major Streets[2] | 0.15 | -- | 0.0038 |
| | Railways[2] | 32.91 | -- | 0.063 |
| | Project Construction + Operation | 4.01 | 5.72E-03 | 1.01E-02 |
| | **Total** | **65** | **0.09** | **0.24** |
| | **Exceeds Threshold?** | **NO** | **NO** | **NO** |
| On-Site Resident | Existing Stationary Sources | 11.70 | 5.14E-02 | 6.04E-05 |
| | Highway[2] | 7.76 | -- | 0.16 |
| | Major Streets[2] | 0.15 | -- | 0.0038 |
| | Railways[2] | 40.37 | -- | 0.077 |
| | Project Operation | 1.89 | 5.07E-04 | 2.54E-03 |
| | **Total** | **62** | **0.05** | **0.25** |
| | **Exceeds Threshold?** | **NO** | **NO** | **NO** |
| **Threshold** | | **100** | **10** | **0.8** |

**Notes:**

[1] If the cell is marked with "--", no risk was calculated. For existing stationary sources, this is because the source was more than 1,000 feet from the onsite MEISR. For roadways, the chronic HI is not calculated in the BAAQMD screening tool.

[2] Cancer risk and $PM_{2.5}$ concentration values were determined using BAAQMD screening tools and are based on the maximum impact of a raster cell located on the MEIR.

**Abbreviations:**

µg - microgram
HI - hazard index
$m^3$ - cubic meter
MEISR - maximum exposed individual sensitive receptor
$PM_{2.5}$ - fine particulate matter

**References:**

Bay Area Air Quality Management District (BAAQMD). 2020. Permitted Sources Risk and Hazards Map. June. Available at: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

Bay Area Air Quality Management District (BAAQMD). 2020. Health Risk Calculator Beta 4.0. March. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/tools/baaqmd-health-risk-calculator-beta-4-0-xlsx.xlsx?la=en&rev=dab7d85a772d45caa9c99e59395bf12d\

BAAQMD. 2022. Personal Communication from Matthew Hanson to Carlos Ciudad-Real. March 25.

**Table 6**
**Construction Phasing Schedule**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Phase[1] | Start Date | End Date | Number of Work Days | Days per Week |
|---|---|---|---|---|
| Demolition | 5/1/2022 | 5/27/2022 | 20 | 5 |
| Site Preparation | 5/28/2022 | 6/10/2022 | 10 | 5 |
| Grading | 6/11/2022 | 7/8/2022 | 20 | 5 |
| Building Construction | 7/9/2022 | 5/26/2023 | 230 | 5 |
| Paving | 5/27/2023 | 6/23/2023 | 20 | 5 |
| Architectural Coating | 6/24/2023 | 7/21/2023 | 20 | 5 |

**Notes:**

1. The construction schedule is based on CalEEMod default phases and durations, with construction beginning in Q2 2022.

**Table 7**
**Construction Equipment**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Phase | Equipment[1] | CalEEMod Equipment[2] | Fuel[3] | Number[1] | Horsepower[1] | Daily Usage[4] (hours/day) | Utilization | Unmitigated Tier[5] | Mitigated Tier[5] |
|---|---|---|---|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | Concrete/Industrial Saws | Diesel | 1 | 81 | 8 | 100% | No Specific Tier | No Specific Tier |
| | Excavators | Excavators | Diesel | 2 | 158 | 8 | 20% | No Specific Tier | No Specific Tier |
| | Rubber Tired Dozers | Rubber Tired Dozers | Diesel | 2 | 247 | 8 | 100% | No Specific Tier | No Specific Tier |
| Site Preparation | Rubber Tired Dozers | Rubber Tired Dozers | Diesel | 3 | 247 | 8 | 100% | No Specific Tier | No Specific Tier |
| | Tractors/Loaders/Backhoes | Tractors/Loaders/Backhoes | Diesel | 4 | 97 | 8 | 100% | No Specific Tier | No Specific Tier |
| Grading | Excavators | Excavators | Diesel | 2 | 158 | 8 | 30% | No Specific Tier | No Specific Tier |
| | Graders | Graders | Diesel | 1 | 187 | 8 | 100% | No Specific Tier | No Specific Tier |
| | Rubber Tired Dozers | Rubber Tired Dozers | Diesel | 1 | 247 | 8 | 30% | No Specific Tier | No Specific Tier |
| | Tractors/Loaders/Backhoes | Tractors/Loaders/Backhoes | Diesel | 3 | 97 | 8 | 100% | No Specific Tier | No Specific Tier |
| Building Construction | Cranes | Cranes | Diesel | 1 | 231 | 7 | 45% | No Specific Tier | Tier 4 Final |
| | Forklifts | Forklifts | Diesel | 3 | 89 | 8 | 80% | No Specific Tier | Tier 4 Final |
| | Generator Sets | Generator Sets | Diesel | 1 | 84 | 8 | 100% | No Specific Tier | Tier 4 Final |
| | Tractors/Loaders/Backhoes | Tractors/Loaders/Backhoes | Diesel | 3 | 97 | 7 | 45% | No Specific Tier | No Specific Tier |
| | Welders | Welders | Diesel | 3 | 46 | 8 | 30% | No Specific Tier | Tier 4 Final |
| Paving | Pavers | Pavers | Diesel | 1 | 130 | 8 | 4% | No Specific Tier | No Specific Tier |
| | Paving Equipment | Paving Equipment | Diesel | 2 | 132 | 8 | 10% | No Specific Tier | No Specific Tier |
| | Rollers | Rollers | Diesel | 2 | 80 | 8 | 4% | No Specific Tier | No Specific Tier |
| Architectural Coating | Air Compressors | Air Compressors | Diesel | 1 | 78 | 6 | 100% | No Specific Tier | No Specific Tier |

**Notes:**

1. Equipment lists were provided/confirmed by the Project Sponsor.
2. CalEEMod equipment types are assgined using CalEEMod User's Guide Appendix D.
3. All equipment is conservatively assumed to be diesel-fueled.
4. Construction activities are assumed to occur during 8AM to 8PM, consistent with San Mateo County guidelines.
5. The unmitigated tier is assumed to be consistent with the fleet average tier. The mitigated tier is assumed to be Tier 4 Final for all pieces of equipment in that category.

