

IS/MND
Appendices

AIR QUALITY AND GREENHOUSE GAS ASSESSMENT

ATTACHMENT A

to the
580 Dubuque Avenue Project Initial Study / Mitigated Negative Declaration

580 DUBUQUE AVENUE AIR QUALITY & GREENHOUSE GAS ASSESSMENT

South San Francisco, California

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Introduction

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with the proposed lab/office building construction located at 580 Dubuque Avenue in South San Francisco, California. The air quality impacts and GHG emissions from this project would be associated with construction of the new buildings, trips generated by the operation of the project, and operation of an emergency generator. Air pollutant and GHG emissions associated with construction and operation of the project were predicted using appropriate computer models. In addition, the potential project health risk impacts (including construction and operation) and the impact of existing toxic air contaminant (TAC) sources affecting the nearby and proposed sensitive receptors were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).¹ BAAQMD recommends using a 1,000-foot screening radius around the project site for purposes of identifying community health risk from existing sources of TACs.

Project Description

The approximately 1.89-acre project site is currently undeveloped. The project proposes to construct a 295,000 square-foot lab/office building along with a 350 space, below grade parking garage and a 0.5-acre public park. Construction is assumed in this assessment to begin in February 2022 and be completed by May 2024.

Setting

The project is located in San Mateo County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}).

Air Pollutants of Concern

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

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM₁₀) and fine particulate matter where particles have a diameter of 2.5 micrometers or less (PM_{2.5}). Elevated concentrations of PM₁₀ and PM_{2.5} are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels

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

aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

TACs are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015.² See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are in the multi-family residences to the northwest opposite U.S. Highway 101. Additional sensitive receptors can be found at further distances to the west and southwest of the project site. This project would not introduce new sensitive receptors (i.e., residents) to the area.

² OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

Regulatory Setting

Federal Regulations

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

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of nitrogen oxides, or NO_x, and particulate matter (PM₁₀ and PM_{2.5}) and because the EPA has identified diesel particulate matter as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce PM and NO_x emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.³

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

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

State Regulations

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

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

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

approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or replaced to meet 2010 or later engine standards that have much lower DPM and PM_{2.5} emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, this measure is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road, or is retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

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

Bay Area Air Quality Management District (BAAQMD)

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

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

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.⁵ The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement

⁵ See BAAQMD: <https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program>, accessed 2/18/2021.

and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. The BAAQMD defines overburdened communities as areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.⁶ The project site and its environs are not within a CARE area but are within a BAAQMD overburdened area as identified by CalEnviroScreen (version 4.0), where the overall score is at the 75th to 85th percentile within 1,000 feet of the project site.

The BAAQMD California Environmental Quality Act (CEQA) *Air Quality Guidelines*⁷ were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. *Attachment 1* includes detailed community risk modeling methodology.

BAAQMD Rules and Regulations

Combustion equipment associated with the proposed project that includes new diesel engines to power generators and possibly new natural gas-fired boilers would establish new sources of particulate matter and gaseous emissions. Emissions would primarily result from the testing of the emergency backup generators, operation of the boilers for space and water heating and some minor emissions from cooling towers. Certain emission sources would be subject to BAAQMD Regulations and Rules. The District's rules and regulations that may apply to the project include:

- Regulation 2 – Permits
 - Rule 2-1: General Requirements
 - Rule 2-2: New Source Review
- Regulation 6 – Particulate Matter and Visible Emissions
 - Rule 6-3: Wood-Burning Devices
- Regulation 9 – Inorganic Gaseous Pollutants
 - Rule 9-1: Sulfur Dioxide
 - Rule 9-7: Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, And Process Heaters
 - Rule 9-8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines

⁶ See BAAQMD: https://www.baaqmd.gov/~/_media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofverburdenedcommunities-pdf.pdf?la=en, accessed 10/1/2021.

⁷ Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

Permits

Rule 2-1-301 requires that any person installing, modifying, or replacing any equipment, the use of which may reduce or control the emission of air contaminants, shall first obtain an Authority to Construct (ATC).

Rule 2-1-302 requires that written authorization from the BAAQMD in the form of a Permit to Operate (PTO) be secured before any such equipment is used or operated.

Rule 2-1 lists sources that are exempt from permitting. At the proposed facility, the diesel fuel storage tanks are expected to be exempt from permitting.

New Source Review

Rule 2-2, New Source Review (NSR), applies to all new and modified sources or facilities that are subject to the requirements of Rule 2-1-301. The purpose of the rule is to provide for review of such sources and to provide mechanisms by which no net increase in emissions will result.

Rule 2-2-301 requires that an applicant for an ATC or PTO apply Best Available Control Technology (BACT) to any new or modified source that results in an increase in emissions and has emissions of precursor organic compounds, non-precursor organic compounds, NO_x, SO₂, PM₁₀, or CO of 10.0 pounds or more per highest day. Based on the estimated emissions from the proposed project, BACT will be required for NO_x emissions from the diesel-fueled generator engines.

Stationary Diesel Airborne Toxic Control Measure

The BAAQMD administers the CARB's Airborne Toxic Control Measure (ACTM) for Stationary Diesel engines (section 93115, title 17 CA Code of Regulations). The project's stationary sources will be new stationary emergency standby diesel engines larger than 50 hp. These limits vary based on maximum engine power. All engines are limited to PM emission rates of 0.15 g/hp-hour, regardless of size. This ACTM limits engine operation 50 hours per year for routine testing and maintenance.

Offsets

Rule 2-2-302 require that offsets be provided for a new or modified source that emits more than 10 tons per year of NO_x or precursor organic compounds. It is not expected that emissions of any pollutant will exceed the offset thresholds. Thus, is not expected that offsets for the proposed project would be required.

Prohibitory Rules

Regulation 6 pertains to particulate matter and visible emissions. Although the engines will be fueled with diesel, they will be modern, low emission engines. Thus, the engines are expected to comply with Regulation 6.

Rule 6-3 applies to emissions from wood-burning devices. Effective November 1, 2016, no person or builder shall install a wood-burning device in a new building construction. Project plans do not depict fireplaces.

Rule 9-1 applies to sulfur dioxide. The engines will use ultra-low sulfur diesel fuel (less than 15 ppm sulfur) and will not be a significant source of sulfur dioxide emissions and are expected to comply with the requirements of Rule 9-1.

Rule 9-7 limits the emissions of NO_x CO from industrial, institutional and commercial boilers, steam generators and process heaters. This regulation typically applies to boilers with a heat rating of 2 million British Thermal Units (BTU) per hour

Rule 9-8 prescribes NO_x and CO emission limits for stationary internal combustion engines. Since the proposed engines will be used with emergency standby generators, Regulation 9-8-110 exempts the engines from the requirements of this Rule, except for the recordkeeping requirements (9-8-530) and limitations on hours of operation for reliability-related operation (maintenance and testing). The engines will not operate more than 50 hours per year, which will satisfy the requirements of 9-8-111.

BACT for Diesel Generator Engines

Since the generators will be used exclusively for emergency use during involuntary loss of power, the BACT levels listed for IC compression engines in the BAAQMD BACT Guidelines would apply. These are provided for two separate size ranges of diesel engines:

I.C. Engine – Compression Ignition >50hp and <1,000hp: BAAQMD applies BACT 2 emission limits based on the ATCM for stationary emergency standby diesel engines larger than 50 brake-horsepower (BHP). NO_x emission factor limit is subject to the CARB ACTM that ranges from 3.0 to 3.5 grams per horsepower hour (g/hp-hr). The PM (PM₁₀ or PM_{2.5}) limit is 0.15 g/hp-hr per CARB's ACTM.

I.C. Engine – Compression Ignition <999hp: BAAQMD applies specific BACT emission limits for stationary emergency standby diesel engines equal or larger than 1,000 brake-horsepower (BHP). NO_x emission factor limit is subject to the CARB ACTM that ranges from 0.5 g/hp-hr. The PM (PM₁₀ or PM_{2.5}) limit is 0.02 g/hp-hr. POC (i.e., ROG) limits are 0.14 g/hp-hr.

South San Francisco General Plan 1999

The South San Francisco General Plan 1999 includes guiding and implementing policies to reduce exposure of the City's sensitive population to exposure of air pollution, toxic air contaminants, and greenhouse gases. While the city is in the process of updating its general plan, the version passed in 1999 is still the most recent version. The following guiding and implementing policies are applicable to the proposed project:

GUIDING POLICIES: AIR QUALITY AND GREENHOUSE GAS EMISSIONS

- 7.3-G-1 Continue to work toward improving air quality and meeting all national and State ambient air quality standards and by reducing the generation of air pollutants both from stationary and mobile sources, where feasible.
- 7.3-G-2 Mitigate the community of South San Francisco's impact on climate change by reducing greenhouse gas emissions consistent with state guidance.
- 7.3-G-3 Reduce energy use in the built environment.
- 7.3-G-4 Encourage land use and transportation strategies that promote use of alternatives to the automobile for transportation, including bicycling, bus transit, and carpooling.
- 7.3-G-5 Promote clean and alternative fuel combustion in mobile equipment and vehicles.
- 7.3-G-6 Minimize conflicts between sensitive receptors and emissions generators by distancing them from one another.

IMPLEMENTING POLICIES: AIR QUALITY AND GREENHOUSE GAS EMISSIONS

- 7.3-1-1 Cooperate with the Bay Area Air Quality Management District to achieve emissions reductions for nonattainment pollutants and their precursors, including carbon monoxide, ozone, and PM-10, by implementation of air pollution control measures as required by State and federal statutes.
- 7.3-1-2 Use the City's development review process and the California Environmental Quality Act (CEQA) regulations to evaluate and mitigate the local and cumulative effects of new development on air quality and GHG emissions.
- 7.3-1-3 Adopt the standard construction dust abatement measures included in BAAQMD's CEQA Guidelines.
- 7.3-1-4 Require new residential development and remodeled existing homes to install clean-burning fireplaces and wood stoves.
- 7.3-1-5 In cooperation with local conservation groups, institute an active urban forest management program that consists of planting new trees and maintaining existing ones.
- 7.3-1-6 Periodically update the inventory of community-wide GHG emissions and evaluate appropriate GHG emissions reduction targets, consistent with current State objectives, statewide guidance, and regulations.

- 7.3-1-7 Adopt and implement the City of South San Francisco's CAP, which will identify a GHG emissions reduction target and measures and actions to achieve the reduction target.
- 7.3-1-8 Evaluate and regularly report to City Council, or its designee, on the implementation status of the CAP and update the CAP as necessary should the City find that adopted strategies are not achieving anticipated reductions, or to otherwise incorporate new opportunities.
- 7.3-1-9 Promote land uses that facilitate alternative transit use, including high-density housing, mixed uses, and affordable housing served by alternative transit infrastructure.

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA and these significance thresholds were contained in the District's 2011 *CEQA Air Quality Guidelines*. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were challenged through a series of court challenges and were mostly upheld. BAAQMD updated the *CEQA Air Quality Guidelines* in 2017 to include the latest significance thresholds that were used in this analysis are summarized in Table 1. Community risks are considered significant if they exceed these levels.

Table 1. BAAQMD CEQA Significance Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO _x	54	54	10
PM ₁₀	82 (Exhaust)	82	15
PM _{2.5}	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	None	
Health Risks and Hazards	Single Sources Within 1,000-foot Zone of Influence	Combined Sources (Cumulative from all sources within 1000-foot zone of influence)	
Excess Cancer Risk	10 per one million	100 per one million	
Hazard Index	1.0	10.0	
Incremental annual PM _{2.5}	0.3 µg/m ³	0.8 µg/m ³	
Greenhouse Gas Emissions			
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020) *		
Note: ROG = reactive organic gases, NO _x = nitrogen oxides, PM ₁₀ = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, PM _{2.5} = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases.			
*BAAQMD does not have a recommended post-2020 GHG threshold.			

AIR QUALITY IMPACTS AND MITIGATION MEASURES

Impact AIR-1: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The Bay Area is considered a non-attainment area for ground-level O₃ and PM_{2.5} under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM₁₀ under the California Clean Air Act, but not the federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for O₃, PM_{2.5} and PM₁₀, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for O₃ precursor pollutants (ROG and NO_x), PM₁₀, and PM_{2.5} and apply to both construction period and operational period impacts.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size, and anticipated construction schedule were input to CalEEMod. The CARB Emission FACTors 2021 (EMFAC2021) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.⁸ The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

CalEEMod Modeling

Land Use Inputs

The proposed project land uses were entered into CalEEMod as described in Table 2.

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Research & Development	295	1,000 sqft	295,000	1.89
Enclosed Parking with Elevator	350	Parking Space	156,399	
Other Asphalt Surfaces	0.5	Acre	21,780	
City Park	0.5	Acre	21,780	

Construction Inputs

CalEEMod computes annual emissions for construction that are based on the project type, size, and acreage. The model provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-

⁸ See CARB's EMFAC2021 Emissions Inventory at <https://arb.ca.gov/emfac/emissions-inventory>.

site activity includes worker, hauling, and vendor traffic. The construction build-out scenario, including equipment list and schedule, were provided by the applicant. The applicant also provided other information such as hauling quantities, asphalt trips, and concrete trips.

The CalEEMod construction information included the schedule for each phase. Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was set to the CalEEMod default for each phase. The construction schedule assumed that the earliest possible start date would be February 2022 and would be built out over a period of approximately 28 months, or 582 construction workdays. The earliest year of full operation was assumed to be 2025.

Construction Truck Traffic Emissions

Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the estimate of demolition material to be exported, soil material imported and/or exported to the site, and the estimate of cement and asphalt truck trips. Demolition was modeled to remove 112 tons of pavement. The modeling assumed 134,016 cy of soil hauling of material for import and export. There would be import of 200 cy of asphalt. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. The total trips for those were computed by multiplying the daily trip rate by the number of days in that phase. Haul trips for demolition and grading were estimated from the provided demolition and grading volumes by assuming each truck could carry 10 tons per load. The number of cement deliveries were provided for the project and converted to total one-way trips, assuming two trips per delivery. Asphalt trucks were assumed to carry 10 cy per delivered load, or 40 truckloads.

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2017 motor vehicle emission factor model. This model has been superseded by the EMFAC2021 model; however, CalEEMod has not been updated to include EMFAC2021. Therefore, the construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2021 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for this study was based on CalEEMod default assumptions, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1 and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including cement trucks, are comprised of large trucks (EMFAC category HHDT). Travel distances are based on CalEEMod default lengths, which are 10.8 miles for worker travel, 7.3 miles for vendor trips and 20 miles for hauling (soil import/export). Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On road emissions in San Mateo County for 2022 - 2024 were used in these calculations. Table 3 provides the traffic inputs that were combined with the EMFAC2021 emission database to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker ¹	Total Vendor ¹	Total Haul ²	
Vehicle mix ¹	50% LDA 25% LDT1 25% LDT2	50% MHDT 50% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0	CalEEMod default distance with 5-min truck idle time.
Demolition	40	-	11	112 ton pavement demolition. CalEEMod default worker trips.
Site Preparation	40	-	-	CalEEMod default worker trips.
Soldier Piles/Micropiles	4,300	1,950	-	CalEEMod default worker and vendor trips.
Dewatering	17,612	-	-	CalEEMod default worker trips.
Trenching/Foundation	700	-	-	CalEEMod default worker trips.
Soil Remediation	240	-	9,502	76,016-cy soil export. CalEEMod default worker trips.
Grading	720	-	7,250	58,000-cy soil export. CalEEMod default worker trips.
Building Construction	24,080	10,920	-	CalEEMod default worker and vendor trips.
Building Interior	4,624	-	-	CalEEMod default worker trips.
Paving/Landscaping	585	-	40	200-cy asphalt. CalEEMod default worker trips.
Notes: ¹ Based on 2022 - 2024 EMFAC2021 light-duty vehicle fleet mix for San Mateo County. ² Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed. Asphalt trips estimated based on data provided by the applicant.				

Summary of Computed Construction Period Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions by the number of active construction workdays that year. Table 4 shows the annualized average daily construction emissions of ROG, NO_x, PM₁₀ exhaust, and PM_{2.5} exhaust during construction of the project. As indicated in Table 4, predicted annualized project construction emissions would not exceed the BAAQMD significance thresholds during any year of construction.

Table 4. Construction Period Emissions

Year	ROG	NOx	PM ₁₀ Exhaust	PM _{2.5} Exhaust
<i>Construction Emissions Per Year (Tons)</i>				
2022	1.06	2.90	0.14	0.12
2023	2.18	1.92	0.10	0.07
2024	0.42	0.32	0.02	0.01
<i>Average Daily Construction Emissions Per Year (pounds/day)</i>				
2022 (233 construction workdays)	9.13	24.91	1.23	1.03
2023 (261 construction workdays)	16.67	14.72	0.73	0.57
2024 (89 construction workdays)	9.41	7.28	0.38	0.21
<i>BAAQMD Thresholds (pounds per day)</i>	54 lbs./day	54 lbs./day	82 lbs./day	54 lbs./day
Exceed Threshold?	No	No	No	No

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM₁₀ and PM_{2.5}. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less-than-significant if best management practices are implemented to reduce these emissions. *Mitigation Measure AQ-1 would implement BAAQMD-recommended best management practices.*

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

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

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Effectiveness of Recommended Measure AQ-1

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

Operational Period Emissions

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

CalEEMod Inputs

Land Uses

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

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year of full operation would be 2025 if construction begins in 2022. Emissions associated with build-out later than 2025 would be lower.

Traffic Information

CalEEMod allows the user to enter specific vehicle trip generation rates. Project-specific traffic

trip generation estimates were provided for this assessment.⁹ The project would produce approximately 2,159 net daily trips when considering the *TDM Plan Reduction* adjustments applied in the traffic analysis. The daily trip generation was calculated using the size of the project and the adjusted total automobile trips. The Saturday and Sunday trip rates were adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate with the project-specific daily weekday trip rate. The default trip lengths and trip types specified by CalEEMod were used.

EMFAC2021 Adjustment

The vehicle emission factors and fleet mix used in CalEEMod are based on EMFAC2017, which is an older CARB emission inventory for on road and off road mobile sources. Since the release of CalEEMod Version 2020.4.0, new emission factors have been produced by CARB. EMFAC2021 became available for use in January 2021. It includes the latest data on California's car and truck fleets and travel activity. The CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2021, which were adjusted with the CARB EMFAC off-model adjustment factors. On road emission rates from 2022 San Mateo County were used (See *Attachment 3*). More details about the updates in emissions calculation methodologies and data are available in the EMFAC2021 Technical Support Document.¹⁰

Energy

GHG emissions modeling includes those indirect emissions from electricity consumption. The model has a default rate of 0 pounds of CO₂ per megawatt of electricity produced, which is based on Peninsula Clean Energy's 2019 emissions rate. There would be no natural gas usage as the City prohibits natural gas usage from new developments.