**Abbreviations:**

CalEEMod - California Emissions Estimator Model

**References:**

California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod®), Version 2020.4.0. Available online at http://www.caleemod.com/

**Table 8**
**Construction Trips**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Phase | Year | Construction Days | Worker Trip Rates[1] (one-way trips/day) | Vendor Trip Rates[1] (one-way trips/day) | Hauling Trip Number (one-way trips/phase) | Trip Lengths[2] (miles/one way trip) | | | Worker VMT (miles) | Vendor VMT (miles) | Hauling VMT (miles) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Worker | Vendor | Hauling | | | |
| Demolition | 2022 | 20 | 15 | 5 | 15 | 10.8 | 7.3 | 20 | 3,240 | 730 | 300 |
| Site Preparation | 2022 | 10 | 18 | 5 | 0 | 10.8 | 7.3 | 20 | 1,944 | 365 | 0 |
| Grading | 2022 | 20 | 15 | 5 | 4100 | 10.8 | 7.3 | 20 | 3,240 | 730 | 82,000 |
| Building Construction | 2022 | 125 | 172 | 62 | 50 | 10.8 | 7.3 | 20 | 232,200 | 56,575 | 1,000 |
| Building Construction | 2023 | 105 | 172 | 62 | 50 | 10.8 | 7.3 | 20 | 195,048 | 47,523 | 1,000 |
| Paving | 2023 | 20 | 15 | 4 | 10 | 10.8 | 7.3 | 20 | 3,240 | 584 | 200 |
| Architectural Coating | 2023 | 20 | 34 | 10 | 40 | 10.8 | 7.3 | 20 | 7,344 | 1,460 | 800 |

**EMFAC Data[3]**

| Trip Type | EMFAC Settings | Fleet Mix | Fuel Type |
|---|---|---|---|
| Worker | San Mateo County Calendar Years 2022-2023 Annual Season Aggregated Model Year EMFAC2007 Vehicle | 50% LDA, 25% LDT1, 25% LDT2 | Gasoline |
| Vendor | | 50% MHDT, 50% HHDT | Diesel |
| Hauling | | 100% HHDT | Diesel |

**Notes:**

1. Worker and vendor trips during building construction is based on project land use areas and was scaled from default CalEEMod worker and vendor trips. Worker trips during architectural coating are equal to 20% of the building construction trips.
2. Trip lengths are based on CalEEMod Appendix D defaults for San Mateo County (urban).
3. Emissions were calculated using emission factors from EMFAC2021 Emissions Inventory with the specified settings and fleet and fuel assumptions.

**Abbreviations:**

CalEEMod - California Emissions Estimator Model
EMFAC2021 - California Air Resources Board EMission FACtor model
LDA - light-duty automobiles
LDT - light-duty trucks
HHDT - heavy-heavy duty trucks

**References:**

California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod®), Version 2020.4.0. Available online at http://www.caleemod.com/
California Air Resources Board (ARB) 2021. EMFAC2021. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools

**Table 9**
**Estimated Emissions from Construction Paving Off-Gassing**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Phase | Year | Asphalt-Paved Area (sqft) | Asphalt-Paved Area (acre) | Asphalt Paving Off-Gassing ROG Emission Factor (lb/acre)[1] | Asphalt Paving Off-Gassing ROG Emissions (lb) |
|---|---|---|---|---|---|
| Paving | 2023 | 162,800 | 3.74 | 2.62 | 9.8 |

**Notes:**

1. Emission factor from CalEEMod User's Guide, Appendix A.

**Abbreviations:**

lb - pound
ROG - reactive organic gas
sqft - square foot

**References:**

California Air Pollution Control Officers Association (CAPCOA). 2020. Appendix A. Available at: http://www.caleemod.com

**Table 10**
**Estimated Emissions from Construction Architectural Coating Off-Gassing**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

**Inputs**

| Parameter | | Input | Units |
|---|---|---|---|
| Residential Surface Area to Floor Area Ratio | | 2.7 | |
| Non-Residential Surface Area to Floor Area Ratio | | 2.0 | |
| Painted Area in Parking Structures | | 6% | |
| Application Rate | | 100% | |
| Fraction of Surface Area | Interior Surfaces | 75% | |
| | Exterior Shell | 25% | |
| Indoor Paint VOC Content | | 100 | g/L |
| Outdoor Paint VOC Content | | 150 | g/L |

**Emissions**

| Land Use | CalEEMod® Land Use | Square Footage (square feet) | Building Surface Area (square feet) | Architectural Coating VOC emissions[2] (lb) |
|---|---|---|---|---|
| Residential Space | Residential | 90,170 | 243,458 | 1269.85 |
| Office Space | Commercial | 179,904 | 359,807 | 1876.71 |
| Parking Lot | Parking | 162,800 | 9,768 | 45.29 |
| **Total** | | | | **3146.56** |

**Notes:**

2. Calculated based on CalEEMod® assumption that 1 gallon of paint covers 180 square feet and that building area is assumed to be 75% indoors and 25% outdoors.