Project Generator

The project would include a diesel-fired emergency generator to provide 2,800-kilowatts (kW). It is assumed the generator would be powered by a 3,750 horsepower (hp) engine. This generator would be tested periodically and power the buildings in the event of a power failure. For modeling purposes, it was assumed that the generator would be operated primarily for testing and maintenance purposes. CARB and BAAQMD requirements limit these engine operations to 50 hours each per year of non-emergency operation. During testing periods, the engine would typically be run for less than one hour. The engine would be required to meet CARB and EPA emission standards and consume commercially available California low-sulfur diesel fuel. Additionally, the generator would have to meet BAAQMD BACT requirements for IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump sources. Based on the size of the proposed generator (greater than 1,000-hp), these include emission limits similar to U.S. EPA Tier 4 engines. The generator's emissions, including BACT engine requirements, were modeled using CalEEMod.

⁹ Hexagon Transportation Consultants. 2021. *Trip Generation Estimates for an Office/ Research & Development Center at 580 Dubuque Avenue in South San Francisco, California*. July 30.

¹⁰ See CARB 2021: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac>

Other Inputs

Default model assumptions for emissions associated with solid waste generation use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions since the project site would not send wastewater to septic tanks or facultative lagoons.

Existing Uses

The existing site is undeveloped, so an existing use CalEEMod run was not created.

Summary of Computed Operational Period Emissions

Annual emissions were predicted using CalEEMod. The daily emissions were calculated assuming 365 days of operation. Table 5 shows average daily emissions of ROG, NO_x, total PM₁₀, and total PM_{2.5} during operation of the project. The operational period emissions would not exceed the BAAQMD significance thresholds. Table 5 also shows how emissions are affected when current traffic from Petaluma customers at other Home Depot stores are included in the modeling.

Table 5. Operational Period Emissions

Scenario	ROG	NO _x	PM ₁₀	PM _{2.5}
2025 Project Operational Emissions (tons/year)	2.34	1.60	1.42	0.40
BAAQMD Thresholds (tons /year)	10 tons	10 tons	15 tons	10 tons
Exceed Thresholds?	No	No	No	No
Total (lbs./day)	12.81	8.74	7.80	2.18
BAAQMD Thresholds (lbs./day)	54 lbs.	54 lbs.	82 lbs.	54 lbs.
Exceed Threshold?	No	No	No	No

Notes: ¹ Assumes 365-day operation.

Impact AIR-2: Expose sensitive receptors to substantial pollutant concentrations?

Project impacts related to increased community risk can occur either by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity or by significantly exacerbating existing cumulative TAC impacts. This project would introduce new sources of TACs during construction (i.e., on-site construction and truck hauling emissions) and operation (i.e., mobile sources).

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would include the installation of an emergency generator powered by a diesel engine. Traffic generated by the project would consist of mostly light-duty gasoline-powered vehicles, which would produce TAC and air pollutant emissions.

Project impacts to existing sensitive receptors were addressed for temporary construction activities and long-term operational conditions. There are also several sources of existing TACs and

localized air pollutants in the vicinity of the project. The impact of the existing sources of TAC was also assessed in terms of the cumulative risk which includes the project contribution.

Community Risk Methodology for Construction and Operation

Community risk impacts are addressed by predicting increased lifetime cancer risk, the increase in annual PM_{2.5} concentrations, and computing the Hazard Index (HI) for non-cancer health risks. The risk impacts from the project are the combination of risks from construction and operation sources. These sources include on-site construction activity, construction truck hauling, and increased traffic from the project. To evaluate the increased cancer risks from the project, a 30-year exposure period was used, per BAAQMD guidance,¹¹ with the sensitive receptors being exposed to both project construction and operation emissions during this timeframe.

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

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

Modeled Sensitive Receptors

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

Community Health Risk from the Project

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust emissions pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to PM_{2.5}. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and PM_{2.5}.¹² This assessment included dispersion modeling to predict the offsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

¹¹ BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

¹² DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

Construction Emissions

The CalEEMod model and EMFAC2021 emissions provided total annual PM₁₀ exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.18 tons (363 pounds). The on-road emissions are a result of haul truck travel during grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive PM_{2.5} dust emissions were calculated by CalEEMod as 0.09 tons (189 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and PM_{2.5} concentrations at sensitive receptors in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.¹³ Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive PM_{2.5} dust emissions.

Construction Sources

To represent the construction equipment exhaust emissions, an area source emission release height of 20 feet (6 meters) was used for the area sources.¹⁴ The release height incorporates both the physical release height from the construction equipment (i.e., the height of the exhaust pipe) and plume rise after it leaves the exhaust pipe. Plume rise is due to both the high temperature of the exhaust and the high velocity of the exhaust gas. It should be noted that when modeling an area source, plume rise is not calculated by the AERMOD dispersion model as it would do for a point source (exhaust stack). Therefore, the release height from an area source used to represent emissions from sources with plume rise, such as construction equipment, should be based on the height the exhaust plume is expected to achieve, not just the height of the top of the exhaust pipe.

For modeling fugitive PM_{2.5} emissions, a near-ground level release height of 7 feet (2 meters) was used for the area source. Fugitive dust emissions at construction sites come from a variety of sources, including truck and equipment travel, grading activities, truck loading (with loaders) and unloading (rear or bottom dumping), loaders and excavators moving and transferring soil and other materials, etc. All of these activities result in fugitive dust emissions at various heights at the point(s) of generation. Once generated, the dust plume will tend to rise as it moves downwind across the site and exit the site at a higher elevation than when it was generated. For all these reasons, a 7-foot release height was used as the average release height across the construction site. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources.

¹³ Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0*. May.

¹⁴ California Air Resource Board, 2007. *Proposed Regulation for In-Use Off-Road Diesel Vehicles, Appendix D: Health Risk Methodology*. April. Web: <https://ww3.arb.ca.gov/regact/2007/ordiesl07/ordiesl07.htm>

AERMOD Inputs and Meteorological Data

The modeling used a five-year data set (2013 - 2017) of hourly meteorological data from the San Francisco International Airport was used with the AERMOD model. Construction emissions were modeled as occurring Monday through Friday between 7:00 a.m. to 3:30 p.m., when the majority of construction activity is expected to occur according to the applicant. Annual DPM and PM_{2.5} concentrations from construction activities during the 2022-2024 period were calculated using the model. DPM and PM_{2.5} concentrations were calculated at nearby sensitive receptors. Receptor heights of 5 feet (1.5 meters), 15 feet (4.5 meters), and 25 feet (7.6 meters) were used to represent the breathing height on the first, second, and third floor of nearby single and multi-family residences.¹⁵

Summary of Construction Community Risk Impacts

The maximum increased cancer risks were calculated using the modeled TAC concentrations combined with the Office of Environmental Health Hazard Assessment (OEHHA) guidance for age sensitivity factors and exposure parameters as recommended by BAAQMD (see *Attachment 1*). Non-cancer health hazards and maximum PM_{2.5} concentrations were also calculated and identified. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Third trimester, infant, child, and adult exposures were assumed to occur at all residences during the entire construction period.

The maximum modeled annual PM_{2.5} concentration was calculated based on combined exhaust and fugitive concentrations. The maximum computed HI value was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation reference exposure level of 5 µg/m³.

The maximum modeled annual DPM and PM_{2.5} concentrations, which includes both the DPM and fugitive PM_{2.5} concentrations, were identified at nearby sensitive receptors (as shown in Figure 1) to find the maximally exposed individuals (MEI). Results of this assessment indicated that the construction MEI was located on the third floor (25 feet above ground) of a multi-family residential complex west of the project site. Table 6 summarizes the maximum cancer risks, PM_{2.5} concentrations, and health hazard indexes for project related construction activities affecting the construction MEI. *Attachment 4* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

¹⁵ Bay Area Air Quality Management District, 2012, Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0. May. Web: <https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en>

Figure 1. Locations of Project Construction Site, Project Traffic, Project Generator, Off-Site Sensitive Receptors, and Maximum TAC Impact



Community Risks from Project Operation – Traffic and Stationary Sources

Operation of the project would have long-term emissions from mobile sources (i.e., traffic) and stationary sources (i.e., generator). While these emissions would not be as intensive at or near the site as construction activity, they would contribute to long-term effects to sensitive receptors.

Project Operational Traffic

An analysis was conducted of the impacts of TACs and PM_{2.5} from local roadways increase in traffic due to the project. The project would generate 2,159 net daily trips.¹⁶ Most of these trips would be from light-duty, gasoline vehicles (i.e., passenger cars). To address the added community risks, the impact from this traffic was assessed using the CT-EMFAC 2017 emissions model, AERMOD dispersion model and cancer risk calculations following BAAQMD methodology described in *Attachment 1*. Figure 1 shows the modeled roadway segment.

¹⁶ Hexagon Transportation Consultants. 2021. *Trip Generation Estimates for an Office/ Research & Development Center at 580 Dubuque Avenue in South San Francisco, California*. July 30.

Traffic Emissions

This analysis involved the development of DPM, organic TACs, and PM_{2.5} roadway emissions in the project area using the Caltrans version of the EMFAC2017 emission model, known as CT-EMFAC2017.¹⁷ CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, PM_{2.5} and total organic compounds (e.g., TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for PM_{2.5}. All PM_{2.5} emissions from all vehicles were used, rather than just the PM_{2.5} fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and diesel powered) produce PM_{2.5}. Additionally, PM_{2.5} emissions from vehicle tire and brake wear and from re-entrained roadway dust were included in these emissions. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (San Mateo County), type of road (major/collector), truck percentage for non-state highways in San Mateo County (3.13 percent),¹⁸ traffic mix assigned by CT-EMFAC2017 for the county, year of analysis (2025 – project operational year), and season (annual).

Project operation was assumed to begin in 2025 or thereafter. To calculate the increased cancer risk from increased traffic volumes due to the project traffic, the community risks were adjusted for exposure duration to account for the MEI being exposed to construction for the first 3 years of the 30-year analysis period. The exposure duration from roadway traffic was adjusted for 27 years of exposure (2025-2051). To estimate TAC and PM_{2.5} emissions over the exposure period for calculating increased cancer risks from project traffic, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2025. Year 2025 emissions were conservatively assumed as being representative of future conditions, since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions will decrease in the future.

Traffic Dispersion Modeling Inputs

A conservative analysis was conducted based on project driveway locations where all project traffic emissions from on- and near-site travel were assumed to be entirely along Dubuque Avenue. The project's trip generation provided by the traffic consultant of 2,159 net daily trips was used to assess project traffic impacts.¹⁹ The average hourly traffic distributions for San Mateo County roadways were developed using the EMFAC model,²⁰ which were then applied to the trip volumes to obtain estimated hourly traffic volumes and emissions for the roadways. For all hours of the day, the average speed of 30 mph on Dubuque Avenue was assumed for all vehicles based on posted speed limit signs on the roadway.

¹⁷ Note that Caltrans has not yet updated their version of EMFAC to incorporate EMFAC2021 emission rates for traffic modeling studies.

¹⁸ Bay Area Air Quality Management District, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0*. May. Web: <https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en>

¹⁹ Hexagon Transportation Consultants. 2021. *Trip Generation Estimates for an Office/ Research & Development Center at 580 Dubuque Avenue in South San Francisco, California*. July 30.

²⁰ The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2021 does not include Burden type output with hour by hour traffic volume information.

Dispersion Modeling

Operational traffic roadway travel emissions were modeled with the AERMOD model using a series of adjacent volume sources along a line (line volume sources) to represent traffic emissions on the roadway segment where all of the project traffic would occur. Five years (2013-2017) of hourly meteorological data from the San Francisco International Airport prepared for use with the AERMOD model by the BAAQMD, were used for the modeling. TAC and PM_{2.5} concentrations for 2025 were calculated by the model at the same sensitive receptor locations with the same receptor heights of 25 feet (7.6 meter) used for the construction health risk modeling at the MEI location.

Figure 1 shows the project roadway segments modeled and maximum receptor location used in the modeling. Table 6 lists the project roadway risks and hazards at the location of the MEI. The emission rates and roadway calculations used in the project impact analysis are shown in *Attachment 4*.

Project Operational Stand-By Diesel Generator

The project proposes to include a diesel-fired emergency generator along the northeast corner of the project site. Site plans show a designated area in that corner of the project site for the generator. Therefore, it was assumed that the generator's emissions would be released 10 feet above the ground. This generator would be 2,800-kW powered by a 3,750-HP diesel engine.

Operation of a diesel generator would be a source of TAC emissions. The generator would be operated for testing and maintenance purposes, with a maximum of 50 hours per year of non-emergency operation under normal conditions. During testing periods, the engine would typically be run for less than one hour under light engine loads. The generator engines would be required to meet EPA emission standards and consume commercially available low sulfur diesel fuel. Additionally, the generators would have to meet BAAQMD BACT requirements for IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump sources. Based on the size of the proposed generator, these include emission limits similar to U.S. EPA Tier 4 engines. The emissions from the operation of the generators were calculated using the CalEEMod model.

The generator would be subject to CARB's Stationary Diesel Airborne Toxics Control Measure (ATCM) and require permits from the BAAQMD, since it will be equipped with a diesel engine larger than 50-HP. BACT requirements would apply to these generators that would limit DPM emissions. As part of the BAAQMD permit requirements for toxics screening analysis, the engine emissions will have to meet Best Available Control Technology for Toxics (BACT) and pass the toxic risk screening level of less than ten in a million. The risk assessment would be prepared by BAAQMD. Depending on results, BAAQMD would set limits for DPM emissions (e.g., more restricted engine operation periods). Sources of air pollutant emissions complying with all applicable BAAQMD regulations generally will not be considered to have a significant air quality community risk impact.

To obtain an estimate of potential cancer risks and PM_{2.5} impacts from operation of the emergency generator, the U.S. EPA AERMOD dispersion model was used to calculate the maximum annual DPM concentration at off-site sensitive receptor locations. The same receptors, breathing heights, and BAAQMD San Francisco International Airport meteorological data used in the construction dispersion modeling were used for the generator model. Stack parameters for modeling the generator were either based on project-specific generator parameters (i.e., engine size) or based on BAAQMD default parameters (exhaust gas flowrate, stack height, exhaust gas temperature, and stack diameter) for stand-by diesel generators if that project-specific information were not available.²¹ Annual average DPM and PM_{2.5} concentrations were modeled assuming that generator testing could occur at any time of the day (24 hours per day, 365 days per year).

To calculate the increased cancer risk from the generator at the MEI, the exposure duration was adjusted for 27 years of exposure for the maximum receptor. Table 6 lists the community risks from stand-by diesel generator at the location of the MEI. The emissions and health risk calculations for the proposed generators are included in *Attachment 4*.

Community Risks of all Project TAC Sources at Project MEI

The cumulative risk impacts from a project are the combination of construction and operation sources. These sources include on-site construction activity, project generator, and increased traffic from the project. The project impact is computed by adding the construction cancer risk to the increased cancer risk for the project operational conditions for the roadway, generator, and operational traffic at the MEI.

For this project, the sensitive receptor identified in Figure 1 as the construction MEI is also the project MEI. Sensitive receptors could be present at this site for up to 30 years. At this location, the MEI would be exposed to 3 years of construction cancer risks and 27 years of operational (includes traffic, stand-by generator) cancer risks. The cancer risks from construction and operation of the project were summed together. Unlike, the increased maximum cancer risk, the annual PM_{2.5} concentration and HI risks are not additive but based on an annual maximum risk for the entirety of the project.

Project risk impacts are shown in Table 6. The unmitigated maximum cancer risks, annual PM_{2.5} concentration, and HI from construction and operational activities at the project MEI location would not exceed the BAAQMD single-source significance thresholds.

²¹ Bay Area Air Quality Management District, San Francisco Department of Public Health, and San Francisco Planning Department, 2012. *The San Francisco Community Risk Reduction Plan: Technical Support Document*, BAAQMD, December. Web: https://www.gsweventcenter.com/Appeal_Response_References/2012_1201_BAAQMD.pdf

Table 6. Project Health Risk Impacts at the Off-site MEI

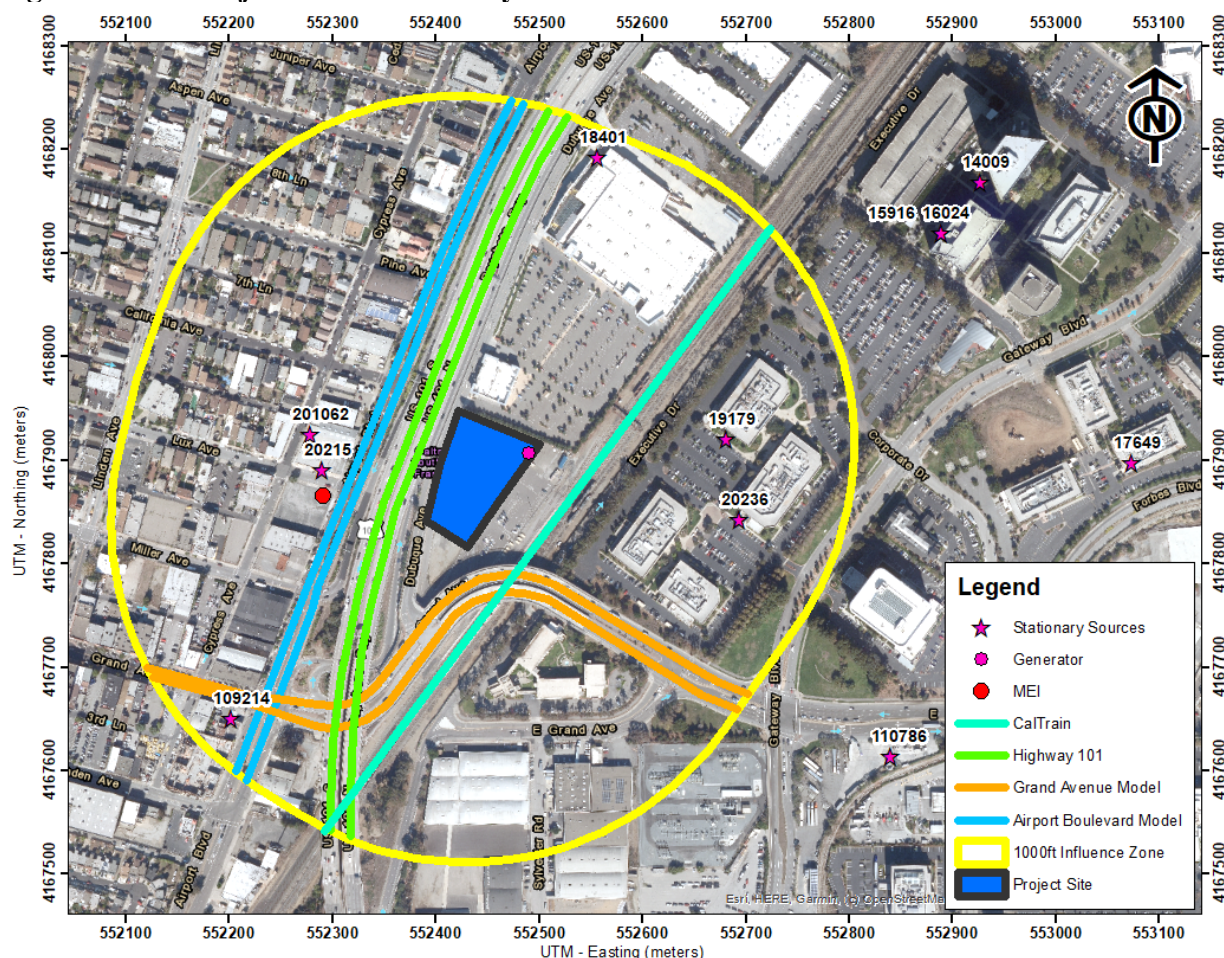
Source	Cancer Risk (per million)	Annual PM_{2.5} (µg/m³)	Hazard Index
Project Construction (Years 0 -3) Unmitigated	8.41 (infant)	0.06	<0.01
Project Generator (2,800kW, 3,750hp diesel-fired emergency generator, 50 hours/year operation) (Years 4 – 30)	0.43	<0.01	<0.01
Project Traffic (1/2-mile on-site distance) (Years 4 – 30)	0.04	<0.01	<0.01
Total Project (Construction + Operation Years 0-30) Unmitigated	8.88 (infant)	0.06	<0.01
BAAQMD Single-Source Threshold	10	0.3	1.0
Exceed Threshold? Unmitigated	<i>No</i>	<i>No</i>	<i>No</i>

Cumulative Community Risks of all TAC Sources at the Offsite Project MEI

Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of a project site (i.e., influence area). These sources include rail lines, highways, busy surface streets, and stationary sources identified by BAAQMD.

A review of the project area and based on provided traffic information indicated that two roadways, Airport Boulevard and Grand Avenue, within the influence area would have traffic exceeding 10,000 vehicles per day. A review of BAAQMD's stationary source geographic information systems (GIS) map tool identified eleven stationary sources with the potential to affect the project site and MEI. Figure 2 shows the project area included within the influence area and the location of the MEI. Details of the modeling and community risk calculations are included in *Attachment 5*.

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



Highways & Railways – U.S. Highway 101, CalTrain Zone 1

The project MEI is approximately 150 feet west of U.S. Highway 101 and approximately 600 feet northwest of CalTrain Zone 1. Screening data reported by BAAQMD for highways and railways were incorporated into this analysis. BAAQMD provided raster files with cancer risk and PM_{2.5} values for all highways/freeways, roadways (ADT > 30,000), and rail lines within the Bay Area. The risk values shown in the raster files were modeled in AERMOD in 20x20-meter grid cells. The files incorporate AADT for the highway using EMFAC2014 data for fleet mix and include the OEHHA 2015 factor. These raster files were used to screen Highway 101 and CalTrain Zone 1 risks and hazards upon the MEI. The freeway and railway screening level impacts are listed in Table 7 and included in *Attachment 5*. Note that the cancer risk value is not adjusted for age sensitivity or exposure duration. It is conservatively higher than adjusted cancer risk values. Refined modeling of the highway and railway would have resulted in even lower risk values. Note that BAAQMD has found that non-cancer hazards were found to be minimal, so an HI value is not included.

Local Roadways – Airport Boulevard & Grand Avenue

A refined analysis of potential health impacts from vehicle traffic on Airport Boulevard and Grand Avenue was conducted. The refined analysis involved predicting emissions for the traffic volume and mix of vehicle types on the roadway near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks are then computed based on the modeled exposures. *Attachment 1* includes a description of how community risk impacts, including cancer risk are computed.

Emission Rates

The development of roadway emissions for traffic on Airport Boulevard and Grand Avenue was done in the same manner as the project roadway emissions above using CT-EMFAC2017. Inputs to the model include region (San Mateo County), type of road (major/collector), truck percentage for non-state highways in San Mateo County (3.13 percent),²² traffic mix assigned by CT-EMFAC2017 for the county, year of analysis (2022 – construction start year), and season (annual).

To estimate TAC and PM_{2.5} emissions over the 30-year exposure period used for calculating the increased cancer risks for sensitive receptors at the MEI and project site, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2022 (project construction year). Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CT-EMFAC2017. Year 2022 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions, will decrease in the future.

²² Bay Area Air Quality Management District, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0*. May. Web: <https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en>

The average daily traffic (ADT) for Airport Boulevard was calculated based on traffic data provided in the City of South San Francisco's Downtown Station Area Specific Plan Environmental Impact Report.²³ The estimated ADT on Airport Boulevard was 27,092 vehicles, and 34,134 vehicles on Grand Avenue. Average hourly traffic distributions for San Mateo County roadways were developed using the EMFAC model,²⁴ which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for the roadway. An average travel speed of 35 miles per hour (mph) on both roadways was used for all hours of the day based on posted speed limit signs on the roadway.

Dispersion Modeling

Dispersion modeling of TAC and PM_{2.5} emissions was conducted using the EPA AERMOD air quality dispersion model, which is recommended by the BAAQMD for this type of analysis.²⁵ TAC and PM_{2.5} emissions from traffic on Airport Boulevard and Grand Avenue within 1,000 feet of the project site were evaluated. Vehicle traffic on the roadways was modeled using a series of adjacent volume sources along a line (line volume sources); with line segments used for each travel direction on both roadways. The same meteorological data and off-site sensitive receptors used in the previous dispersion modeling were used in the roadway modeling. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations. Annual TAC and PM_{2.5} concentrations for 2022 from traffic on both roadways were calculated using the model. Concentrations were calculated at the project MEIs with receptor heights of 25 feet (7.6 meters) to represent the breathing heights of residents in the single-family homes.

Figure 2 shows the roadway segments modeled and residential receptor locations used in the modeling. Table 7 lists the risks and hazards from the roadway. The emission rates and roadway calculations used in the analysis are shown in *Attachment 5*.

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2018* GIS website,²⁶ which identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for new OEHHA guidance. Eleven sources were identified using this tool, seven generators, two auto body coating operations, and two gas dispensing facilities.

The screening level risks and hazards provided by BAAQMD for the stationary source was adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Gasoline Dispensing Facilities*. Community risk impacts from the stationary source upon the MEI are reported in Table 7.

²³City of South San Francisco, *South San Francisco Downtown Station Area Specific Plan Environmental Impact Report*, December, 2014. <https://www.ssf.net/home/showpublisheddocument/6706/636483482120330000>.

²⁴The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2014 does not include Burden type output with hour by hour traffic volume information.

²⁵ BAAQMD. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012

²⁶ BAAQMD, <https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65>

Summary of Cumulative Health Risk Impact at Construction MEI

Table 7 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e., the MEI). The project would not have an exceedance with respect to community risk caused by project construction activities since the maximum unmitigated cancer risk, annual PM_{2.5} concentration, and HI do not exceed the BAAQMD single or cumulative-source threshold.

Table 7. Impacts from Combined Sources at Project MEI

Source	Cancer Risk (per million)	Annual PM _{2.5} (µg/m ³)	Hazard Index
Project Construction & Operation Unmitigated	8.88 (infant)	0.06	<0.01
Highway 101 BAAQMD Raster	21.09	0.44	-
CalTrain Zone 1 BAAQMD Raster	11.70	0.02	-
Airport Boulevard, ADT 27,092	1.65	0.08	<0.01
Grand Avenue, ADT 34,134	0.62	0.04	<0.01
Boston Properties (Facility ID #24795, Generators, Boilers), MEI at 1000+ feet	0.81	0.01	<0.01
Boston Properties (Facility ID #24795, Generators, Boilers), MEI at 1000+ feet	0.07	<0.01	<0.01
Genentech, Inc. (Facility ID #16024, Generators), MEI at 1000+ feet	0.11	<0.01	<0.01
Alexandria Real Estate Equities, Inc (Facility ID #17649, Generators), MEI at 1000+ feet	0.37	<0.01	<0.01
Lowe's HIW Inc (Facility ID #18401, Generators), MEI at 1000+ feet	0.38	<0.01	<0.01
MacroGenics West, Inc (Facility ID #19179, Generators), MEI at 1000+ feet	1.58	<0.01	<0.01
NOD Auto Body Shop Inc (Facility ID #20215, Auto Body Coating Operation), MEI at 100 feet	-	-	<0.01
Biotech Gateway – HCP c/o CBRE (Facility ID #20236, Generators), MEI at 1000+ feet	0.07	<0.01	<0.01
Unocal #1020 – Grand Martco Inc (Facility ID #109214, Gas Dispensing Facility), MEI at 730 feet	0.61	<0.01	<0.01
Flyers #411 (Facility ID #110786, Gas Dispensing Facility), MEI at 1000+ feet	0.15	<0.01	<0.01
A&K Supreme Auto (Facility ID #201062, Gas Dispensing Facility), MEI at 200 feet	-	-	<0.01
Combined Sources Unmitigated	<48.09	<0.73	<0.14
BAAQMD Cumulative Source Threshold	100	0.8	10.0
Exceed Threshold? Unmitigated	No	No	No

GREENHOUSE GAS EMISSIONS

Setting

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO₂) and water vapor but there are also several others, most importantly methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO₂, CH₄, and N₂O are byproducts of fossil fuel combustion.
- N₂O is associated with agricultural operations such as fertilization of crops.
- CH₄ is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO₂ being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO₂ equivalents (CO₂e).

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

Recent Regulatory Actions for GHG Emissions

Executive Order S-3-05 – California GHG Reduction Targets

Executive Order (EO) S-3-05 was signed by Governor Arnold Schwarzenegger in 2005 to set GHG emission reduction targets for California. The three targets established by this EO are as follows: (1) reduce California's GHG emissions to 2000 levels by 2010, (2) reduce California's GHG emissions to 1990 levels by 2020, and (3) reduce California's GHG emissions by 80 percent below 1990 levels by 2050.

Assembly Bill 32 – California Global Warming Solutions Act (2006)

Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, codified the State's GHG emissions target by directing CARB to reduce the State's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, California Public Utilities Commission (CPUC), and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05, which has a target of reducing GHG emissions 80 percent below 1990 levels.

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

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of CO₂e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO₂e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO₂e. Thus, an estimated reduction of 80 MMT of CO₂e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

Executive Order B-30-15 & Senate Bill 32 GHG Reduction Targets – 2030 GHG Reduction Target

In April 2015, Governor Brown signed EO B-30-15, which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*.²⁷ While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB is currently working on a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The proposed Scoping Plan Update was published on January 20, 2017 as directed by SB 32 companion legislation AB 197. The mid-term 2030 target is considered critical by CARB on the path to obtaining an even

²⁷ California Air Resource Board, 2017. *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Targets*. November. Web: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf

deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive Order S-3-05. The Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and obtain the statewide goals.

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

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

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons (MT) CO₂e per capita (statewide) by 2030 and no more than 2 metric tons CO₂e per capita by 2050. The statewide per capita targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

Executive Order B-55-18 – Carbon Neutrality

In 2018, a new statewide goal was established to achieve carbon neutrality as soon as possible, but no later than 2045, and to maintain net negative emissions thereafter. CARB and other relevant state agencies are tasked with establishing sequestration targets and create policies/programs that would meet this goal.

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

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with

traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

Senate Bill 350 - Renewable Portfolio Standards

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

Senate Bill 100 – Current Renewable Portfolio Standards

In September 2018, SB 100 was signed by Governor Brown to revise California's RPS program goals, furthering California's focus on using renewable energy and carbon-free power sources for its energy needs. The bill would require all California utilities to supply a specific percentage of their retail sales from renewable resources by certain target years. By December 31, 2024, 44 percent of the retail sales would need to be from renewable energy sources, by December 31, 2026 the target would be 40 percent, by December 31, 2017 the target would be 52 percent, and by December 31, 2030 the target would be 60 percent. By December 31, 2045, all California utilities would be required to supply retail electricity that is 100 percent carbon-free and sourced from eligible renewable energy resource to all California end-use customers.

California Building Standards Code – Title 24 Part 11 & Part 6

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.²⁸ The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory statewide and are applicable to residential and non-residential developments. The most recent CALGreen Code (2019 California Building Standard Code) was effective as of January 1, 2020.

The California Building Energy Efficiency Standards (California Energy Code) is under Title 24, Part 6 and is overseen by the California Energy Commission (CEC). This code includes design requirements to conserve energy in new residential and non-residential developments, while being cost effective for homeowners. This Energy Code is enforced and verified by cities during the planning and building permit process. The current energy efficiency standards (2019 Energy Code) replaced the 2016 Energy Code as of January 1, 2020. Under the 2019 standards, single-family homes are predicted to be 53 percent more efficient than homes built under the 2016 standard due more stringent energy-efficiency standards and mandatory installation of solar photovoltaic

²⁸ See: <https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen#:~:text=CALGreen%20is%20the%20first%2Din,to%201990%20levels%20by%202020.>

systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.²⁹

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO₂e).³⁰ These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.³¹ In 2017, GHG emissions from statewide emitting activities were 424 MMT. The 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 MT per person to 10.7 MT per person in 2017. The most recent Bay Area emission inventory was computed for the year 2011.³² The Bay Area GHG emissions were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011

South San Francisco Climate Action Plan

The purpose of the City of South San Francisco's Climate Action Plan (CAP) is to demonstrate the City of South San Francisco's commitment to reduce GHG emissions while protecting the unique resources of the community. The CAP is intended to build upon existing environmental preservation, public health, and energy-saving efforts. The CAP provides goals, policies, and programs to reduce GHG emissions, adapt to climate change, and support the goals of AB 32 and SB 375. On February 13, 2014, the City adopted the CAP which follows both the State and BAAQMD CEQA guidelines of reaching a target reduction of 15% below baseline 2005 GHG emissions levels by 2020. However, the CAP does not have a specific metric ton GHG threshold for project-level construction or operation. For each project, City staff monitor the implementation of the CAP using a Development Review Checklist (Appendix E of the CAP). The checklist is provided as *Attachment 6*.

BAAQMD GHG Significance Thresholds

The BAAQMD's CEQA Air Quality Guidelines do not use quantified thresholds for projects that are in a jurisdiction with a qualified GHG reductions plan (i.e., a Climate Action Plan). The plan has to address emissions associated with the period that the project would operate (e.g., beyond year 2020). For quantified emissions, the guidelines recommended a GHG threshold of 1,100 metric tons or 4.6 metric tons (MT) per capita. These thresholds were developed based on meeting

²⁹ See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

³⁰ United States Environmental Protection Agency, 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018*. April. Web: <https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf>

³¹ CARB. 2019. *2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf

³² BAAQMD. 2015. *Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011*. January. Web: http://www.baaqmd.gov/~media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf accessed Nov. 26, 2019.

the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of the project would occur beyond 2020, so a threshold that addresses a future target is appropriate.

Although BAAQMD has not published a quantified threshold for 2030 yet, this assessment uses a bright-line threshold of 660 MT CO_{2e}/year based on the GHG reduction goals of EO B-30-15. The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_{2e}/year threshold. Evidence published by the State indicates the AB 32 goal of reducing statewide GHG emissions to 1990 levels was met prior to 2020. Current State plans are to further reduce emissions to 40% below 1990 levels by 2030. Assuming statewide emissions are at 1990 levels or lower in 2020, it would be logical to reduce the BAAQMD-recommended threshold for meeting the AB 32 threshold by 40% to develop a threshold for 2030.

Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

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

CalEEMod Modeling

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

Service Population Emissions

The project service population is based on the number of employees and is estimated based on 350 square feet per employee. For this project, 350 square feet per employee results in a service population of 842 employees.

Trip Generation Rates

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-specific daily trip generation rate for the project was provided by the applicant.³³ Saturday and Sunday trip rates were assumed to be the weekday rate adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate. The default trip lengths and trip types specified by CalEEMod were used.

³³ Hexagon Transportation Consultants, Inc., Attachment: 580 Dubuque Avenue Trip generation Memo 073021.pdf

Construction GHG Emissions

GHG emissions associated with construction were computed at 1,662 MT of CO₂e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

Operational GHG Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with operation of the fully-developed site under the proposed project. The applicant provided annual electricity usage, water usage, and solid waste information. This information was included in the operational CalEEMod model run. As shown in Table 9, net annual GHG emissions resulting from operation of the proposed project are predicted to be 1,976 metric tons (MT) of CO₂e in 2025 and 1,880 MT of CO₂e in 2030. The service population emission for the year 2024 and 2030 are predicted to be 2.35 and 2.23 MT/CO₂e/year/service population, respectively.

The project is subject to the City of South San Francisco's CAP to meet AB 32 requirements. The implementation of *Mitigation Measure GHG-1*, which requires the project to use the CAP checklist, would demonstrate the project's consistency with the City's CAP.

Table 9. Annual Project GHG Emissions (CO₂e) in Metric Tons

Source Category	Proposed Project in 2025	Proposed Project in 2030
Area	0.01	0.01
Energy Consumption	389.09	389.09
Mobile	1,377.99	1,281.99
Solid Waste Generation	11.30	11.30
Water Usage ³	197.44	197.44
Total	1,975.82	1,879.82
<i>Significance Threshold</i>	<i>660 MT CO₂e/year</i>	<i>660 MT CO₂e/year</i>
<i>Exceeds bright-line threshold?</i>	<i>Yes</i>	<i>Yes</i>
Service Population Emissions (MT CO ₂ e/year/service population)	2.35	2.23
<i>Exceeds service population threshold?</i>	<i>No</i>	<i>No</i>

Mitigation Measure GHG-1: South San Francisco's CAP Appendix E New Development Checklist or other qualified GHG program in effect, shall be submitted along with any application for the project, demonstrating compliance with all mandatory requirements of the South San Francisco's CAP Appendix E New Development Checklist, except where an item is not applicable or where a suitable substitution is provided.

Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The proposed project would not conflict or otherwise interfere with the statewide GHG reduction measures identified in CARB's Scoping Plan nor would the project conflict with SB 100 goals.

Supporting Documentation

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

Attachment 2 includes the CalEEMod output for project construction and operational criteria air pollutant and GHG emissions. The operational outputs for 2030 uses are also included in this attachment. Also included are any modeling assumptions.

Attachment 3 includes the EMFAC2021 emissions modeling. The input files for these calculations are voluminous and are available upon request in digital format.

Attachment 4 is the construction health risk assessment. This includes the summary of the dispersion modeling and the cancer risk calculations for construction. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format

Attachment 5 includes the cumulative community risk calculations, modeling results, and health risk calculations from sources affecting the construction MEI and project site receptors.

Attachment 6 includes the checklist from the City of South San Francisco Climate Action Plan.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.³⁴ These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.³⁵ This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.³⁶ Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day) or liters per kilogram of body weight per 8-hour period for the case of worker or school child exposures. As recommended by the BAAQMD for residential exposures, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, BAAQMD recommends using the 95th percentile 8-hour breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of

³⁴ OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

³⁵ CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

³⁶ BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD. For school children a 9-year exposure period is recommended by the BAAQMD.

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

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

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

Where:

CPF = Cancer potency factor (mg/kg-day)⁻¹

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

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

Where:

C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

8HrBR = 8-hour breathing rate (L/kg body weight-8 hours)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁻⁶ = Conversion factor

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

Parameter	Exposure Type →	Infant		Child	Adult
	Age Range →	3 rd Trimester	0<2	2 < 16	16 - 30
DPM Cancer Potency Factor (mg/kg-day) ⁻¹		1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80 th Percentile Rate		273	758	572	261
Daily Breathing Rate (L/kg-day) 95 th Percentile Rate		361	1,090	745	335
8-hour Breathing Rate (L/kg-8 hours) 95 th Percentile Rate		-	1,200	520	240
Inhalation Absorption Factor		1	1	1	1
Averaging Time (years)		70	70	70	70
Exposure Duration (years)		0.25	2	14	14*
Exposure Frequency (days/year)		350	350	350	350*
Age Sensitivity Factor		10	10	3	1
Fraction of Time at Home (FAH)		0.85-1.0	0.85-1.0	0.72-1.0	0.73*

* An 8-hour breathing rate (8HrBR) is used for worker and school child exposures.