**Abbreviations:**

CalEEMod® - California Emissions Estimator Model
EF - Emission Factor
g - grams
L - liter
lb - pound
VOC - Volatile Organic Compound

**References:**

California Air Pollution Control Officers Association (CAPCOA). 2020. California Emissions Estimator Model (CalEEMod), Version 2020.4.0. Available online at http://www.caleemod.com/

**Table 11**
**Silt Loading Emission Factors**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Entrained Roadway Dust Constants for San Mateo County | | |
|---|---|---|
| **Roadway Category** | **Silt Loading[1] ($g/m^2$)** | **Travel Fraction[1]** |
| Freeway | 0.015 | 63% |
| Major | 0.032 | 27% |
| Collector | 0.032 | 5% |
| Local | 0.32 | 5% |
| Weighted Silt Loading Factor | 0.036 | 100% |

**Notes:**

1. Travel fraction by roadway category and silt loading are from the ARB's Entrained Road Travel Emission Inventory Source Methodology, Tables 2 and 4, respectively.

**Abbreviations:**

ARB - Air Resources Board

g - gram(s)

m - meter

**References:**

California Air Resources Board. 2021. Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust. March. Available online at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf

**Table 12**
**Emission Factors for Entrained Roadway Dust**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

**Road Dust Equation**[1]

E [lb/VMT] = k*(sL)^0.91 * (W)^1.02 * (1-P/4N)

| Parameters | Value |
|---|---|
| E = annual average emission factor in the same units as k | [calculated] |
| k = particle size multiplier for particle size range | |
| $PM_{10}$ (lb/VMT) | 0.0022 |
| $PM_{2.5}$ (lb/VMT) | 3.3E-04 |
| sL = roadway silt loading [grams per square meter - $g/m^2$] | 0.036 |
| W = average weight of vehicles traveling the road [tons] | 2.4 |
| P = number of "wet" days in county with at least 0.01 in of precipitation during the annual averaging period | 74 |
| N = number of days in the averaging period | 365 |

| Entrained Road Dust Emission Factors | |
|---|---|
| $PM_{10}$ Emission Factor [lb/VMT] | 2.46E-04 |
| $PM_{2.5}$ Emission Factor [lb/VMT] | 3.69E-05 |

**Notes:**

1. Road dust equation and parameters are from the California Air Resources Board's (ARB) 2021 Miscellaneous Process Methodology 7.9 for Entrained Road Travel, Paved Road Dust. The silt loading emission factor assumes San Mateo county default roadway fractions and silt loading levels from ARB 2021. The number of "wet" days for San Mateo county is from ARB 2021. This is slightly higher than the default from CalEEMod® Appendix D Table 1.1 (70 days), which was based on older historic data and would result in slightly higher emissions. Other parameters (average weight of vehicles, size multipliers) are from ARB 2021. $PM_{2.5}$ is assumed to be 15% of $PM_{10}$ based on paved road dust sampling in California (ARB Speciation Profile #471), which is a more representative fraction than provided in the older AP-42 fugitive dust methodology as discussed in ARB 2021 (page 10).

**Abbreviations:**

ARB - California Air Resources Board
CalEEMod® - California Emissions Estimator Model
EMFAC - EMission FACtor Model
g - gram
lb - pound
$PM_{2.5}$ - particulate matter less than 2.5 microns
$PM_{10}$ - particulate matter less than 10 microns
VMT - vehicle miles traveled

**References:**

California Air Resources Board. 2021. Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust. March. Available online at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf

California Air Pollution Control Officers Association (CAPCOA). 2020. California Emissions Estimator Model (CalEEMod), Version 2020.4.0. Available online at http://www.caleemod.com/

**Table 13**
**Emissions Calculations for Entrained Road Dust**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

**Entrained Road Dust Emission Factors**
PM10 Emission Factor [lb/VMT]
PM2.5 Emission Factor [lb/VMT]

| Phase | Year | Construction Days | Total VMT (miles) | Total Emissions (lb) | |
|---|---|---|---|---|---|
| | | | | $PM_{10}$ | $PM_{25}$ |
| Demolition | 2022 | 20 | 4,270 | 1.0 | 0.2 |
| Site Preparation | 2022 | 10 | 2,309 | 0.6 | 0.1 |
| Grading | 2022 | 20 | 85,970 | 21.1 | 3.2 |
| Building Construction | 2022 | 125 | 289,775 | 71.2 | 10.7 |
| Building Construction | 2023 | 105 | 243,571 | 59.9 | 9.0 |
| Paving | 2023 | 20 | 4,024 | 1.0 | 0.1 |
| Architectural Coating | 2023 | 20 | 9,604 | 2.4 | 0.4 |

**Abbreviations:**
lb - pound

VMT - vehicle miles travelled

**Table 14**
**Project Operation Modeling Parameters**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Source | Source Type | Number of Sources | Release Height[2] | Exit Temperature[3] | Exit Flow[3] | Exit Diameter[3] |
|---|---|---|---|---|---|---|
| | | | (m) | (K) | ($m^3$/min) | (mm) |
| Generators[1] | Point | 1 | 6 | 822 | 63.4 | 101.6 |

**Notes:**

1. One generator rated 300 kilowatts woud be located on the southern corner of the Project site.
2. According to the Project Sponsor, generator would exhaust roughly 20 feet above sidewalk.
3. Based on the specification sheet for the Generac SD300 model.

**Abbreviations:**

K - Kelvin
m - meter
min - minute
mm - millimeter

**Table 15**
**Construction Modeling Parameters**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

**Construction Sources**

| Source[1] | Source Type | Number of Sources | Source Dimension | | Release Height | Initial Vertical Dimension[3] | Initial Lateral Dimension[3] |
|---|---|---|---|---|---|---|---|
| | | | Value | Units | [m] | [m] | [m] |
| Construction Equipment | Area [2] | 1 | 8470.00 | $m^2$ | 5.00 | 1.16 | - |
| On-Road Haul Trucks | Volume | Multiple | Width of Road + 6 | m | 2.55 | 2.37 | Source Dimension/2.15 |

**Notes:**

1. Modeled emission rates for emission sources are 1 g/s to generate unit dispersion factors. The complete AERMOD input file can be found in Appendix C.
2. Area source release height assumed to be 5 meters, consistent with SCAQMD LST Guidance.
3. According to USEPA's AERMOD guidance, initial vertical dimension of the modeled construction equipment area sources is the release hegith divided by 4.3. According to the USEPA Haul Road Guidance, the initial vertical dimension for line sources is the top of plume height divided by 2.15, where the top of the plume is equal to 2*Release Height. According to USEPA's AERMOD guidance, the initial horizontal dimension for construction volume sources is the source width divided by 2.15.

**Abbreviations:**

m - meter
$m^2$ - square meter
AERMOD - Atmospheric Dispersion Modeling
SCAQMD - South Coast Air Quality Management District
LST - Localized Significance Thresholds
USEPA - United States Environmental Protection Agency

**References:**

SCAQMD. 2008. Final Localized Significance Threshold Methodology. July. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2

United States Environmental Protection Agency (USEPA). 2012. Haul Road Workgroup Final Report Submission to EPA-OAQPS. U.S. EPA Office of Air Quality and Planning Standards, Research Triangle Park, North Carolina. Available at: https://www3.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf

USEPA. 2012. Haul Road Workgroup Final Report Submission to EPA-OAQPS. U.S. EPA Office of Air Quality and Planning Standards, Research Triangle Park, North Carolina. Available at: https://www3.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf

USEPA. 2019. User's Guide for the AMS/EPA Regulatory Model (AERMOD). U.S. EPA Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. Available at: https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf

**Table 16**

**Modeled Emission Rates from Proposed Project Construction and Operational Sources**

**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Construction Subphase | Year | Unmitigated Construction Emissions[1] [g/s] | | | |
|---|---|---|---|---|---|
| | | Offroad | | Onroad | |
| | | DPM | $PM_{2.5}$ | DPM | $PM_{2.5}$ |
| Demolition | 2022 | 3.31E-04 | 3.04E-04 | 4.38E-08 | 4.19E-08 |
| Site Preparation | 2022 | 2.49E-04 | 2.29E-04 | 1.90E-08 | 1.82E-08 |
| Grading | 2022 | 1.75E-04 | 1.61E-04 | 1.60E-06 | 1.53E-06 |
| Building Construction | 2022 | 9.90E-04 | 9.11E-04 | 2.96E-06 | 2.83E-06 |
| | 2023 | 7.15E-04 | 6.58E-04 | 2.37E-06 | 2.27E-06 |
| Paving | 2023 | 8.21E-06 | 7.55E-06 | 3.27E-08 | 3.13E-08 |
| Architectural Coating | 2023 | 1.19E-05 | 1.09E-05 | 8.71E-08 | 8.33E-08 |

| Construction Subphase | Year | Mitigated Construction Emissions[2] [g/s] | |
|---|---|---|---|
| | | Offroad | |
| | | DPM | $PM_{2.5}$ |
| Building Construction | 2022 | 2.18E-04 | 2.04E-04 |
| | 2023 | 1.57E-04 | 2.02E-05 |

| Operation | Year | Operational Emissions[3] [g/s] | |
|---|---|---|---|
| | | DPM | $PM_{2.5}$ |
| Emergency Generator | 2023 | 6.99E-05 | 6.99E-05 |

**Notes:**

1. Construction TAC emissions were estimated from on-site off-road emissions, where all $PM_{10}$ tailpipe emissions are assumed to be DPM (although a portion of this is likely not from diesel sources). On-road emissions from hauling and vendor vehicles were estimated using a modeled trip length of 0.65 miles. These emissions were modeled on separate haul roads. The inclusion of on-road emissions is conservative as the estimated traffic volumes do not exceed the screening levels recommended by BAAQMD (i.e., more than 10,000 vehicles per day and 100 trucks per day) and can be considered minor sources (BAAQMD 2011).

2 All other emissions remain identical under the unmitigated and mitigated scenarios. The requirement of Tier 4 Final diesel engines on forklifts, cranes, generator sets and welders only affect emissions during building construction subphase.

3 Annual emissions from the proposed emergency generator were calculated in CalEEMod and averaged over a year to obtain the emission rates.

**Abbreviations:**

BAAQMD - Bay Area Air Quality Management District

CalEEMod® - California Emissions Estimator Model®

DPM - diesel particulate matter

$PM_{2.5}$ - particulate matter less than 2.5 microns

**References:**

California Emissions Estimator Model (CalEEMod). 2020.4.0. CAPCOA. 2020. Available online at: http://www.caleemod.com

California Environmental Quality Act (CEQA) Guidelines. 2017. Bay Area Air Quality Management District (BAAQMD). May. Available online at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

Recommended Methods for Screening and Modeling Local Risks and Hazards. 2012. BAAQMD. May. Available online at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