Non-Cancer Hazards

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

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

Annual PM_{2.5} Concentrations

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

Attachment 2: CalEEMod Modeling Inputs and Outputs

Air Quality/Noise Construction Information Data Request

Project Name:		580 Dubuque R&D				Complete ALL Portions in Yellow			
See Equipment Type TAB for type, horsepower and load factor									
Project Size		0 Dwelling Units 1.89 total project acres disturbed							
0 s.f. residential						Pile Driving - YES FOR SHORING ACTIVITIES & MICROPILES AT BOTTOM OF PARKING			
0 s.f. retail									
273,971 s.f. office/commercial - R&D						Project include on-site GENERATOR during project - YES GENERATOR DURING AS BACKUP POWER			
0 s.f. other, specify:						IF YES (if BOTH separate values) -->			
156,399 s.f. parking garage 350 spaces						Kilowatts/Horsepower: 2800kW			
0 s.f. parking structure 0 spaces						Fuel Type: DIESEL			
Construction Hours 7 am to 3:30 pm						Location in project (Plans Desired if Available): LOCATION AT GRADE ELEVATION			
						DO NOT MULTIPLY EQUIPMENT HOURS/DAY BY THE QUANTITY OF EQUIPMENT			
Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments	
Demolition		Start Date: 2/10/2022	Total phase:		5				Overall Import/Export Volumes
End Date: 2/16/2022									
1	Concrete/Industrial Saws	91	0.73	8	5	8	2365	Demolition Volume	
1	Excavators	158	0.38	8	5	8	2402	Square footage of buildings to be demolished	
0	Rubber-Tired Dozers	247	0.4	8	5	8	0	(or total tons to be hauled)	
1	Tractors/Loaders/Backhoes	97	0.37	8	5	8	1436	? square feet or	
Other Equipment?								? Hauling volume (tons)	
								Any pavement demolished and hauled - 112 TONS	
Site Preparation		Start Date: 4/22/2022	Total phase:		4				
End Date: 4/27/2022									
1	Graders	187	0.41	8	4	8	2453		
1	Rubber Tired Dozers	247	0.4	8	4	8	3162		
2	Tractors/Loaders/Backhoes	97	0.37	8	4	8	2297		
Other Equipment?									
Grading / Excavation		Start Date: 5/27/2022	Total phase:		48				
End Date: 8/2/2022									Soil Hauling Volume
2	Excavators	158	0.38	8	48	8	46111	Export volume = 58,000 cubic yard	
1	Graders	187	0.41	8	48	8	29441	Import volume = 0 cubic yards	
1	Rubber Tired Dozers	247	0.4	8	48	8	37939		
0	Concrete/Industrial Saws	81	0.73	8	48	8	0		
2	Tractors/Loaders/Backhoes	97	0.37	8	48	8	27564		
Other Equipment?									
Trenching/Foundation		Start Date: 4/28/2022	Total phase:		140				
End Date: 11/9/2022									
1	Tractor/Loader/Backhoe	97	0.37	6	140	6	30148		
1	Excavators	158	0.38	6	140	6	50434		
Other Equipment?									
Building - Exterior		Start Date: 7/14/2023	Total phase:		140				Cement Trucks -NONE FOR EXTERIOR
End Date: 1/25/2024									
1	Cranes	231	0.29	10	140	10	93786	ELECTRIC	
1	Forklifts	89	0.2	8	140	8	19936	DIESEL	
0	Generator Sets	84	0.74	8	140	8	0	TEMPORARY POWER LINES	
0	Tractors/Loaders/Backhoes	97	0.37	7	140	7	0		
1	Welders	46	0.45	8	140	8	23184		
Other Equipment?									
Building - Interior/Architectural Coating		Start Date: 8/10/2023	Total phase:		136				
End Date: 2/15/2024									
1	Air Compressors	78	0.48	8	136	8	40735		
2	Aerial Lift	62	0.31	8	136	8	41823		
Other Equipment?									
Paving		Start Date: 3/4/2024	Total phase:		45				
Start Date: 5/3/2024									Asphalt - 200 CUYD
1	Cement and Mortar Mixers	9	0.56	8	2	0.4	81		
1	Pavers	130	0.42	8	2	0.4	874		
1	Paving Equipment	132	0.36	8	2	0.4	760		
1	Rollers	80	0.38	8	40	7.1	9728		
1	Tractors/Loaders/Backhoes	97	0.37	8	40	7.1	11485		
Other Equipment?									
Additional Phases - Soil Remediation		Start Date: 5/27/2022	Total phase:		48				
Start Date: 8/2/2022									
1	Soil Remediation - Excavators	158	0.38	8	48	8	23055	EXPORT - 76,016 cu. yards clean and Class I Class II. IMPORT - 0 cu. yards	
1	Soil Remediation - Tractor/Loader/Backhoe	97	0.37	8	48	8	13782		
								0 0	
								0 0	
								0 0	
								0 0	
Additional Phases - Soldier Piles/Micropiles		Start Date: 4/22/2022	Total phase:		25				
Start Date: 5/26/2022									
1	Shoring Soldier Piles/Micropiles - Crane	231	0.29	10	25	10	16748		
1	Shoring Soldier Piles/Micropiles - Drill Rig	221	0.50	10	25	10	27625		
1	Shoring Soldier Piles/Micropiles - Forklift	89	0.20	10	25	10	4450		
1	Shoring Soldier Piles/Micropiles - Temporary Generator for Dewatering	84	0.74	24	540	518.4	805594	Temp Generator for 18Months 24hrs/day	
								0 0	
								0 0	
								0 0	
Equipment types listed in "Equipment Types" worksheet tab.									
Equipment listed in this sheet is to provide an example of inputs								Complete one sheet for each project component	
It is assumed that water trucks would be used during grading									
Add or subtract phases and equipment, as appropriate									
Modify horsepower or load factor, as appropriate									

Construction Criteria Air Pollutants						
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	CO2e	
Year	Tons				MT	
Construction Equipment						
2022	1.02	2.22	0.11	0.11	388.97	
2023	2.13	1.25	0.06	0.06	259.55	
2024	0.41	0.11	0.00	0.00	21.93	
EMFAC						
2022	0.04	0.68	0.03	0.01	401.07	
2023	0.04	0.67	0.04	0.01	442.94	
2024	0.01	0.22	0.01	0.00	147.67	
Total Construction Emissions by Year						
2022	1.06	2.90	0.14	0.12	790.04	
2023	2.18	1.92	0.10	0.07	702.49	
2024	0.42	0.32	0.02	0.01	169.60	
	Total Construction Emissions					
Tons	3.66	5.15	0.26	0.21	1662.13	
Pounds/Workdays	Average Daily Emissions				Workdays	
2022	9.13	24.91	1.23	1.03		233
2023	16.67	14.72	0.73	0.57		261
2024	9.41	7.28	0.38	0.21		89
Threshold - lbs/day	54.0	54.0	82.0	54.0		
	Total Construction Emissions					
Pounds	35.21	46.92	2.34	1.82	0.00	
Average	12.55	17.66	0.88	0.70	0.00	583.00
Threshold - lbs/day	54.0	54.0	82.0	54.0		
Operational Criteria Air Pollutants						
Unmitigated	ROG	NOX	Total PM10	Total PM2.5		
Year	Tons					
Total	2.34	1.60	1.42	0.40		
	Existing Use Emissions					
Total	0.00	0.00	0.00	0.00		
	Net Annual Operational Emissions					
Tons/year	2.34	1.60	1.42	0.40		
Threshold - Tons/year	10.0	10.0	15.0	10.0		
	Average Daily Emissions					
Pounds Per Day	12.81	8.74	7.80	2.18		
Threshold - lbs/day	54.0	54.0	82.0	54.0		
Category	CO2e					
	Project	Existing	Project 2030	Existing		
Area	0.01	0.00	0.01	0.00		
Energy	389.09	0.00	389.09	0.00		
Mobile	1377.99	0.00	1281.99	0.00		
Waste	11.30	0.00	11.30	0.00		
Water	197.44	0.00	197.44	0.00		
TOTAL	1975.82	0.00	1879.82	0.00		
Net GHG Emissions		1975.82		1879.82		
Service Population	842.00					
Per Capita Emissions		2.35		2.23		

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**580 Dubuque R&D
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Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	295.00	1000sqft	2.00	295,000.00	983
Enclosed Parking with Elevator	350.00	Space	0.00	156,399.00	0
Other Asphalt Surfaces	0.50	Acre	0.00	21,780.00	0
City Park	0.50	Acre	0.00	21,780.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2025
Utility Company	Peninsula Clean Energy				
CO2 Intensity (lb/MW hr)	0	CH4 Intensity (lb/MW hr)	0	N2O Intensity (lb/MW hr)	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Assume PCE

Land Use - Estimated roadway and landscaped surfaces - 1 employee/1ksf

Construction Phase - From construction worksheet

Off-road Equipment - Crane is Electric

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

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Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet - generator separate overlapping phase

Off-road Equipment - Based on construction worksheet

Trips and VMT - All trips entered into EMFAC2021

Demolition - Based on construction worksheet

Grading - Based on construction worksheet

Vehicle Trips - Trip gen with TDM = 2159/295ksf = 7.32/1.23/0.72

Vehicle Emission Factors - Emfac2021

Construction Off-road Equipment Mitigation - All equipment t4i, BMP

Fleet Mix - Emfac2021

Stationary Sources - Emergency Generators and Fire Pumps - 2800 kw Generator = 3,753hp engine

Stationary Sources - Emergency Generators and Fire Pumps EF - Assume BAAQMD BACT= 0.5NOx 0.02PM

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	10.00	518.00
tblConstructionPhase	NumDays	10.00	136.00
tblConstructionPhase	NumDays	200.00	25.00
tblConstructionPhase	NumDays	200.00	140.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	4.00	48.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	NumDays	2.00	4.00
tblConstructionPhase	NumDays	2.00	48.00

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tblConstructionPhase	NumDaysWeek	5.00	7.00
tblFleetMix	HHD	2.0600e-003	2.5580e-003
tblFleetMix	HHD	2.0600e-003	2.5580e-003
tblFleetMix	HHD	2.0600e-003	2.5580e-003
tblFleetMix	HHD	2.0600e-003	2.5580e-003
tblFleetMix	LDA	0.47	0.45
tblFleetMix	LDA	0.47	0.45
tblFleetMix	LDA	0.47	0.45
tblFleetMix	LDA	0.47	0.45
tblFleetMix	LDT1	0.07	0.04
tblFleetMix	LDT1	0.07	0.04
tblFleetMix	LDT1	0.07	0.04
tblFleetMix	LDT1	0.07	0.04
tblFleetMix	LDT2	0.24	0.28
tblFleetMix	LDT2	0.24	0.28
tblFleetMix	LDT2	0.24	0.28
tblFleetMix	LDT2	0.24	0.28
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD2	6.4120e-003	6.3300e-003
tblFleetMix	LHD2	6.4120e-003	6.3300e-003
tblFleetMix	LHD2	6.4120e-003	6.3300e-003
tblFleetMix	LHD2	6.4120e-003	6.3300e-003
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02

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tblFleetMix	MDV	0.15	0.16
tblFleetMix	MDV	0.15	0.16
tblFleetMix	MDV	0.15	0.16
tblFleetMix	MDV	0.15	0.16
tblFleetMix	MH	2.6570e-003	2.0400e-003
tblFleetMix	MH	2.6570e-003	2.0400e-003
tblFleetMix	MH	2.6570e-003	2.0400e-003
tblFleetMix	MH	2.6570e-003	2.0400e-003
tblFleetMix	MHD	0.01	8.7430e-003
tblFleetMix	MHD	0.01	8.7430e-003
tblFleetMix	MHD	0.01	8.7430e-003
tblFleetMix	MHD	0.01	8.7430e-003
tblFleetMix	OBUS	1.4460e-003	2.3100e-003
tblFleetMix	OBUS	1.4460e-003	2.3100e-003
tblFleetMix	OBUS	1.4460e-003	2.3100e-003
tblFleetMix	OBUS	1.4460e-003	2.3100e-003
tblFleetMix	SBUS	4.3200e-004	4.1800e-004
tblFleetMix	SBUS	4.3200e-004	4.1800e-004
tblFleetMix	SBUS	4.3200e-004	4.1800e-004
tblFleetMix	SBUS	4.3200e-004	4.1800e-004
tblFleetMix	UBUS	5.7200e-004	7.4300e-004
tblFleetMix	UBUS	5.7200e-004	7.4300e-004
tblFleetMix	UBUS	5.7200e-004	7.4300e-004
tblFleetMix	UBUS	5.7200e-004	7.4300e-004
tblGrading	MaterialExported	0.00	58,000.00
tblGrading	MaterialExported	0.00	76,016.00
tblLandUse	LandUseSquareFeet	140,000.00	156,399.00
tblLandUse	LotAcreage	6.77	2.00
tblLandUse	LotAcreage	3.15	0.00

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tblLandUse	LotAcreage	0.50	0.00
tblLandUse	LotAcreage	0.50	0.00
tblLandUse	Population	0.00	983.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	0.40
tblOffRoadEquipment	UsageHours	6.00	10.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	10.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.40
tblOffRoadEquipment	UsageHours	8.00	0.40
tblOffRoadEquipment	UsageHours	7.00	7.10
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	7.10

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tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	3,753.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	11.00	0.00
tblTripsAndVMT	HaulingTripNumber	9,502.00	0.00
tblTripsAndVMT	HaulingTripNumber	7,250.00	0.00
tblTripsAndVMT	VendorTripNumber	81.00	0.00
tblTripsAndVMT	VendorTripNumber	81.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	178.00	0.00
tblTripsAndVMT	WorkerTripNumber	36.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	178.00	0.00
tblTripsAndVMT	WorkerTripNumber	36.00	0.00
tblVehicleEF	HHD	0.03	0.27
tblVehicleEF	HHD	0.18	0.25
tblVehicleEF	HHD	3.0000e-006	1.0000e-006
tblVehicleEF	HHD	5.29	4.67
tblVehicleEF	HHD	0.95	1.65
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	931.63	768.77
tblVehicleEF	HHD	1,585.25	1,745.93
tblVehicleEF	HHD	0.28	0.28
tblVehicleEF	HHD	0.15	0.13

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tblVehicleEF	HHD	0.26	0.28
tblVehicleEF	HHD	3.0000e-006	1.0000e-006
tblVehicleEF	HHD	5.24	3.95
tblVehicleEF	HHD	3.05	2.50
tblVehicleEF	HHD	2.40	2.74
tblVehicleEF	HHD	3.7460e-003	3.0270e-003
tblVehicleEF	HHD	0.06	0.09
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.0000e-006	4.0000e-006
tblVehicleEF	HHD	3.5840e-003	2.8900e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7190e-003	8.6260e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.0000e-006	4.0000e-006
tblVehicleEF	HHD	4.0000e-006	5.8500e-004
tblVehicleEF	HHD	2.0300e-004	1.7500e-004
tblVehicleEF	HHD	0.36	0.29
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	9.4000e-005	1.3050e-003
tblVehicleEF	HHD	1.4000e-005	3.0000e-006
tblVehicleEF	HHD	8.3030e-003	6.3920e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	4.0000e-006	5.8500e-004
tblVehicleEF	HHD	2.0300e-004	1.7500e-004
tblVehicleEF	HHD	0.42	0.58
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.21	0.29

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tblVehicleEF	HHD	9.4000e-005	1.3050e-003
tblVehicleEF	HHD	1.6000e-005	3.0000e-006
tblVehicleEF	LDA	1.3630e-003	1.6200e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.46	0.53
tblVehicleEF	LDA	2.01	2.73
tblVehicleEF	LDA	223.03	239.85
tblVehicleEF	LDA	47.59	62.52
tblVehicleEF	LDA	3.5080e-003	3.5780e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.15	0.21
tblVehicleEF	LDA	0.04	6.3990e-003
tblVehicleEF	LDA	1.2000e-003	1.1140e-003
tblVehicleEF	LDA	1.6180e-003	1.9130e-003
tblVehicleEF	LDA	0.02	2.2400e-003
tblVehicleEF	LDA	1.1050e-003	1.0250e-003
tblVehicleEF	LDA	1.4870e-003	1.7590e-003
tblVehicleEF	LDA	0.03	0.24
tblVehicleEF	LDA	0.08	0.07
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	5.0920e-003	6.1730e-003
tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	2.2060e-003	2.3710e-003
tblVehicleEF	LDA	4.7100e-004	6.1800e-004
tblVehicleEF	LDA	0.03	0.24
tblVehicleEF	LDA	0.08	0.07
tblVehicleEF	LDA	0.03	0.00

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tblVehicleEF	LDA	7.4000e-003	8.9940e-003
tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.19	0.30
tblVehicleEF	LDT1	2.1260e-003	4.1000e-003
tblVehicleEF	LDT1	0.04	0.08
tblVehicleEF	LDT1	0.59	0.99
tblVehicleEF	LDT1	2.12	4.22
tblVehicleEF	LDT1	263.34	311.98
tblVehicleEF	LDT1	56.19	81.09
tblVehicleEF	LDT1	4.1590e-003	6.8480e-003
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.04	0.09
tblVehicleEF	LDT1	0.17	0.31
tblVehicleEF	LDT1	0.04	8.0170e-003
tblVehicleEF	LDT1	1.4220e-003	1.5650e-003
tblVehicleEF	LDT1	1.8860e-003	2.4740e-003
tblVehicleEF	LDT1	0.02	2.8060e-003
tblVehicleEF	LDT1	1.3090e-003	1.4400e-003
tblVehicleEF	LDT1	1.7340e-003	2.2750e-003
tblVehicleEF	LDT1	0.04	0.42
tblVehicleEF	LDT1	0.09	0.12
tblVehicleEF	LDT1	0.04	0.00
tblVehicleEF	LDT1	8.5960e-003	0.02
tblVehicleEF	LDT1	0.06	0.34
tblVehicleEF	LDT1	0.20	0.42
tblVehicleEF	LDT1	2.6060e-003	3.0840e-003
tblVehicleEF	LDT1	5.5600e-004	8.0200e-004
tblVehicleEF	LDT1	0.04	0.42
tblVehicleEF	LDT1	0.09	0.12

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tblVehicleEF	LDT1	0.04	0.00
tblVehicleEF	LDT1	0.01	0.03
tblVehicleEF	LDT1	0.06	0.34
tblVehicleEF	LDT1	0.22	0.46
tblVehicleEF	LDT2	1.9400e-003	1.9300e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.56	0.60
tblVehicleEF	LDT2	2.52	3.01
tblVehicleEF	LDT2	275.26	320.59
tblVehicleEF	LDT2	59.15	81.06
tblVehicleEF	LDT2	4.2420e-003	4.4170e-003
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.19	0.25
tblVehicleEF	LDT2	0.04	7.6970e-003
tblVehicleEF	LDT2	1.3050e-003	1.1980e-003
tblVehicleEF	LDT2	1.6860e-003	1.9510e-003
tblVehicleEF	LDT2	0.02	2.6940e-003
tblVehicleEF	LDT2	1.2010e-003	1.1020e-003
tblVehicleEF	LDT2	1.5500e-003	1.7940e-003
tblVehicleEF	LDT2	0.03	0.19
tblVehicleEF	LDT2	0.07	0.06
tblVehicleEF	LDT2	0.04	0.00
tblVehicleEF	LDT2	7.4300e-003	7.2480e-003
tblVehicleEF	LDT2	0.05	0.14
tblVehicleEF	LDT2	0.22	0.29
tblVehicleEF	LDT2	2.7230e-003	3.1690e-003
tblVehicleEF	LDT2	5.8500e-004	8.0100e-004
tblVehicleEF	LDT2	0.03	0.19