**Table 17**
**Construction and Operation Exposure Parameters**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

**Construction + Operation Scenario**

| Receptor Type | Project Phase | Year | Receptor Age Group | Exposure Parameters | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Daily Breathing Rate (DBR)[1] | Exposure Duration (ED)[2] | Fraction of Time at Home (FAH)[3] | Exposure Frequency (EF)[4] | Age Sensitivity Factor | Averaging Time (AT) | Intake Factor, Inhalation ($IF_{inh}$) |
| | | | | [L/kg-day] | [years] | [unitless] | [days/year] | | [days] | [$m^3$/kg-day] |
| Resident | Construction | 2022 | 3rd Trimester | 361 | 0.25 | 1.0 | 350 | 10 | 25500 | 0.012 |
| | | 2022 | 0-<2 | 1090 | 0.42 | 1.0 | | 10 | | 0.063 |
| | | 2023 | 0-<2 | 1090 | 0.55 | 1.0 | | 10 | | 0.083 |
| | Operation | 2023 | 0-<2 | 1090 | 2.00 | 1.0 | | 10 | | 0.299 |
| | | 2023 | 2-<16 | 572 | 14.00 | 1.0 | | 3 | | 0.330 |
| | | 2023 | 16-30 | 261 | 14.00 | 0.7 | | 1 | | 0.037 |
| Daycare | Construction | 2022 | 0-<2 | 750 | 0.67 | 1.00 | 250.0 | 10 | | 0.049 |
| | | 2023 | 0-<2 | 750 | 0.55 | 1.00 | | 10 | | 0.041 |
| | Operation | 2023 | 2-<16 | 415 | 5.00 | 1.0 | | 3 | | 0.061 |
| Childcare | Construction | 2022 | 2-<9 | 415 | 0.67 | 1.0 | | 3 | | 0.008 |
| | | 2023 | 2-<9 | 415 | 0.55 | 1.0 | | 3 | | 0.007 |
| | Operation | 2023 | 2-<9 | 415 | 6.00 | 1.0 | | 3 | | 0.073 |

**Operation Only Scenario**

| Receptor Type | Project Phase | Year | Receptor Age Group | Exposure Parameters | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Daily Breathing Rate (DBR)[1] | Exposure Duration (ED)[5] | Fraction of Time at Home (FAH)[3] | Exposure Frequency (EF)[4] | Age Sensitivity Factor | Averaging Time (AT) | Intake Factor, Inhalation ($IF_{inh}$) |
| | | | | [L/kg-day] | [years] | [unitless] | [days/year] | | [days] | [$m^3$/kg-day] |
| Resident | Operation | 2022 | 3rd Trimester | 361 | 0.25 | 1.0 | 350 | 10 | 25500 | 0.012 |
| | | 2022 | 0-<2 | 1090 | 2.00 | 1.0 | | 10 | | 0.299 |
| | | 2023 | 2-<16 | 572 | 14.00 | 1.0 | | 3 | | 0.330 |
| | | 2023 | 16-30 | 261 | 14.00 | 0.7 | | 1 | | 0.037 |

**Notes:**

[1] Daily breathing rates reflect default breathing rates from OEHHA 2015 as follows:
95th percentile moderate intensity 8-hour daily breathing rate for age 16-70
9th percentile 8-hour daily breathing rate for age 0-2 years, assuming 2 hours of moderate intensity and 6 hours of light intensity activity

[2] Exposure duration for residential receptor is assumed to begin at the start of construction and continue for 30 years of operation.

[3] Fraction of time spent at home is conservatively assumed to be 1 (i.e., 24 hours/day) for age groups from the third trimester to less than 16 years old based on the recommendation from BAAQMD (BAAQMD 2016) and OEHHA (OEHHA 2015). The fraction of time at home for adults age 16-30 reflects default OEHHA guidance (OEHHA 2015) as recommended by BAAQMD (2016).

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

[5] For the emergency generators, the maximally exposed project resident is assumed to be exposed to risks for 30 years, beginning at the start of operation.

**Calculation:**

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

CF = 0.001 ($m^3$/L)

MAF = HR / HS * DR / DS *DF

**Abbreviations:**

AT - averaging time
BAAQMD - Bay Area Air Quality Management District
DBR - daily breathing rate
ED - exposure duration
EF - exposure frequency
FAH - fraction of time at home
HS - number of hours of source operation per day
DS - number of days of source operation per week
DF - discount factor, set to 1 because offsite worker's schedule falls entirely within the source schedule

$IF_{inh}$ - intake factor
kg - kilogram
L - liter
$m^3$ - cubic meter
OEHHA - Office of Environmental Health Hazard Assessment
MAH - model adjusmtent factor
HR - number of hours per day for which long-term concentration is calculated
DR - number of days per week for which annual average concentration is calculated

**References:**

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. Available at https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

**Table 18**
**Toxicity Values**
**Block 21 Development**
**500 E. 3rd Ave, San Mateo, CA**

| Chemical[1] | Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$ | Chronic REL ($\mu g/m^3$) |
|---|---|---|
| Diesel PM | 1.1 | 5.0 |

**Notes:**

1. Chemicals presented in this table reflect air toxic contaminants in the proposed fuel types that are expected from off-road equipment and on-road truck trips.