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tblVehicleEF	LDT2	0.07	0.06
tblVehicleEF	LDT2	0.04	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.05	0.14
tblVehicleEF	LDT2	0.24	0.32
tblVehicleEF	LHD1	4.6830e-003	5.0900e-003
tblVehicleEF	LHD1	5.8360e-003	5.0980e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.18	0.20
tblVehicleEF	LHD1	0.51	0.68
tblVehicleEF	LHD1	0.97	2.39
tblVehicleEF	LHD1	8.57	8.29
tblVehicleEF	LHD1	751.95	745.68
tblVehicleEF	LHD1	11.12	18.86
tblVehicleEF	LHD1	7.2100e-004	5.7300e-004
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.34	0.35
tblVehicleEF	LHD1	0.26	0.39
tblVehicleEF	LHD1	8.5300e-004	6.1900e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	9.7990e-003	9.3030e-003
tblVehicleEF	LHD1	7.0500e-003	8.5920e-003
tblVehicleEF	LHD1	2.2400e-004	1.6500e-004
tblVehicleEF	LHD1	8.1600e-004	5.9200e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4500e-003	2.3260e-003
tblVehicleEF	LHD1	6.6990e-003	8.1840e-003

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tblVehicleEF	LHD1	2.0600e-004	1.5100e-004
tblVehicleEF	LHD1	1.0710e-003	0.08
tblVehicleEF	LHD1	0.05	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	6.9000e-004	0.00
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.14	0.12
tblVehicleEF	LHD1	0.05	0.09
tblVehicleEF	LHD1	8.3000e-005	8.1000e-005
tblVehicleEF	LHD1	7.3400e-003	7.2890e-003
tblVehicleEF	LHD1	1.1000e-004	1.8600e-004
tblVehicleEF	LHD1	1.0710e-003	0.08
tblVehicleEF	LHD1	0.05	0.02
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	6.9000e-004	0.00
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.14	0.12
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD2	2.8930e-003	2.9140e-003
tblVehicleEF	LHD2	5.4660e-003	4.9480e-003
tblVehicleEF	LHD2	5.9890e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.46	0.43
tblVehicleEF	LHD2	0.57	1.33
tblVehicleEF	LHD2	13.29	13.09
tblVehicleEF	LHD2	728.51	785.97
tblVehicleEF	LHD2	7.48	10.02
tblVehicleEF	LHD2	1.6500e-003	1.5680e-003
tblVehicleEF	LHD2	0.06	0.08

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tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.08	0.07
tblVehicleEF	LHD2	0.37	0.47
tblVehicleEF	LHD2	0.15	0.22
tblVehicleEF	LHD2	1.4140e-003	1.3360e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.2000e-004	8.0000e-005
tblVehicleEF	LHD2	1.3530e-003	1.2780e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.6890e-003	2.6520e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.1000e-004	7.4000e-005
tblVehicleEF	LHD2	5.6800e-004	0.05
tblVehicleEF	LHD2	0.03	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7300e-004	0.00
tblVehicleEF	LHD2	0.09	0.08
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.03	0.05
tblVehicleEF	LHD2	1.2700e-004	1.2600e-004
tblVehicleEF	LHD2	7.0360e-003	7.5740e-003
tblVehicleEF	LHD2	7.4000e-005	9.9000e-005
tblVehicleEF	LHD2	5.6800e-004	0.05
tblVehicleEF	LHD2	0.03	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.7300e-004	0.00
tblVehicleEF	LHD2	0.11	0.10

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tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.03	0.06
tblVehicleEF	MCY	0.33	0.14
tblVehicleEF	MCY	0.26	0.17
tblVehicleEF	MCY	18.30	10.67
tblVehicleEF	MCY	9.27	7.69
tblVehicleEF	MCY	212.79	186.43
tblVehicleEF	MCY	59.80	44.64
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	7.1110e-003
tblVehicleEF	MCY	1.15	0.51
tblVehicleEF	MCY	0.27	0.12
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.1570e-003	2.0310e-003
tblVehicleEF	MCY	3.1010e-003	3.7190e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	2.0130e-003	1.8970e-003
tblVehicleEF	MCY	2.9050e-003	3.4890e-003
tblVehicleEF	MCY	0.60	3.15
tblVehicleEF	MCY	0.51	3.55
tblVehicleEF	MCY	0.35	0.00
tblVehicleEF	MCY	2.17	0.89
tblVehicleEF	MCY	0.41	3.70
tblVehicleEF	MCY	1.93	1.22
tblVehicleEF	MCY	2.1060e-003	1.8430e-003
tblVehicleEF	MCY	5.9200e-004	4.4100e-004
tblVehicleEF	MCY	0.60	0.07
tblVehicleEF	MCY	0.51	3.55
tblVehicleEF	MCY	0.35	0.00

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tblVehicleEF	MCY	2.71	1.08
tblVehicleEF	MCY	0.41	3.70
tblVehicleEF	MCY	2.10	1.33
tblVehicleEF	MDV	1.9550e-003	2.1320e-003
tblVehicleEF	MDV	0.05	0.07
tblVehicleEF	MDV	0.55	0.62
tblVehicleEF	MDV	2.62	3.10
tblVehicleEF	MDV	330.48	383.68
tblVehicleEF	MDV	69.96	96.40
tblVehicleEF	MDV	5.5310e-003	5.3350e-003
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.04	7.7240e-003
tblVehicleEF	MDV	1.3170e-003	1.2030e-003
tblVehicleEF	MDV	1.6910e-003	1.9650e-003
tblVehicleEF	MDV	0.02	2.7040e-003
tblVehicleEF	MDV	1.2140e-003	1.1080e-003
tblVehicleEF	MDV	1.5550e-003	1.8070e-003
tblVehicleEF	MDV	0.04	0.21
tblVehicleEF	MDV	0.08	0.06
tblVehicleEF	MDV	0.04	0.00
tblVehicleEF	MDV	7.6550e-003	8.4160e-003
tblVehicleEF	MDV	0.05	0.16
tblVehicleEF	MDV	0.25	0.34
tblVehicleEF	MDV	3.2660e-003	3.7910e-003
tblVehicleEF	MDV	6.9200e-004	9.5300e-004
tblVehicleEF	MDV	0.04	0.21
tblVehicleEF	MDV	0.08	0.06

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tblVehicleEF	MDV	0.04	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.05	0.16
tblVehicleEF	MDV	0.27	0.38
tblVehicleEF	MH	5.5960e-003	8.1070e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.42	0.70
tblVehicleEF	MH	1.78	2.27
tblVehicleEF	MH	1,419.69	1,667.34
tblVehicleEF	MH	16.60	21.42
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.92	1.15
tblVehicleEF	MH	0.23	0.27
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	2.4300e-004	2.9600e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2800e-003	3.3240e-003
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	2.2300e-004	2.7200e-004
tblVehicleEF	MH	0.25	21.03
tblVehicleEF	MH	0.02	5.78
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	0.04	0.06
tblVehicleEF	MH	5.8350e-003	0.14
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	0.02

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tblVehicleEF	MH	1.6400e-004	2.1200e-004
tblVehicleEF	MH	0.25	21.03
tblVehicleEF	MH	0.02	5.78
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	5.8350e-003	0.14
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MHD	3.9340e-003	0.01
tblVehicleEF	MHD	1.4090e-003	0.01
tblVehicleEF	MHD	9.5150e-003	0.01
tblVehicleEF	MHD	0.38	0.67
tblVehicleEF	MHD	0.19	0.33
tblVehicleEF	MHD	1.06	1.26
tblVehicleEF	MHD	61.97	147.67
tblVehicleEF	MHD	1,043.81	1,250.18
tblVehicleEF	MHD	9.62	10.56
tblVehicleEF	MHD	8.7820e-003	0.02
tblVehicleEF	MHD	0.13	0.14
tblVehicleEF	MHD	8.1610e-003	8.0710e-003
tblVehicleEF	MHD	0.34	0.82
tblVehicleEF	MHD	1.30	0.99
tblVehicleEF	MHD	1.66	1.31
tblVehicleEF	MHD	2.4000e-004	1.8050e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	6.2030e-003	0.01
tblVehicleEF	MHD	1.1800e-004	1.3100e-004
tblVehicleEF	MHD	2.3000e-004	1.7260e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	5.9280e-003	0.01

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tblVehicleEF	MHD	1.0900e-004	1.2000e-004
tblVehicleEF	MHD	2.6600e-004	0.02
tblVehicleEF	MHD	0.02	6.3670e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.7600e-004	0.00
tblVehicleEF	MHD	0.01	0.04
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	5.8900e-004	1.3680e-003
tblVehicleEF	MHD	9.9640e-003	0.01
tblVehicleEF	MHD	9.5000e-005	1.0400e-004
tblVehicleEF	MHD	2.6600e-004	0.02
tblVehicleEF	MHD	0.02	6.3670e-003
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	1.7600e-004	0.00
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	OBUS	6.7000e-003	6.5670e-003
tblVehicleEF	OBUS	2.5540e-003	7.1970e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.63	0.49
tblVehicleEF	OBUS	0.31	0.22
tblVehicleEF	OBUS	1.48	1.05
tblVehicleEF	OBUS	103.58	90.16
tblVehicleEF	OBUS	1,286.62	1,296.63
tblVehicleEF	OBUS	12.91	9.34
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.13	0.17

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tblVehicleEF	OBUS	0.01	9.8750e-003
tblVehicleEF	OBUS	0.44	0.39
tblVehicleEF	OBUS	1.48	0.72
tblVehicleEF	OBUS	1.21	1.13
tblVehicleEF	OBUS	1.4300e-004	2.3300e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	7.6570e-003	8.2930e-003
tblVehicleEF	OBUS	1.4400e-004	9.9000e-005
tblVehicleEF	OBUS	1.3700e-004	2.2300e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.3130e-003	7.9280e-003
tblVehicleEF	OBUS	1.3300e-004	9.1000e-005
tblVehicleEF	OBUS	7.6700e-004	0.03
tblVehicleEF	OBUS	0.01	8.1250e-003
tblVehicleEF	OBUS	0.05	0.03
tblVehicleEF	OBUS	4.0100e-004	0.00
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.07	0.05
tblVehicleEF	OBUS	9.8300e-004	8.5000e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.2800e-004	9.2000e-005
tblVehicleEF	OBUS	7.6700e-004	0.03
tblVehicleEF	OBUS	0.01	8.1250e-003
tblVehicleEF	OBUS	0.06	0.04
tblVehicleEF	OBUS	4.0100e-004	0.00
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.08	0.06

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tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	8.8090e-003	0.08
tblVehicleEF	SBUS	0.01	8.5690e-003
tblVehicleEF	SBUS	4.01	2.38
tblVehicleEF	SBUS	0.80	1.39
tblVehicleEF	SBUS	1.56	1.23
tblVehicleEF	SBUS	367.56	204.35
tblVehicleEF	SBUS	971.83	958.41
tblVehicleEF	SBUS	8.11	6.00
tblVehicleEF	SBUS	0.05	0.02
tblVehicleEF	SBUS	0.10	0.11
tblVehicleEF	SBUS	8.1850e-003	5.6650e-003
tblVehicleEF	SBUS	3.13	1.37
tblVehicleEF	SBUS	4.12	2.53
tblVehicleEF	SBUS	0.74	0.47
tblVehicleEF	SBUS	3.4540e-003	1.3780e-003
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	1.3000e-004	7.9000e-005
tblVehicleEF	SBUS	3.3050e-003	1.3170e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.5240e-003	2.5140e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	1.1900e-004	7.3000e-005
tblVehicleEF	SBUS	6.7200e-004	0.05
tblVehicleEF	SBUS	8.3910e-003	0.01
tblVehicleEF	SBUS	0.48	0.28
tblVehicleEF	SBUS	3.3200e-004	0.00

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

tblVehicleEF	SBUS	0.09	0.07
tblVehicleEF	SBUS	0.01	0.04
tblVehicleEF	SBUS	0.06	0.05
tblVehicleEF	SBUS	3.5190e-003	1.8720e-003
tblVehicleEF	SBUS	9.3510e-003	8.9820e-003
tblVehicleEF	SBUS	8.0000e-005	5.9000e-005
tblVehicleEF	SBUS	6.7200e-004	0.05
tblVehicleEF	SBUS	8.3910e-003	0.01
tblVehicleEF	SBUS	0.70	0.44
tblVehicleEF	SBUS	3.3200e-004	0.00
tblVehicleEF	SBUS	0.11	0.17
tblVehicleEF	SBUS	0.01	0.04
tblVehicleEF	SBUS	0.06	0.05
tblVehicleEF	UBUS	1.52	0.55
tblVehicleEF	UBUS	0.01	6.4140e-003
tblVehicleEF	UBUS	11.42	6.30
tblVehicleEF	UBUS	0.83	0.87
tblVehicleEF	UBUS	1,603.69	1,061.97
tblVehicleEF	UBUS	9.21	5.58
tblVehicleEF	UBUS	0.26	0.16
tblVehicleEF	UBUS	7.3110e-003	9.5510e-003
tblVehicleEF	UBUS	0.69	0.25
tblVehicleEF	UBUS	0.10	0.07
tblVehicleEF	UBUS	0.08	0.14
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	4.9940e-003	4.6870e-003
tblVehicleEF	UBUS	5.3000e-005	2.3000e-005
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	7.8010e-003	0.01

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tblVehicleEF	UBUS	4.7760e-003	4.4790e-003
tblVehicleEF	UBUS	4.9000e-005	2.1000e-005
tblVehicleEF	UBUS	6.3800e-004	0.02
tblVehicleEF	UBUS	0.01	8.0370e-003
tblVehicleEF	UBUS	4.9700e-004	0.00
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	4.4160e-003	0.02
tblVehicleEF	UBUS	0.06	0.02
tblVehicleEF	UBUS	0.01	8.5230e-003
tblVehicleEF	UBUS	9.1000e-005	5.5000e-005
tblVehicleEF	UBUS	6.3800e-004	0.02
tblVehicleEF	UBUS	0.01	8.0370e-003
tblVehicleEF	UBUS	4.9700e-004	0.00
tblVehicleEF	UBUS	1.55	0.61
tblVehicleEF	UBUS	4.4160e-003	0.02
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	1.90	1.23
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	1.11	0.72
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	11.26	7.32

2.0 Emissions Summary**2.1 Overall Construction****Unmitigated Construction**

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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
Year	tons/yr										MT/yr					
2022	1.0222	2.2195	2.5288	4.4900e-003	0.1929	0.1107	0.3036	0.0904	0.1069	0.1973	0.0000	387.3709	387.3709	0.0639	0.0000	388.9691
2023	2.1341	1.2545	1.7352	3.0200e-003	0.0000	0.0602	0.0602	0.0000	0.0601	0.0601	0.0000	259.1346	259.1346	0.0167	0.0000	259.5526
2024	0.4054	0.1089	0.1663	2.5000e-004	0.0000	4.8200e-003	4.8200e-003	0.0000	4.5400e-003	4.5400e-003	0.0000	21.7925	21.7925	5.4900e-003	0.0000	21.9298
Maximum	2.1341	2.2195	2.5288	4.4900e-003	0.1929	0.1107	0.3036	0.0904	0.1069	0.1973	0.0000	387.3709	387.3709	0.0639	0.0000	388.9691

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					
2022	0.8501	1.6619	2.8282	4.4000e-003	0.0868	9.0300e-003	0.0959	0.0407	9.0300e-003	0.0497	0.0000	379.4492	379.4492	0.0614	0.0000	380.9833
2023	2.0408	1.1184	1.8848	3.0200e-003	0.0000	8.1200e-003	8.1200e-003	0.0000	8.1200e-003	8.1200e-003	0.0000	259.1343	259.1343	0.0167	0.0000	259.5523
2024	0.3992	0.1104	0.1788	2.5000e-004	0.0000	1.6000e-003	1.6000e-003	0.0000	1.6000e-003	1.6000e-003	0.0000	21.7925	21.7925	5.4900e-003	0.0000	21.9297
Maximum	2.0408	1.6619	2.8282	4.4000e-003	0.0868	9.0300e-003	0.0959	0.0407	9.0300e-003	0.0497	0.0000	379.4492	379.4492	0.0614	0.0000	380.9833

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	7.62	19.32	-10.42	1.16	55.00	89.33	71.36	55.00	89.07	77.31	0.00	1.19	1.19	2.97	0.00	1.19

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-10-2022	5-9-2022	0.2808	0.1910
2	5-10-2022	8-9-2022	1.5725	1.1391
3	8-10-2022	11-9-2022	0.9277	0.7922
4	11-10-2022	2-9-2023	0.8021	0.6865
5	2-10-2023	5-9-2023	0.6819	0.6000
6	5-10-2023	8-9-2023	0.7049	0.6202
7	8-10-2023	11-9-2023	1.1935	1.1647
8	11-10-2023	2-9-2024	0.8620	0.8748
9	2-10-2024	5-9-2024	0.1235	0.1122
		Highest	1.5725	1.1647

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3219	5.0000e-005	5.9200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Energy	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874
Mobile	0.8230	0.5515	5.7045	0.0148	1.3653	8.8800e-003	1.3742	0.3403	8.2600e-003	0.3485	0.0000	1,360.2753	1,360.2753	0.0645	0.0540	1,377.9873
Stationary	0.1540	0.6886	0.3926	7.4000e-004		0.0227	0.0227		0.0227	0.0227	0.0000	71.4566	71.4566	0.0100	0.0000	71.7071
Waste						0.0000	0.0000		0.0000	0.0000	4.5592	0.0000	4.5592	0.2694	0.0000	11.2952
Water						0.0000	0.0000		0.0000	0.0000	46.0176	0.0000	46.0176	4.7265	0.1116	197.4361
Total	2.3380	1.5954	6.4015	0.0176	1.3653	0.0586	1.4238	0.3403	0.0579	0.3982	50.5768	1,818.5323	1,869.1091	5.0779	0.1727	2,047.5253

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3219	5.0000e-005	5.9200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Energy	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874
Mobile	0.8230	0.5515	5.7045	0.0148	1.3653	8.8800e-003	1.3742	0.3403	8.2600e-003	0.3485	0.0000	1,360.2753	1,360.2753	0.0645	0.0540	1,377.9873
Stationary	0.1540	0.6886	0.3926	7.4000e-004		0.0227	0.0227		0.0227	0.0227	0.0000	71.4566	71.4566	0.0100	0.0000	71.7071
Waste						0.0000	0.0000		0.0000	0.0000	4.5592	0.0000	4.5592	0.2694	0.0000	11.2952
Water						0.0000	0.0000		0.0000	0.0000	46.0176	0.0000	46.0176	4.7265	0.1116	197.4361
Total	2.3380	1.5954	6.4015	0.0176	1.3653	0.0586	1.4238	0.3403	0.0579	0.3982	50.5768	1,818.5323	1,869.1091	5.0779	0.1727	2,047.5253

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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
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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

1	Demolition	Demolition	2/10/2022	2/16/2022	5	5	working portion
2	Site Preparation	Site Preparation	3/10/2022	3/15/2022	5	4	working portion
3	Soldier Piles/Micropiles	Building Construction	4/22/2022	5/26/2022	5	25	
4	Dewatering	Architectural Coating	4/22/2022	9/21/2023	7	518	Generator Pump
5	Trenching/Foundation	Trenching	4/28/2022	11/9/2022	5	140	
6	Soil Remediation	Site Preparation	5/27/2022	8/2/2022	5	48	
7	Grading	Grading	5/27/2022	8/2/2022	5	48	
8	Building Construction	Building Construction	7/14/2022	1/25/2023	5	140	
9	Building Interior	Architectural Coating	8/10/2023	2/15/2024	5	136	
10	Paving/landscaping/finishing	Paving	3/4/2024	5/3/2024	5	45	

Acres of Grading (Site Preparation Phase): 4**Acres of Grading (Grading Phase): 48****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 442,500; Non-Residential Outdoor: 147,500; Striped Parking Area: 10,691****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	1	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Soldier Piles/Micropiles	Bore/Drill Rigs	1	10.00	221	0.50
Soldier Piles/Micropiles	Cranes	1	10.00	231	0.29
Soldier Piles/Micropiles	Forklifts	1	10.00	89	0.20

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

Soldier Piles/Micropiles	Generator Sets	0	0.00	84	0.74
Soldier Piles/Micropiles	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Soldier Piles/Micropiles	Welders	0	8.00	46	0.45
Dewatering	Air Compressors	0	0.00	78	0.48
Dewatering	Pumps	1	24.00	84	0.74
Trenching/Foundation	Excavators	1	6.00	158	0.38
Trenching/Foundation	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Soil Remediation	Excavators	1	8.00	158	0.38
Soil Remediation	Graders	0	8.00	187	0.41
Soil Remediation	Rubber Tired Dozers	0	7.00	247	0.40
Soil Remediation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	2	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	2	8.00	97	0.37
Building Construction	Cranes	1	0.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Building Interior	Aerial Lifts	2	8.00	63	0.31
Building Interior	Air Compressors	1	8.00	78	0.48
Paving/landscaping/finishing	Cement and Mortar Mixers	1	0.40	9	0.56
Paving/landscaping/finishing	Pavers	1	0.40	130	0.42
Paving/landscaping/finishing	Paving Equipment	1	0.40	132	0.36
Paving/landscaping/finishing	Rollers	1	7.10	80	0.38
Paving/landscaping/finishing	Tractors/Loaders/Backhoes	1	7.10	97	0.37

Trips and VMT

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

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Soldier Piles/Micropiles	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching/Foundation	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Soil Remediation	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Interior	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving/landscaping/finishing	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2000e-003	0.0000	1.2000e-003	1.8000e-004	0.0000	1.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0156	0.0229	4.0000e-005		8.2000e-004	8.2000e-004		7.8000e-004	7.8000e-004	0.0000	3.1614	3.1614	6.6000e-004	0.0000	3.1779

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

Total	1.8100e-003	0.0156	0.0229	4.0000e-005	1.2000e-003	8.2000e-004	2.0200e-003	1.8000e-004	7.8000e-004	9.6000e-004	0.0000	3.1614	3.1614	6.6000e-004	0.0000	3.1779
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Unmitigated Construction Off-Site

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

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					5.4000e-004	0.0000	5.4000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.2000e-004	0.0147	0.0253	4.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	3.1614	3.1614	6.6000e-004	0.0000	3.1779

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

Total	6.2000e-004	0.0147	0.0253	4.0000e-005	5.4000e-004	5.0000e-005	5.9000e-004	8.0000e-005	5.0000e-005	1.3000e-004	0.0000	3.1614	3.1614	6.6000e-004	0.0000	3.1779
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Mitigated Construction Off-Site

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

3.3 Site Preparation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0348	0.0196	4.0000e-005		1.5300e-003	1.5300e-003		1.4100e-003	1.4100e-003	0.0000	3.7572	3.7572	1.2200e-003	0.0000	3.7876

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

Total	3.1600e-003	0.0348	0.0196	4.0000e-005	0.0142	1.5300e-003	0.0157	6.8500e-003	1.4100e-003	8.2600e-003	0.0000	3.7572	3.7572	1.2200e-003	0.0000	3.7876
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Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3700e-003	0.0000	6.3700e-003	3.0800e-003	0.0000	3.0800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7000e-004	0.0134	0.0255	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.7572	3.7572	1.2200e-003	0.0000	3.7876

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

Total	7.7000e-004	0.0134	0.0255	4.0000e-005	6.3700e-003	7.0000e-005	6.4400e-003	3.0800e-003	7.0000e-005	3.1500e-003	0.0000	3.7572	3.7572	1.2200e-003	0.0000	3.7876
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Mitigated Construction Off-Site

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

3.4 Soldier Piles/Micropiles - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0111	0.1173	0.0795	2.6000e-004		4.9400e-003	4.9400e-003		4.5500e-003	4.5500e-003	0.0000	22.9691	22.9691	7.4300e-003	0.0000	23.1548
Total	0.0111	0.1173	0.0795	2.6000e-004		4.9400e-003	4.9400e-003		4.5500e-003	4.5500e-003	0.0000	22.9691	22.9691	7.4300e-003	0.0000	23.1548

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

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.9800e-003	0.0498	0.0973	1.7000e-004		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	15.0478	15.0478	4.8700e-003	0.0000	15.1695
Total	2.9800e-003	0.0498	0.0973	1.7000e-004		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	15.0478	15.0478	4.8700e-003	0.0000	15.1695

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

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

3.5 Dewatering - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7725					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1341	1.1311	1.4218	2.5100e-003		0.0593	0.0593		0.0593	0.0593	0.0000	215.3440	215.3440	0.0110	0.0000	215.6188
Total	0.9066	1.1311	1.4218	2.5100e-003		0.0593	0.0593		0.0593	0.0593	0.0000	215.3440	215.3440	0.0110	0.0000	215.6188

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

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7725					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0460	0.8939	1.5455	2.5100e-003		3.3400e-003	3.3400e-003		3.3400e-003	3.3400e-003	0.0000	215.3438	215.3438	0.0110	0.0000	215.6185
Total	0.8185	0.8939	1.5455	2.5100e-003		3.3400e-003	3.3400e-003		3.3400e-003	3.3400e-003	0.0000	215.3438	215.3438	0.0110	0.0000	215.6185

Mitigated Construction Off-Site

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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					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000

3.5 Dewatering - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8029					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1298	1.0901	1.4752	2.6000e-003		0.0534	0.0534		0.0534	0.0534	0.0000	223.8222	223.8222	0.0102	0.0000	224.0782
Total	0.9327	1.0901	1.4752	2.6000e-003		0.0534	0.0534		0.0534	0.0534	0.0000	223.8222	223.8222	0.0102	0.0000	224.0782

Unmitigated Construction Off-Site

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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					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8029					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0478	0.9291	1.6063	2.6000e-003		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003	0.0000	223.8219	223.8219	0.0102	0.0000	224.0779
Total	0.8507	0.9291	1.6063	2.6000e-003		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003	0.0000	223.8219	223.8219	0.0102	0.0000	224.0779

Mitigated Construction Off-Site

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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					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000

3.6 Trenching/Foundation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0193	0.1813	0.2884	4.3000e-004		9.2400e-003	9.2400e-003		8.5000e-003	8.5000e-003	0.0000	38.1615	38.1615	0.0123	0.0000	38.4701
Total	0.0193	0.1813	0.2884	4.3000e-004		9.2400e-003	9.2400e-003		8.5000e-003	8.5000e-003	0.0000	38.1615	38.1615	0.0123	0.0000	38.4701

Unmitigated Construction Off-Site

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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					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000

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	6.9900e-003	0.1906	0.3287	4.3000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	38.1615	38.1615	0.0123	0.0000	38.4700
Total	6.9900e-003	0.1906	0.3287	4.3000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	38.1615	38.1615	0.0123	0.0000	38.4700

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000

3.7 Soil Remediation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.3000e-003	0.0000	4.3000e-003	6.5000e-004	0.0000	6.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.8100e-003	0.0829	0.1318	2.0000e-004		4.2200e-003	4.2200e-003		3.8900e-003	3.8900e-003	0.0000	17.4453	17.4453	5.6400e-003	0.0000	17.5863
Total	8.8100e-003	0.0829	0.1318	2.0000e-004	4.3000e-003	4.2200e-003	8.5200e-003	6.5000e-004	3.8900e-003	4.5400e-003	0.0000	17.4453	17.4453	5.6400e-003	0.0000	17.5863

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9300e-003	0.0000	1.9300e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-003	0.0872	0.1502	2.0000e-004		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	17.4452	17.4452	5.6400e-003	0.0000	17.5863
Total	3.2000e-003	0.0872	0.1502	2.0000e-004	1.9300e-003	3.2000e-004	2.2500e-003	2.9000e-004	3.2000e-004	6.1000e-004	0.0000	17.4452	17.4452	5.6400e-003	0.0000	17.5863

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000

3.8 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1733	0.0000	0.1733	0.0827	0.0000	0.0827	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0477	0.5030	0.3910	7.6000e-004		0.0225	0.0225		0.0207	0.0207	0.0000	66.8593	66.8593	0.0216	0.0000	67.3999
Total	0.0477	0.5030	0.3910	7.6000e-004	0.1733	0.0225	0.1957	0.0827	0.0207	0.1034	0.0000	66.8593	66.8593	0.0216	0.0000	67.3999

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000

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					0.0780	0.0000	0.0780	0.0372	0.0000	0.0372	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0123	0.2701	0.4936	7.6000e-004		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003	0.0000	66.8592	66.8592	0.0216	0.0000	67.3998
Total	0.0123	0.2701	0.4936	7.6000e-004	0.0780	1.2400e-003	0.0792	0.0372	1.2400e-003	0.0385	0.0000	66.8592	66.8592	0.0216	0.0000	67.3998

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000

3.9 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0238	0.1536	0.1738	2.5000e-004		8.1600e-003	8.1600e-003		7.8200e-003	7.8200e-003	0.0000	19.6732	19.6732	4.0200e-003	0.0000	19.7738
Total	0.0238	0.1536	0.1738	2.5000e-004		8.1600e-003	8.1600e-003		7.8200e-003	7.8200e-003	0.0000	19.6732	19.6732	4.0200e-003	0.0000	19.7738

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					

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

[illegible]

3.9 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	3.2100e-003	0.0214	0.0254	4.0000e-005		1.0300e-003	1.0300e-003		9.9000e-004	9.9000e-004	0.0000	2.9026	2.9026	5.8000e-004	0.0000	2.9170
Total	3.2100e-003	0.0214	0.0254	4.0000e-005		1.0300e-003	1.0300e-003		9.9000e-004	9.9000e-004	0.0000	2.9026	2.9026	5.8000e-004	0.0000	2.9170

Unmitigated Construction Off-Site

[illegible]

[illegible]

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

[illegible]

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3939					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6400e-003	0.0561	0.0849	1.2000e-004		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003	0.0000	10.8033	10.8033	1.9500e-003	0.0000	10.8520
Total	0.3965	0.0561	0.0849	1.2000e-004		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003	0.0000	10.8033	10.8033	1.9500e-003	0.0000	10.8520

Mitigated Construction Off-Site

[illegible]

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

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	0.0000	0.0000
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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	0.8230	0.5515	5.7045	0.0148	1.3653	8.8800e-003	1.3742	0.3403	8.2600e-003	0.3485	0.0000	1,360.2753	1,360.2753	0.0645	0.0540	1,377.9873
Unmitigated	0.8230	0.5515	5.7045	0.0148	1.3653	8.8800e-003	1.3742	0.3403	8.2600e-003	0.3485	0.0000	1,360.2753	1,360.2753	0.0645	0.0540	1,377.9873

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Research & Development	2,159.40	362.85	212.40	4,071,667	4,071,667
Total	2,159.40	362.85	212.40	4,071,667	4,071,667

4.3 Trip Type Information

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

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Research & Development	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.448243	0.043109	0.275360	0.157817	0.028829	0.006330	0.008743	0.002558	0.002310	0.000743	0.023500	0.000418	0.002040
Enclosed Parking with Elevator	0.448243	0.043109	0.275360	0.157817	0.028829	0.006330	0.008743	0.002558	0.002310	0.000743	0.023500	0.000418	0.002040
Other Asphalt Surfaces	0.448243	0.043109	0.275360	0.157817	0.028829	0.006330	0.008743	0.002558	0.002310	0.000743	0.023500	0.000418	0.002040
Research & Development	0.448243	0.043109	0.275360	0.157817	0.028829	0.006330	0.008743	0.002558	0.002310	0.000743	0.023500	0.000418	0.002040

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
Natural Gas Mitigated	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874

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Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	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
Research & Development	7.24815e+006	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874
Total		0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	850811	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Research & Development	2.19185e+006	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

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	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	850811	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Research & Development	2.19185e+006	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**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3219	5.0000e-005	5.9200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Unmitigated	1.3219	5.0000e-005	5.9200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123

6.2 Area by SubCategory

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**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	0.1575					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1639					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.5000e-004	5.0000e-005	5.9200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Total	1.3219	5.0000e-005	5.9200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123

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	0.1575					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1639					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.5000e-004	5.0000e-005	5.9200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Total	1.3219	5.0000e-005	5.9200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**7.0 Water Detail****7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	46.0176	4.7265	0.1116	197.4361
Unmitigated	46.0176	4.7265	0.1116	197.4361

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.595741	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	145.05 / 0	46.0176	4.7265	0.1116	197.4361
Total		46.0176	4.7265	0.1116	197.4361

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

Indoor/Out door Use		Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.595741	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	145.05 / 0	46.0176	4.7265	0.1116	197.4361
Total		46.0176	4.7265	0.1116	197.4361

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			

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Mitigated	4.5592	0.2694	0.0000	11.2952
Unmitigated	4.5592	0.2694	0.0000	11.2952

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.04	8.1200e-003	4.8000e-004	0.0000	0.0201
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Research & Development	22.42	4.5511	0.2690	0.0000	11.2751
Total		4.5592	0.2694	0.0000	11.2952

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

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City Park	0.04	8.1200e-003	4.8000e-004	0.0000	0.0201
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Research & Development	22.42	4.5511	0.2690	0.0000	11.2751
Total		4.5592	0.2694	0.0000	11.2952

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	1	1	50	3753	0.73	Diesel

Boilers

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

Equipment Type	Number
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10.1 Stationary Sources**Unmitigated/Mitigated**

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	ROG	NOx	CO	SO2	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)	0.1540	0.6886	0.3926	7.4000e-004		0.0227	0.0227		0.0227	0.0227	0.0000	71.4566	71.4566	0.0100	0.0000	71.7071
Total	0.1540	0.6886	0.3926	7.4000e-004		0.0227	0.0227		0.0227	0.0227	0.0000	71.4566	71.4566	0.0100	0.0000	71.7071

11.0 Vegetation

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San Mateo County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	295.00	1000sqft	2.00	295,000.00	983
Enclosed Parking with Elevator	350.00	Space	0.00	156,399.00	0
Other Asphalt Surfaces	0.50	Acre	0.00	21,780.00	0
City Park	0.50	Acre	0.00	21,780.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2030
Utility Company	Peninsula Clean Energy				
CO2 Intensity (lb/MW hr)	0	CH4 Intensity (lb/MW hr)	0	N2O Intensity (lb/MW hr)	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Assume PCE

Land Use - Estimated roadway and landscaped surfaces - 1 employee/1ksf

Construction Phase - From construction worksheet

Off-road Equipment - Crane is Electric

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

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Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet

Off-road Equipment - Based on construction worksheet - generator separate overlapping phase

Off-road Equipment - Based on construction worksheet

Trips and VMT - All trips entered into EMFAC2021

Demolition - Based on construction worksheet

Grading - Based on construction worksheet

Vehicle Trips - Trip gen with TDM = 2159/295ksf = 7.32/1.23/0.72

Vehicle Emission Factors - Emfac2021

Construction Off-road Equipment Mitigation - All equipment t4i, BMP

Fleet Mix - Emfac2021

Stationary Sources - Emergency Generators and Fire Pumps - 2800 kw Generator = 3,753hp engine

Stationary Sources - Emergency Generators and Fire Pumps EF - Assume BAAQMD BACT= 0.5NOx 0.02PM

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	10.00	518.00
tblConstructionPhase	NumDays	10.00	136.00
tblConstructionPhase	NumDays	200.00	25.00
tblConstructionPhase	NumDays	200.00	140.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	4.00	48.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	NumDays	2.00	4.00
tblConstructionPhase	NumDays	2.00	48.00

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tblConstructionPhase	NumDaysWeek	5.00	7.00
tblFleetMix	HHD	1.7910e-003	2.3620e-003
tblFleetMix	HHD	1.7910e-003	2.3620e-003
tblFleetMix	HHD	1.7910e-003	2.3620e-003
tblFleetMix	HHD	1.7910e-003	2.3620e-003
tblFleetMix	LDA	0.43	0.39
tblFleetMix	LDA	0.43	0.39
tblFleetMix	LDA	0.43	0.39
tblFleetMix	LDA	0.43	0.39
tblFleetMix	LDT1	0.08	0.04
tblFleetMix	LDT1	0.08	0.04
tblFleetMix	LDT1	0.08	0.04
tblFleetMix	LDT1	0.08	0.04
tblFleetMix	LDT2	0.25	0.31
tblFleetMix	LDT2	0.25	0.31
tblFleetMix	LDT2	0.25	0.31
tblFleetMix	LDT2	0.25	0.31
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD2	7.1360e-003	7.4140e-003
tblFleetMix	LHD2	7.1360e-003	7.4140e-003
tblFleetMix	LHD2	7.1360e-003	7.4140e-003
tblFleetMix	LHD2	7.1360e-003	7.4140e-003
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02