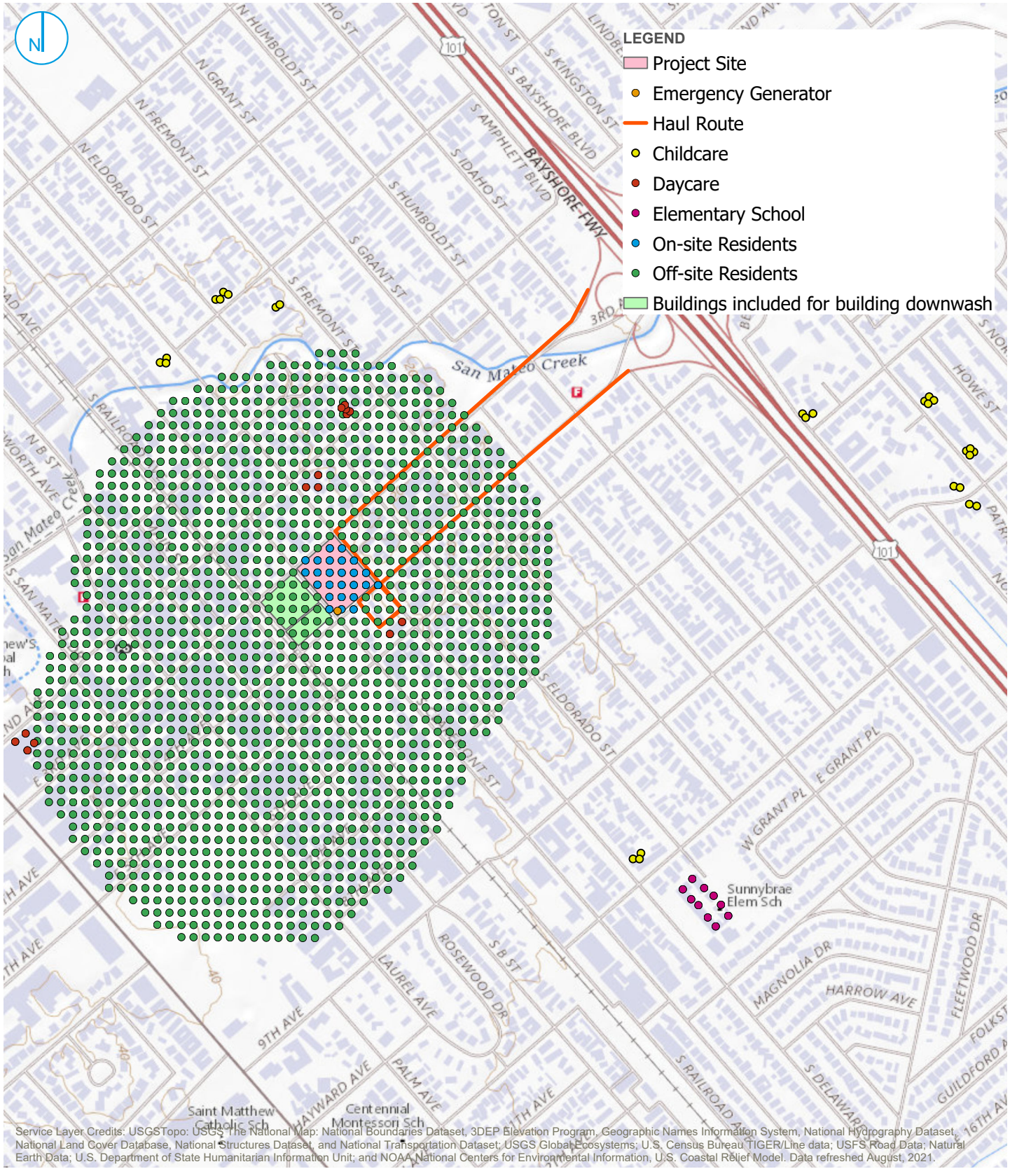
**Abbreviations:**

$\mu g/m^3$ - micrograms per cubic meter
ARB - Air Resources Board
Cal/EPA - California Environmental Protection Agency
$(mg/kg\text{-}day)^{-1}$ - per milligram per kilogram-day
OEHHA - Office of Environmental Health Hazard Assessment
PM - particulate matter
REL - reference exposure level

**Reference:**

Cal/EPA. 2015. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. May 13.

# FIGURES

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PROJECT: 1690002413 | DATED: | DESIGNER:

Map Scale: 1:11,000 | Map Center: 122°19'1"W 37°33'59"N

0 1,000 2,000 Feet

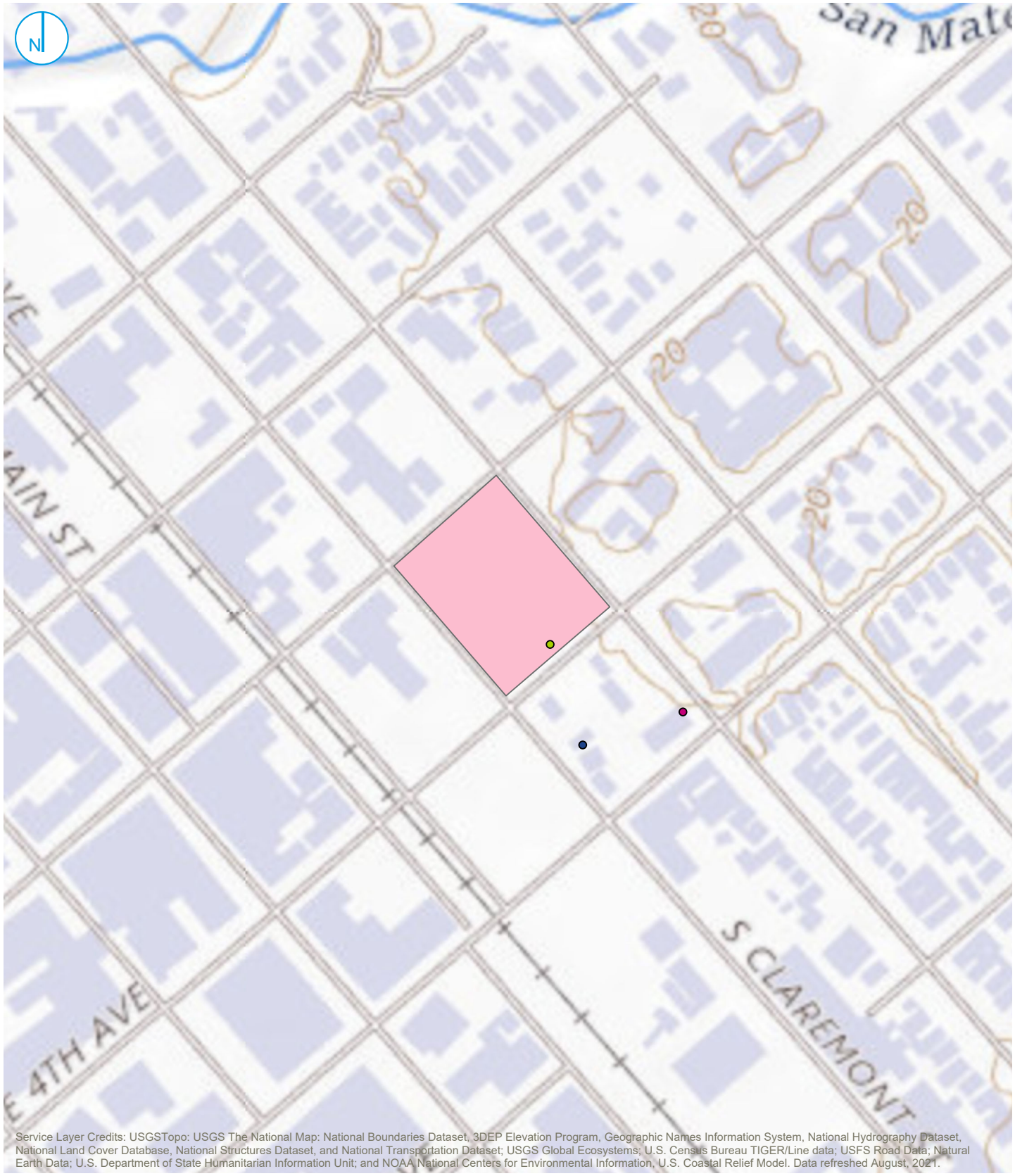
## SOURCE AND RECEPTOR SETUP

**FIGURE 01**

**Block 21 Development**
500 E 3rd Ave
San Mateo, CA

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1690002413 | DATED: | DESIGNER:

Map Scale: 1:4,027 | Map Center: 122°19'12"W 37°33'59"N

**LEGEND**

- Project Site
- Off-Site Daycare Child
- Off-Site Resident
- On-Site Resident

# LOCATION OF MEIR'S AND MEIS

**FIGURE 02**

**Block 21 Development**
500 E 3rd Ave
San Mateo, CA

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

RAMBOLL

0 1,000 2,000 Feet

# APPENDIX A
# CALEEMOD® OUTPUT FILES FOR PROJECT'S EMERGENCY GENERATOR

Block 21 Emergency Generator Run - San Mateo County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

# Block 21 Emergency Generator Run

**San Mateo County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| User Defined Commercial | 1.00 | User Defined Unit | 1.00 | 100.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 70 |
| **Climate Zone** | 5 | | | **Operational Year** | 2023 |
| **Utility Company** | Pacific Gas and Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 203.98 | **CH4 Intensity (lb/MWhr)** | 0.033 | **N2O Intensity (lb/MWhr)** | 0.004 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Not used.

Fleet Mix - Not used.

Area Coating -

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps - A 300kW emergency generator would be included in project operation.

Area Mitigation - Not used

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblAreaMitigation | UseLowVOCPaintParkingValue | 150 | 100 |
| tblFleetMix | HHD | 2.1800e-003 | 0.00 |
| tblFleetMix | LDA | 0.48 | 1.00 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | |
|---|---|---|---|
| tblFleetMix | LDT1 | 0.07 | 0.00 |
| tblFleetMix | LDT2 | 0.23 | 0.00 |
| tblFleetMix | LHD1 | 0.02 | 0.00 |
| tblFleetMix | LHD2 | 6.0360e-003 | 0.00 |
| tblFleetMix | MCY | 0.03 | 0.00 |
| tblFleetMix | MDV | 0.14 | 0.00 |
| tblFleetMix | MH | 2.5400e-003 | 0.00 |
| tblFleetMix | MHD | 9.8640e-003 | 0.00 |
| tblFleetMix | OBUS | 1.5050e-003 | 0.00 |
| tblFleetMix | SBUS | 4.3700e-004 | 0.00 |
| tblFleetMix | UBUS | 6.1200e-004 | 0.00 |
| tblLandUse | LandUseSquareFeet | 0.00 | 100.00 |
| tblLandUse | LotAcreage | 0.00 | 1.00 |
| tblStationaryGeneratorsPumpsEF | CH4_EF | 0.07 | 0.07 |
| tblStationaryGeneratorsPumpsEF | ROG_EF | 2.2480e-003 | 2.2477e-003 |
| tblStationaryGeneratorsPumpsUse | HorsePowerValue | 0.00 | 402.00 |
| tblStationaryGeneratorsPumpsUse | HoursPerDay | 0.00 | 1.00 |
| tblStationaryGeneratorsPumpsUse | HoursPerYear | 0.00 | 50.00 |
| tblStationaryGeneratorsPumpsUse | NumberOfEquipment | 0.00 | 1.00 |

## 2.0 Emissions Summary

| | ROG | NOx | 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) |
|---|---|---|---|---|
| | | **Highest** | | |

Block 21 Emergency Generator Run - San Mateo County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 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 | 4.4000e-004 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Stationary | 0.0165 | 0.0461 | 0.0421 | 8.0000e-005 | | 2.4300e-003 | 2.4300e-003 | | 2.4300e-003 | 2.4300e-003 | 0.0000 | 7.6540 | 7.6540 | 1.0700e-003 | 0.0000 | 7.6809 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0169** | **0.0461** | **0.0421** | **8.0000e-005** | **0.0000** | **2.4300e-003** | **2.4300e-003** | **0.0000** | **2.4300e-003** | **2.4300e-003** | **0.0000** | **7.6540** | **7.6540** | **1.0700e-003** | **0.0000** | **7.6809** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 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 | 4.4000e-004 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Stationary | 0.0165 | 0.0461 | 0.0421 | 8.0000e-005 | | 2.4300e-003 | 2.4300e-003 | | 2.4300e-003 | 2.4300e-003 | 0.0000 | 7.6540 | 7.6540 | 1.0700e-003 | 0.0000 | 7.6809 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0169** | **0.0461** | **0.0421** | **8.0000e-005** | **0.0000** | **2.4300e-003** | **2.4300e-003** | **0.0000** | **2.4300e-003** | **2.4300e-003** | **0.0000** | **7.6540** | **7.6540** | **1.0700e-003** | **0.0000** | **7.6809** |

| | ROG | NOx | 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 | Architectural Coating | Architectural Coating | 1/2/2011 | | 5 | 5 | |
| 2 | Building Construction | Building Construction | 1/2/2011 | | 5 | 100 | |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | Demolition | Demolition | 1/2/2011 | | 5 | 10 | |
| 4 | Grading | Grading | 1/2/2011 | | 5 | 2 | |
| 5 | Paving | Paving | 1/2/2011 | | 5 | 5 | |
| 6 | Site Preparation | Site Preparation | 1/2/2011 | | 5 | 1 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 150; Non-Residential Outdoor: 50; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|

**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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Architectural Coating | | | 0.00 | 0.00 | 10.80 | 7.30 | | | | |
| Building Construction | | | 0.00 | 0.00 | 10.80 | 7.30 | | | | |
| Demolition | | | 0.00 | 0.00 | 10.80 | 7.30 | | | | |
| Grading | | | 0.00 | 0.00 | 10.80 | 7.30 | | | | |
| Paving | | | 0.00 | 0.00 | 10.80 | 7.30 | | | | |
| Site Preparation | | | 0.00 | 0.00 | 10.80 | 7.30 | | | | |

## 3.1 Mitigation Measures Construction

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

# 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 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| User Defined Commercial | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

## 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 |
| User Defined Commercial | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| User Defined Commercial | 1.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 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 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 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 | | | | | |
| User Defined Commercial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**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 | | | | | |
| User Defined Commercial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| User Defined Commercial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| User Defined Commercial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

Block 21 Emergency Generator Run - San Mateo County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 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 | 4.4000e-004 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| Unmitigated | 4.4000e-004 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 5.0000e-005 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 3.9000e-004 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| **Total** | **4.4000e-004** | **0.0000** | **1.0000e-005** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **2.0000e-005** | **2.0000e-005** | **0.0000** | **0.0000** | **2.0000e-005** |

Block 21 Emergency Generator Run - San Mateo County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 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 | 5.0000e-005 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 3.9000e-004 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| **Total** | **4.4000e-004** | **0.0000** | **1.0000e-005** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **2.0000e-005** | **2.0000e-005** | **0.0000** | **0.0000** | **2.0000e-005** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| User Defined Commercial | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

### 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| User Defined Commercial | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| User Defined Commercial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| User Defined Commercial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 9.0 Operational Offroad

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

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 10.0 Stationary Equipment

### Fire Pumps and Emergency Generators

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|
| Emergency Generator | 1 | 1 | 50 | 402 | 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 (300 - 600 HP) | 0.0165 | 0.0461 | 0.0421 | 8.0000e-005 | | 2.4300e-003 | 2.4300e-003 | | 2.4300e-003 | 2.4300e-003 | 0.0000 | 7.6540 | 7.6540 | 1.0700e-003 | 0.0000 | 7.6809 |
| **Total** | **0.0165** | **0.0461** | **0.0421** | **8.0000e-005** | | **2.4300e-003** | **2.4300e-003** | | **2.4300e-003** | **2.4300e-003** | **0.0000** | **7.6540** | **7.6540** | **1.0700e-003** | **0.0000** | **7.6809** |

## 11.0 Vegetation

# APPENDIX B
# TRAFFIC STUDY

**BLOCK 21 TRIP GEN**

| Land Use | ITE LU Code | Quantity | Units | Daily | AM | | | PM | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Total | In | Out | Total | In | Out | Total |
| Proposed Project | | | | | | | | | | |
| Multifamily Low-Rise | 220 | 111 | DU | 787 | 14 | 43 | 57 | 43 | 25 | 68 |
| General Office Building | 710 | 181 | KSF | 1944 | 246 | 33 | 279 | 46 | 226 | 272 |
| | | | | 2731 | 260 | 76 | 336 | 89 | 251 | 340 |
| Reductions | | | | | | | | | | |
| Internal Capture | | | | -78 | -9 | -3 | -12 | -3 | -7 | -10 |
| External Walk, Bike, and Transit | | | | -512 | -52 | -16 | -68 | -16 | -47 | -63 |
| | | | | -22% | -23% | -25% | -24% | -21% | -22% | -21% |
| **Proposed Project (without trip credit)** | | | | **2141** | **199** | **57** | **256** | **70** | **197** | **267** |
| | | | | | | | | | | |
| Existing Uses (average - use in analysis) | | | | | | | | | | |
| Multifamily Low-Rise | 220 | 4 | DU | 27 | 0 | 2 | 2 | 1 | 1 | 2 |
| Single-Family Detached Housing | 210 | 3 | DU | 28 | 1 | 1 | 2 | 2 | 1 | 3 |
| Strip Retail Plaza (<40ksf) | 822 | 22 | KSF | 1198 | 31 | 21 | 52 | 73 | 72 | 145 |
| Automobile Care Center | 942 | 3.1 | KSF | 100 | 5 | 2 | 7 | 5 | 5 | 10 |
| Gasoline/Service Station | 944 | 8 | Fueling Positions | 1376 | 41 | 41 | 82 | 56 | 55 | 111 |
| | | | | | | | | | | |
| Reductions | | | | | | | | | | |
| Internal Capture | | | | -46 | -4 | -4 | -8 | -6 | -6 | -12 |
| External Walk, Bike, and Transit | | | | -271 | -8 | -7 | -15 | -15 | -14 | -29 |
| | | | | -12% | -15% | -16% | -16% | -15% | -15% | -15% |
| **Existing Uses Subtotal** | | | | **2412** | **66** | **56** | **122** | **116** | **114** | **230** |
| | | | | | | | | | | |
| **Proposed Project (with trip credit)** | | | | **-271** | **133** | **1** | **134** | **-46** | **83** | **37** |

# APPENDIX C
# AERMOD INPUT FILES (PROVIDED ELECTRONICALLY)