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tblFleetMix	MDV	0.16	0.18
tblFleetMix	MDV	0.16	0.18
tblFleetMix	MDV	0.16	0.18
tblFleetMix	MDV	0.16	0.18
tblFleetMix	MH	2.9170e-003	2.1460e-003
tblFleetMix	MH	2.9170e-003	2.1460e-003
tblFleetMix	MH	2.9170e-003	2.1460e-003
tblFleetMix	MH	2.9170e-003	2.1460e-003
tblFleetMix	MHD	0.01	8.2620e-003
tblFleetMix	MHD	0.01	8.2620e-003
tblFleetMix	MHD	0.01	8.2620e-003
tblFleetMix	MHD	0.01	8.2620e-003
tblFleetMix	OBUS	1.3500e-003	2.2040e-003
tblFleetMix	OBUS	1.3500e-003	2.2040e-003
tblFleetMix	OBUS	1.3500e-003	2.2040e-003
tblFleetMix	OBUS	1.3500e-003	2.2040e-003
tblFleetMix	SBUS	4.2100e-004	3.9400e-004
tblFleetMix	SBUS	4.2100e-004	3.9400e-004
tblFleetMix	SBUS	4.2100e-004	3.9400e-004
tblFleetMix	SBUS	4.2100e-004	3.9400e-004
tblFleetMix	UBUS	4.9600e-004	6.4500e-004
tblFleetMix	UBUS	4.9600e-004	6.4500e-004
tblFleetMix	UBUS	4.9600e-004	6.4500e-004
tblFleetMix	UBUS	4.9600e-004	6.4500e-004
tblGrading	MaterialExported	0.00	58,000.00
tblGrading	MaterialExported	0.00	76,016.00
tblLandUse	LandUseSquareFeet	140,000.00	156,399.00
tblLandUse	LotAcreage	6.77	2.00
tblLandUse	LotAcreage	3.15	0.00

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tblLandUse	LotAcreage	0.50	0.00
tblLandUse	LotAcreage	0.50	0.00
tblLandUse	Population	0.00	983.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	0.40
tblOffRoadEquipment	UsageHours	6.00	10.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	10.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.40
tblOffRoadEquipment	UsageHours	8.00	0.40
tblOffRoadEquipment	UsageHours	7.00	7.10
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	7.10

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tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	3,753.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	11.00	0.00
tblTripsAndVMT	HaulingTripNumber	9,502.00	0.00
tblTripsAndVMT	HaulingTripNumber	7,250.00	0.00
tblTripsAndVMT	VendorTripNumber	81.00	0.00
tblTripsAndVMT	VendorTripNumber	81.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	178.00	0.00
tblTripsAndVMT	WorkerTripNumber	36.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	178.00	0.00
tblTripsAndVMT	WorkerTripNumber	36.00	0.00
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	HHD	0.19	0.18
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	5.46	4.57
tblVehicleEF	HHD	1.06	1.44
tblVehicleEF	HHD	0.04	0.02
tblVehicleEF	HHD	860.08	692.39
tblVehicleEF	HHD	1,405.74	1,514.61
tblVehicleEF	HHD	0.35	0.20
tblVehicleEF	HHD	0.14	0.11

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tblVehicleEF	HHD	0.23	0.24
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	5.01	3.57
tblVehicleEF	HHD	2.73	1.87
tblVehicleEF	HHD	2.40	2.65
tblVehicleEF	HHD	2.7380e-003	2.0820e-003
tblVehicleEF	HHD	0.06	0.09
tblVehicleEF	HHD	0.04	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.0000e-006	2.0000e-006
tblVehicleEF	HHD	2.6200e-003	1.9850e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7570e-003	8.6350e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.0000e-006	2.0000e-006
tblVehicleEF	HHD	6.0000e-006	2.3600e-004
tblVehicleEF	HHD	3.2200e-004	6.5000e-005
tblVehicleEF	HHD	0.36	0.27
tblVehicleEF	HHD	5.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	1.5200e-004	3.9100e-004
tblVehicleEF	HHD	1.4000e-005	2.0000e-006
tblVehicleEF	HHD	7.5950e-003	5.6170e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	3.0000e-006	2.0000e-006
tblVehicleEF	HHD	6.0000e-006	2.3600e-004
tblVehicleEF	HHD	3.2200e-004	6.5000e-005
tblVehicleEF	HHD	0.43	0.53
tblVehicleEF	HHD	5.0000e-006	0.00

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tblVehicleEF	HHD	0.23	0.21
tblVehicleEF	HHD	1.5200e-004	3.9100e-004
tblVehicleEF	HHD	1.6000e-005	2.0000e-006
tblVehicleEF	LDA	8.5200e-004	1.0910e-003
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.38	0.43
tblVehicleEF	LDA	1.70	2.12
tblVehicleEF	LDA	197.85	218.14
tblVehicleEF	LDA	41.93	56.38
tblVehicleEF	LDA	2.9620e-003	2.8890e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.12	0.18
tblVehicleEF	LDA	0.04	6.3460e-003
tblVehicleEF	LDA	8.6000e-004	8.0000e-004
tblVehicleEF	LDA	1.2290e-003	1.4710e-003
tblVehicleEF	LDA	0.02	2.2210e-003
tblVehicleEF	LDA	7.9200e-004	7.3600e-004
tblVehicleEF	LDA	1.1300e-003	1.3530e-003
tblVehicleEF	LDA	0.02	0.21
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.00
tblVehicleEF	LDA	2.9250e-003	3.8520e-003
tblVehicleEF	LDA	0.03	0.16
tblVehicleEF	LDA	0.12	0.20
tblVehicleEF	LDA	1.9570e-003	2.1560e-003
tblVehicleEF	LDA	4.1500e-004	5.5700e-004
tblVehicleEF	LDA	0.02	0.21
tblVehicleEF	LDA	0.06	0.06

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tblVehicleEF	LDA	0.02	0.00
tblVehicleEF	LDA	4.2480e-003	5.6170e-003
tblVehicleEF	LDA	0.03	0.16
tblVehicleEF	LDA	0.13	0.22
tblVehicleEF	LDT1	1.1990e-003	2.2150e-003
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.44	0.66
tblVehicleEF	LDT1	1.81	2.84
tblVehicleEF	LDT1	236.05	285.53
tblVehicleEF	LDT1	50.08	72.58
tblVehicleEF	LDT1	3.1790e-003	4.5000e-003
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.14	0.23
tblVehicleEF	LDT1	0.04	7.9630e-003
tblVehicleEF	LDT1	9.9000e-004	1.0380e-003
tblVehicleEF	LDT1	1.3910e-003	1.7650e-003
tblVehicleEF	LDT1	0.02	2.7870e-003
tblVehicleEF	LDT1	9.1100e-004	9.5500e-004
tblVehicleEF	LDT1	1.2790e-003	1.6230e-003
tblVehicleEF	LDT1	0.03	0.31
tblVehicleEF	LDT1	0.07	0.08
tblVehicleEF	LDT1	0.03	0.00
tblVehicleEF	LDT1	4.4220e-003	9.0470e-003
tblVehicleEF	LDT1	0.05	0.24
tblVehicleEF	LDT1	0.13	0.27
tblVehicleEF	LDT1	2.3360e-003	2.8230e-003
tblVehicleEF	LDT1	4.9600e-004	7.1700e-004
tblVehicleEF	LDT1	0.03	0.31

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tblVehicleEF	LDT1	0.07	0.08
tblVehicleEF	LDT1	0.03	0.00
tblVehicleEF	LDT1	6.4520e-003	0.01
tblVehicleEF	LDT1	0.05	0.24
tblVehicleEF	LDT1	0.14	0.29
tblVehicleEF	LDT2	1.3110e-003	1.4510e-003
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.47	0.52
tblVehicleEF	LDT2	2.22	2.46
tblVehicleEF	LDT2	241.10	296.13
tblVehicleEF	LDT2	51.42	74.14
tblVehicleEF	LDT2	3.4280e-003	3.6740e-003
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.15	0.21
tblVehicleEF	LDT2	0.04	7.7670e-003
tblVehicleEF	LDT2	9.8200e-004	8.8300e-004
tblVehicleEF	LDT2	1.3140e-003	1.4990e-003
tblVehicleEF	LDT2	0.02	2.7180e-003
tblVehicleEF	LDT2	9.0400e-004	8.1200e-004
tblVehicleEF	LDT2	1.2080e-003	1.3780e-003
tblVehicleEF	LDT2	0.03	0.16
tblVehicleEF	LDT2	0.06	0.04
tblVehicleEF	LDT2	0.03	0.00
tblVehicleEF	LDT2	4.7820e-003	5.1450e-003
tblVehicleEF	LDT2	0.05	0.12
tblVehicleEF	LDT2	0.16	0.22
tblVehicleEF	LDT2	2.3850e-003	2.9270e-003
tblVehicleEF	LDT2	5.0900e-004	7.3300e-004

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tblVehicleEF	LDT2	0.03	0.16
tblVehicleEF	LDT2	0.06	0.04
tblVehicleEF	LDT2	0.03	0.00
tblVehicleEF	LDT2	6.9400e-003	7.4940e-003
tblVehicleEF	LDT2	0.05	0.12
tblVehicleEF	LDT2	0.17	0.24
tblVehicleEF	LHD1	3.9860e-003	4.1000e-003
tblVehicleEF	LHD1	4.4850e-003	2.8900e-003
tblVehicleEF	LHD1	7.3910e-003	0.01
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	0.40	0.47
tblVehicleEF	LHD1	0.86	2.16
tblVehicleEF	LHD1	8.08	7.48
tblVehicleEF	LHD1	689.79	647.78
tblVehicleEF	LHD1	9.94	16.36
tblVehicleEF	LHD1	7.0800e-004	5.3200e-004
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	0.20	0.30
tblVehicleEF	LHD1	9.1600e-004	6.1700e-004
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	9.8940e-003	9.2640e-003
tblVehicleEF	LHD1	5.8960e-003	6.6480e-003
tblVehicleEF	LHD1	2.0100e-004	1.0400e-004
tblVehicleEF	LHD1	8.7600e-004	5.9000e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4740e-003	2.3160e-003

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tblVehicleEF	LHD1	5.5970e-003	6.3310e-003
tblVehicleEF	LHD1	1.8500e-004	9.6000e-005
tblVehicleEF	LHD1	8.5500e-004	0.06
tblVehicleEF	LHD1	0.04	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	5.9000e-004	0.00
tblVehicleEF	LHD1	0.07	0.04
tblVehicleEF	LHD1	0.14	0.08
tblVehicleEF	LHD1	0.03	0.07
tblVehicleEF	LHD1	7.8000e-005	7.3000e-005
tblVehicleEF	LHD1	6.7280e-003	6.3250e-003
tblVehicleEF	LHD1	9.8000e-005	1.6200e-004
tblVehicleEF	LHD1	8.5500e-004	0.06
tblVehicleEF	LHD1	0.04	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	5.9000e-004	0.00
tblVehicleEF	LHD1	0.08	0.04
tblVehicleEF	LHD1	0.14	0.08
tblVehicleEF	LHD1	0.04	0.07
tblVehicleEF	LHD2	2.4420e-003	2.3110e-003
tblVehicleEF	LHD2	4.9160e-003	3.5820e-003
tblVehicleEF	LHD2	4.1310e-003	7.5520e-003
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.44	0.32
tblVehicleEF	LHD2	0.49	1.19
tblVehicleEF	LHD2	12.62	12.88
tblVehicleEF	LHD2	670.16	684.09
tblVehicleEF	LHD2	6.49	8.64
tblVehicleEF	LHD2	1.6020e-003	1.5980e-003

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tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.21	0.28
tblVehicleEF	LHD2	0.12	0.16
tblVehicleEF	LHD2	1.4740e-003	1.4290e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0700e-004	5.0000e-005
tblVehicleEF	LHD2	1.4100e-003	1.3670e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7060e-003	2.6170e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.9000e-005	4.6000e-005
tblVehicleEF	LHD2	4.2300e-004	0.03
tblVehicleEF	LHD2	0.02	8.3390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.0400e-004	0.00
tblVehicleEF	LHD2	0.09	0.07
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.04
tblVehicleEF	LHD2	1.2100e-004	1.2300e-004
tblVehicleEF	LHD2	6.4670e-003	6.5820e-003
tblVehicleEF	LHD2	6.4000e-005	8.5000e-005
tblVehicleEF	LHD2	4.2300e-004	0.03
tblVehicleEF	LHD2	0.02	8.3390e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.0400e-004	0.00

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tblVehicleEF	LHD2	0.11	0.08
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.04
tblVehicleEF	MCY	0.32	0.13
tblVehicleEF	MCY	0.25	0.14
tblVehicleEF	MCY	17.76	9.71
tblVehicleEF	MCY	9.39	7.58
tblVehicleEF	MCY	212.58	185.26
tblVehicleEF	MCY	58.78	39.68
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	5.5840e-003
tblVehicleEF	MCY	1.14	0.47
tblVehicleEF	MCY	0.27	0.09
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.2180e-003	2.0690e-003
tblVehicleEF	MCY	3.0130e-003	3.6390e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	2.0680e-003	1.9300e-003
tblVehicleEF	MCY	2.8140e-003	3.4020e-003
tblVehicleEF	MCY	0.61	2.69
tblVehicleEF	MCY	0.49	3.54
tblVehicleEF	MCY	0.36	0.00
tblVehicleEF	MCY	2.13	0.79
tblVehicleEF	MCY	0.39	3.67
tblVehicleEF	MCY	1.89	1.03
tblVehicleEF	MCY	2.1040e-003	1.8310e-003
tblVehicleEF	MCY	5.8200e-004	3.9200e-004
tblVehicleEF	MCY	0.61	0.07
tblVehicleEF	MCY	0.49	3.54

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tblVehicleEF	MCY	0.36	0.00
tblVehicleEF	MCY	2.68	0.98
tblVehicleEF	MCY	0.39	3.67
tblVehicleEF	MCY	2.06	1.12
tblVehicleEF	MDV	1.2400e-003	1.4660e-003
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.45	0.52
tblVehicleEF	MDV	2.21	2.46
tblVehicleEF	MDV	289.25	352.66
tblVehicleEF	MDV	60.44	87.77
tblVehicleEF	MDV	4.5060e-003	4.1700e-003
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	0.15	0.22
tblVehicleEF	MDV	0.04	7.7870e-003
tblVehicleEF	MDV	9.5700e-004	8.5800e-004
tblVehicleEF	MDV	1.2840e-003	1.4690e-003
tblVehicleEF	MDV	0.02	2.7250e-003
tblVehicleEF	MDV	8.8200e-004	7.9000e-004
tblVehicleEF	MDV	1.1810e-003	1.3510e-003
tblVehicleEF	MDV	0.03	0.17
tblVehicleEF	MDV	0.07	0.05
tblVehicleEF	MDV	0.04	0.00
tblVehicleEF	MDV	4.5430e-003	5.3030e-003
tblVehicleEF	MDV	0.05	0.13
tblVehicleEF	MDV	0.16	0.24
tblVehicleEF	MDV	2.8580e-003	3.4850e-003
tblVehicleEF	MDV	5.9800e-004	8.6800e-004
tblVehicleEF	MDV	0.03	0.17

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tblVehicleEF	MDV	0.07	0.05
tblVehicleEF	MDV	0.04	0.00
tblVehicleEF	MDV	6.5690e-003	7.7170e-003
tblVehicleEF	MDV	0.05	0.13
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MH	4.0670e-003	4.8170e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.22	0.26
tblVehicleEF	MH	1.59	1.85
tblVehicleEF	MH	1,315.39	1,657.15
tblVehicleEF	MH	15.06	19.91
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.84	1.00
tblVehicleEF	MH	0.22	0.25
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	9.1290e-003	0.01
tblVehicleEF	MH	2.2300e-004	2.4800e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2890e-003	3.3360e-003
tblVehicleEF	MH	8.6970e-003	0.01
tblVehicleEF	MH	2.0500e-004	2.2800e-004
tblVehicleEF	MH	0.16	10.82
tblVehicleEF	MH	0.01	2.82
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.03	0.04
tblVehicleEF	MH	2.9870e-003	0.07
tblVehicleEF	MH	0.07	0.08

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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.4900e-004	1.9700e-004
tblVehicleEF	MH	0.16	10.82
tblVehicleEF	MH	0.01	2.82
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	2.9870e-003	0.07
tblVehicleEF	MH	0.08	0.09
tblVehicleEF	MHD	3.9010e-003	0.02
tblVehicleEF	MHD	9.3700e-004	9.6240e-003
tblVehicleEF	MHD	8.5280e-003	9.1350e-003
tblVehicleEF	MHD	0.38	0.63
tblVehicleEF	MHD	0.14	0.16
tblVehicleEF	MHD	0.87	0.98
tblVehicleEF	MHD	55.53	130.08
tblVehicleEF	MHD	958.82	1,103.52
tblVehicleEF	MHD	8.66	9.48
tblVehicleEF	MHD	7.8550e-003	0.02
tblVehicleEF	MHD	0.12	0.13
tblVehicleEF	MHD	8.0480e-003	6.8930e-003
tblVehicleEF	MHD	0.29	0.66
tblVehicleEF	MHD	1.31	0.56
tblVehicleEF	MHD	1.67	1.12
tblVehicleEF	MHD	1.1600e-004	6.3600e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	6.3200e-003	5.3910e-003
tblVehicleEF	MHD	1.1300e-004	1.1800e-004
tblVehicleEF	MHD	1.1100e-004	6.0800e-004
tblVehicleEF	MHD	0.06	0.02

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tblVehicleEF	MHD	6.0400e-003	5.1470e-003
tblVehicleEF	MHD	1.0400e-004	1.0900e-004
tblVehicleEF	MHD	2.1500e-004	0.02
tblVehicleEF	MHD	0.01	3.9100e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.5500e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	5.2700e-004	1.1950e-003
tblVehicleEF	MHD	9.1510e-003	0.01
tblVehicleEF	MHD	8.6000e-005	9.4000e-005
tblVehicleEF	MHD	2.1500e-004	0.02
tblVehicleEF	MHD	0.01	3.9100e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	1.5500e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	OBUS	6.7860e-003	6.9140e-003
tblVehicleEF	OBUS	1.7360e-003	0.01
tblVehicleEF	OBUS	0.01	8.2390e-003
tblVehicleEF	OBUS	0.67	0.50
tblVehicleEF	OBUS	0.22	0.16
tblVehicleEF	OBUS	1.34	0.83
tblVehicleEF	OBUS	104.99	88.87
tblVehicleEF	OBUS	1,195.47	1,192.98
tblVehicleEF	OBUS	11.93	7.62
tblVehicleEF	OBUS	0.02	0.01

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tblVehicleEF	OBUS	0.12	0.16
tblVehicleEF	OBUS	0.01	7.5270e-003
tblVehicleEF	OBUS	0.47	0.34
tblVehicleEF	OBUS	1.49	0.65
tblVehicleEF	OBUS	1.22	1.02
tblVehicleEF	OBUS	1.5600e-004	2.0700e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	8.0770e-003	7.6200e-003
tblVehicleEF	OBUS	1.4600e-004	8.4000e-005
tblVehicleEF	OBUS	1.4900e-004	1.9800e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.7140e-003	7.2850e-003
tblVehicleEF	OBUS	1.3400e-004	7.7000e-005
tblVehicleEF	OBUS	6.9700e-004	0.03
tblVehicleEF	OBUS	0.01	6.5600e-003
tblVehicleEF	OBUS	0.05	0.03
tblVehicleEF	OBUS	3.8500e-004	0.00
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.07	0.04
tblVehicleEF	OBUS	9.9600e-004	8.3400e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.1800e-004	7.5000e-005
tblVehicleEF	OBUS	6.9700e-004	0.03
tblVehicleEF	OBUS	0.01	6.5600e-003
tblVehicleEF	OBUS	0.06	0.04
tblVehicleEF	OBUS	3.8500e-004	0.00
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.03

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

tblVehicleEF	OBUS	0.07	0.05
tblVehicleEF	SBUS	0.16	0.11
tblVehicleEF	SBUS	5.7190e-003	0.07
tblVehicleEF	SBUS	0.01	8.9860e-003
tblVehicleEF	SBUS	5.81	2.80
tblVehicleEF	SBUS	0.52	0.91
tblVehicleEF	SBUS	2.02	1.22
tblVehicleEF	SBUS	372.76	200.53
tblVehicleEF	SBUS	883.04	857.53
tblVehicleEF	SBUS	11.09	6.59
tblVehicleEF	SBUS	0.04	0.02
tblVehicleEF	SBUS	0.08	0.09
tblVehicleEF	SBUS	0.01	6.2860e-003
tblVehicleEF	SBUS	2.28	1.04
tblVehicleEF	SBUS	2.37	1.45
tblVehicleEF	SBUS	0.99	0.50
tblVehicleEF	SBUS	1.7990e-003	7.5800e-004
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	9.6950e-003	9.8790e-003
tblVehicleEF	SBUS	0.01	7.0920e-003
tblVehicleEF	SBUS	1.8900e-004	9.4000e-005
tblVehicleEF	SBUS	1.7210e-003	7.2300e-004
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.4240e-003	2.4700e-003
tblVehicleEF	SBUS	0.01	6.7620e-003
tblVehicleEF	SBUS	1.7400e-004	8.6000e-005
tblVehicleEF	SBUS	1.0240e-003	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.71	0.33

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tblVehicleEF	SBUS	5.6900e-004	0.00
tblVehicleEF	SBUS	0.06	0.05
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.08	0.05
tblVehicleEF	SBUS	3.5870e-003	1.8280e-003
tblVehicleEF	SBUS	8.5360e-003	8.0270e-003
tblVehicleEF	SBUS	1.1000e-004	6.5000e-005
tblVehicleEF	SBUS	1.0240e-003	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.03	0.51
tblVehicleEF	SBUS	5.6900e-004	0.00
tblVehicleEF	SBUS	0.07	0.13
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.09	0.06
tblVehicleEF	UBUS	1.75	0.64
tblVehicleEF	UBUS	8.0630e-003	4.5120e-003
tblVehicleEF	UBUS	13.25	7.38
tblVehicleEF	UBUS	0.82	0.83
tblVehicleEF	UBUS	1,616.16	954.90
tblVehicleEF	UBUS	7.49	5.22
tblVehicleEF	UBUS	0.27	0.14
tblVehicleEF	UBUS	5.7250e-003	6.8380e-003
tblVehicleEF	UBUS	0.67	0.21
tblVehicleEF	UBUS	0.07	0.04
tblVehicleEF	UBUS	0.08	0.16
tblVehicleEF	UBUS	0.03	0.06
tblVehicleEF	UBUS	4.9300e-003	3.9500e-003
tblVehicleEF	UBUS	9.1000e-005	2.5000e-005
tblVehicleEF	UBUS	0.03	0.05

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tblVehicleEF	UBUS	7.8010e-003	0.02
tblVehicleEF	UBUS	4.7140e-003	3.7730e-003
tblVehicleEF	UBUS	8.3000e-005	2.3000e-005
tblVehicleEF	UBUS	1.3500e-004	0.01
tblVehicleEF	UBUS	1.6730e-003	3.4250e-003
tblVehicleEF	UBUS	8.4000e-005	0.00
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	5.1800e-004	0.01
tblVehicleEF	UBUS	0.04	0.02
tblVehicleEF	UBUS	0.01	7.2300e-003
tblVehicleEF	UBUS	7.4000e-005	5.2000e-005
tblVehicleEF	UBUS	1.3500e-004	0.01
tblVehicleEF	UBUS	1.6730e-003	3.4250e-003
tblVehicleEF	UBUS	8.4000e-005	0.00
tblVehicleEF	UBUS	1.79	0.69
tblVehicleEF	UBUS	5.1800e-004	0.01
tblVehicleEF	UBUS	0.04	0.02
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	1.90	1.23
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	1.11	0.72
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	11.26	7.32

2.0 Emissions Summary**2.2 Overall Operational**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category tons/yr											MT/yr					
Area	1.3219	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Energy	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874
Mobile	0.6794	0.4107	4.8140	0.0137	1.3661	6.7000e-003	1.3728	0.3405	6.2400e-003	0.3468	0.0000	1,266.6016	1,266.6016	0.0520	0.0473	1,281.9927
Stationary	0.1540	0.6886	0.3926	7.4000e-004		0.0227	0.0227		0.0227	0.0227	0.0000	71.4566	71.4566	0.0100	0.0000	71.7071
Waste						0.0000	0.0000		0.0000	0.0000	4.5592	0.0000	4.5592	0.2694	0.0000	11.2952
Water						0.0000	0.0000		0.0000	0.0000	46.0176	0.0000	46.0176	4.7265	0.1116	197.4361
Total	2.1944	1.4547	5.5109	0.0166	1.3661	0.0564	1.4224	0.3405	0.0559	0.3964	50.5768	1,724.8587	1,775.4354	5.0653	0.1660	1,951.5306

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category tons/yr											MT/yr					
Area	1.3219	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Energy	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874
Mobile	0.6794	0.4107	4.8140	0.0137	1.3661	6.7000e-003	1.3728	0.3405	6.2400e-003	0.3468	0.0000	1,266.6016	1,266.6016	0.0520	0.0473	1,281.9927

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Stationary	0.1540	0.6886	0.3926	7.4000e-004		0.0227	0.0227		0.0227	0.0227	0.0000	71.4566	71.4566	0.0100	0.0000	71.7071
Waste						0.0000	0.0000		0.0000	0.0000	4.5592	0.0000	4.5592	0.2694	0.0000	11.2952
Water						0.0000	0.0000		0.0000	0.0000	46.0176	0.0000	46.0176	4.7265	0.1116	197.4361
Total	2.1944	1.4547	5.5109	0.0166	1.3661	0.0564	1.4224	0.3405	0.0559	0.3964	50.5768	1,724.8587	1,775.4354	5.0653	0.1660	1,951.5306

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6794	0.4107	4.8140	0.0137	1.3661	6.7000e-003	1.3728	0.3405	6.2400e-003	0.3468	0.0000	1,266.6016	1,266.6016	0.0520	0.0473	1,281.9927
Unmitigated	0.6794	0.4107	4.8140	0.0137	1.3661	6.7000e-003	1.3728	0.3405	6.2400e-003	0.3468	0.0000	1,266.6016	1,266.6016	0.0520	0.0473	1,281.9927

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
City Park	0.00	0.00	0.00				
Enclosed Parking with Elevator	0.00	0.00	0.00				
Other Asphalt Surfaces	0.00	0.00	0.00				
Research & Development	2,159.40	362.85	212.40	4,071,667		4,071,667	
Total	2,159.40	362.85	212.40	4,071,667		4,071,667	

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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

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

Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874
NaturalGas Unmitigated	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874

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					
City Park	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
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	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
Research & Development	7.24815e+006	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874
Total		0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874

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

Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	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
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	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
Research & Development	7.24815e+006	0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874
Total		0.0391	0.3553	0.2985	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.7889	386.7889	7.4100e-003	7.0900e-003	389.0874

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	850811	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Research & Development	2.19185e+006	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

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

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	850811	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Research & Development	2.19185e+006	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**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3219	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Unmitigated	1.3219	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**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	0.1575					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1639					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4000e-004	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Total	1.3219	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123

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	0.1575					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1639					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4000e-004	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123
Total	1.3219	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0115	0.0115	3.0000e-005	0.0000	0.0123

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**7.0 Water Detail****7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	46.0176	4.7265	0.1116	197.4361
Unmitigated	46.0176	4.7265	0.1116	197.4361

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.595741	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000

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

Research & Development	145.05 / 0	46.0176	4.7265	0.1116	197.4361
Total		46.0176	4.7265	0.1116	197.4361

Mitigated

Indoor/Outdoor Use		Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.595741	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	145.05 / 0	46.0176	4.7265	0.1116	197.4361
Total		46.0176	4.7265	0.1116	197.4361

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

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

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.5592	0.2694	0.0000	11.2952
Unmitigated	4.5592	0.2694	0.0000	11.2952

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.04	8.1200e-003	4.8000e-004	0.0000	0.0201
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Research & Development	22.42	4.5511	0.2690	0.0000	11.2751
Total		4.5592	0.2694	0.0000	11.2952

Mitigated

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

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.04	8.1200e-003	4.8000e-004	0.0000	0.0201
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Research & Development	22.42	4.5511	0.2690	0.0000	11.2751
Total		4.5592	0.2694	0.0000	11.2952

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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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	3753	0.73	Diesel

Boilers

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

Equipment Type	Number
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10.1 Stationary Sources

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**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 (500 - 999 HP)	0.1540	0.6886	0.3926	7.4000e-004		0.0227	0.0227		0.0227	0.0227	0.0000	71.4566	71.4566	0.0100	0.0000	71.7071
Total	0.1540	0.6886	0.3926	7.4000e-004		0.0227	0.0227		0.0227	0.0227	0.0000	71.4566	71.4566	0.0100	0.0000	71.7071

11.0 Vegetation

Attachment 3: EMFAC2021 Calculations

Summary of Construction Traffic Emissions (EMFAC2021)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10 <i>Tons</i>	Exhaust PM10 <i>Tons</i>	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4 <i>Metric Tons</i>	N2O	CO2e
Criteria Pollutants														
2022	0.0421	0.6828	0.6582	0.0039	0.1318	0.0322	0.1641	0.0198	0.0136	0.0335	384.5333	0.0480	0.0515	401.0681
2023	0.0418	0.6668	0.7066	0.0042	0.1481	0.0356	0.1837	0.0223	0.0149	0.0371	424.6888	0.0528	0.0568	442.9384
2024	0.0132	0.2153	0.2303	0.0014	0.0503	0.0120	0.0623	0.0076	0.0050	0.0126	141.5940	0.0173	0.0189	147.6677
Toxic Air Contaminants (1.0 Mile Trip Length)														
2022	0.0301	0.1226	0.1839	0.0004	0.0109	0.0023	0.0132	0.0016	0.0010	0.0027	36.4283	0.0069	0.0053	38.1801
2023	0.0314	0.1298	0.1982	0.0004	0.0122	0.0025	0.0148	0.0018	0.0011	0.0029	40.1238	0.0078	0.0058	42.0499
2024	0.0100	0.0430	0.0642	0.0001	0.0041	0.0009	0.0050	0.0006	0.0004	0.0010	13.3828	0.0025	0.0019	14.0223

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	Worker VMT	Vendor VMT	Hauling VMT
Demolition	8	0	40	0	11	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	432	0	220
Site Preparation	10	0	40	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	432	0	0
Soldier Piles/Micropiles	172	78	4300	1950	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	46440	14235	0
Dewatering	34	0	17612	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	190209.6	0	0
Trenching/Foundation	5	0	700	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	7560	0	0
Soil Remediation	5	0	240	0	9,502	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2592	0	190040
Grading	15	0	720	0	7,250	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	7776	0	145000
Building Construction	172	78	24080	10920	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	260064	79716	0
Building Interior	34	0	4624	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	49939.2	0	0
Paving/landscaping/finishing	13	0	585	0	40	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	6318	0	800

Number of Days Per Year

2022	2/10/22	12/31/22	325	233
2023	1/1/23	12/31/23	365	261
2024	1/1/24	5/3/24	124	89
			814	582 Total Workdays

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	2/10/2022	2/16/2022	5	5
Site Preparation	3/10/2022	3/15/2022	5	4
Soldier Piles/Micropiles	4/22/2022	5/26/2022	5	25
Dewatering	4/22/2022	9/21/2023	5	518
Trenching/Foundation	4/28/2022	11/9/2022	5	140
Soil Remediation	5/27/2022	8/2/2022	5	48
Grading	5/27/2022	8/2/2022	5	48
Building Construction	7/14/2022	1/25/2023	5	140
Building Interior	8/10/2023	2/15/2024	5	136
Paving/landscaping/finishing	3/4/2024	5/3/2024	5	45

Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

[illegible]

CalEEMod EMFAC2021 Emission Factors Input

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.00509	0.002914	0.014756	0.267799843	0.006567	0	0	0.096127	0
A	CH4_RUNEX	0.00162	0.0041	0.00193	0.002132	0.005098	0.004948	0.010272	0.250520376	0.007197	0.54719132	0.140818	0.080164	0.008107
A	CH4_STREX	0.058192	0.083348	0.065143	0.071971	0.019431	0.010676	0.010733	5.34126E-07	0.010159	0.006413618	0.16646	0.008569	0.024689
A	CO_IDLEX	0	0	0	0	0.200102	0.144548	0.670548	4.674714728	0.489029	0	0	2.380991	0
A	CO_RUNEX	0.533291	0.987128	0.602996	0.617373	0.682501	0.428407	0.331755	1.646685682	0.217767	6.298686532	10.66577	1.391898	0.700626
A	CO_STREX	2.734945	4.216581	3.011981	3.098359	2.39397	1.326451	1.259096	0.027273177	1.051096	0.865678808	7.691483	1.225133	2.269732
A	CO2_NBIO_IDLEX	0	0	0	0	8.287123	13.09091	147.6661	768.7716723	90.15686	0	0	204.3512	0
A	CO2_NBIO_RUNEX	239.848	311.9829	320.5917	383.6805	745.6768	785.9693	1250.179	1745.927029	1296.627	1061.974886	186.4281	958.4095	1667.344
A	CO2_NBIO_STREX	62.52193	81.08968	81.05668	96.39616	18.86084	10.01943	10.5582	0.281822196	9.34435	5.584749803	44.64197	6.002043	21.41888
A	NOX_IDLEX	0	0	0	0	0.035258	0.07008	0.818136	3.946769356	0.388856	0	0	1.37311	0
A	NOX_RUNEX	0.030637	0.087761	0.04216	0.048989	0.348047	0.468946	0.987366	2.50375798	0.721054	0.248884	0.505421	2.52561	1.150681
A	NOX_STREX	0.213914	0.311737	0.253723	0.289292	0.389155	0.21833	1.307286	2.741148405	1.129496	0.068508137	0.117673	0.473007	0.273789
A	PM10_IDLEX	0	0	0	0	0.000619	0.001336	0.001805	0.003026664	0.000233	0	0	0.001378	0
A	PM10_PMBW	0.006399	0.008017	0.007697	0.007724	0.077443	0.09028	0.045292	0.094175481	0.048836	0.142306362	0.012	0.044686	0.044942
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009303	0.010607	0.012	0.034505767	0.012	0.050724608	0.004	0.010056	0.013297
A	PM10_RUNEX	0.001114	0.001565	0.001198	0.001203	0.008592	0.014571	0.011587	0.023321334	0.008293	0.004687081	0.002031	0.011362	0.016327
A	PM10_STREX	0.001913	0.002474	0.001951	0.001965	0.000165	8.04E-05	0.000131	4.07065E-06	9.88E-05	2.28997E-05	0.003719	7.9E-05	0.000296
A	PM25_IDLEX	0	0	0	0	0.000592	0.001278	0.001726	0.002890137	0.000223	0	0	0.001317	0
A	PM25_PMBW	0.00224	0.002806	0.002694	0.002704	0.027105	0.031598	0.015852	0.032961418	0.017092	0.049807227	0.0042	0.01564	0.01573
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002326	0.002652	0.003	0.008626442	0.003	0.012681152	0.001	0.002514	0.003324
A	PM25_RUNEX	0.001025	0.00144	0.001102	0.001108	0.008184	0.013924	0.011074	0.022306121	0.007928	0.004478818	0.001897	0.010846	0.015578
A	PM25_STREX	0.001759	0.002275	0.001794	0.001807	0.000151	7.39E-05	0.00012	3.74281E-06	9.08E-05	2.10555E-05	0.003489	7.27E-05	0.000272
A	ROG_DIURN	0.23992	0.422505	0.185919	0.210348	0.082973	0.04954	0.024982	0.000585202	0.03104	0.021522802	3.154868	0.047869	21.0255
A	ROG_HTSK	0.073069	0.122434	0.05545	0.060196	0.022362	0.013133	0.006367	0.000175225	0.008125	0.008036694	3.548067	0.012307	5.778413
A	ROG_IDLEX	0	0	0	0	0.020304	0.014898	0.027305	0.286668504	0.032871	0	0	0.277158	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.006173	0.01796	0.007248	0.008416	0.055709	0.083251	0.035544	0.031143571	0.022157	0.051233319	0.891986	0.073977	0.05614
A	ROG_RUNLS	0.186625	0.340705	0.141591	0.162153	0.122003	0.0712	0.052008	0.001304636	0.036576	0.016691129	3.701315	0.036417	0.137796
A	ROG_STREX	0.269607	0.418278	0.293472	0.342868	0.093842	0.051791	0.057459	2.89774E-06	0.050342	0.024086249	1.219242	0.049676	0.100971
A	SO2_IDLEX	0	0	0	0	8.08E-05	0.000126	0.001368	0.006392287	0.00085	0	0	0.001872	0
A	SO2_RUNEX	0.002371	0.003084	0.003169	0.003791	0.007289	0.007574	0.011902	0.015292952	0.012326	0.008522909	0.001843	0.008982	0.016339
A	SO2_STREX	0.000618	0.000802	0.000801	0.000953	0.000186	9.91E-05	0.000104	2.7861E-06	9.24E-05	5.52109E-05	0.000441	5.93E-05	0.000212
A	TOG_DIURN	0.23992	0.422505	0.185919	0.210348	0.082973	0.04954	0.024982	0.000585202	0.03104	0.021522802	0.07414	0.047869	21.0255
A	TOG_HTSK	0.073069	0.122434	0.05545	0.060196	0.022362	0.013133	0.006367	0.000175225	0.008125	0.008036694	3.548067	0.012307	5.778413
A	TOG_IDLEX	0	0	0	0	0.028846	0.02006	0.045892	0.58212113	0.043566	0	0	0.435346	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.008994	0.026198	0.010562	0.012246	0.068434	0.096765	0.050769	0.286222734	0.032263	0.60586165	1.084139	0.168065	0.072727
A	TOG_RUNLS	0.186625	0.340705	0.141591	0.162153	0.122003	0.0712	0.052008	0.001304636	0.036576	0.016691129	3.701315	0.036417	0.137796
A	TOG_STREX	0.295186	0.457962	0.321315	0.375397	0.102745	0.056705	0.06291	3.17266E-06	0.055119	0.026371411	1.325883	0.054389	0.110551
A	N2O_IDLEX	0	0	0	0	0.000573	0.001568	0.022543	0.125460338	0.013415	0	0	0.024817	0
A	N2O_RUNEX	0.003578	0.006848	0.004417	0.005335	0.035453	0.077321	0.144932	0.280344669	0.165841	0.156430799	0.036419	0.110563	0.068442
A	N2O_STREX	0.0275	0.033715	0.031397	0.032482	0.033192	0.017887	0.008071	5.62128E-07	0.009875	0.009551223	0.007111	0.005665	0.030005

CalEEMod EMFAC2021 Fleet Mix Input

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.448243	0.043109	0.27536	0.157817	0.028829	0.00633	0.008743	0.002558	0.00231	0.000743	0.0235	0.000418	0.00204

Vehicle Classification: EMFAC2007 Categories

San Mateo	2030 HHDT	Aggregate	Aggregate	Diesel	1338.439	117080	117080	0	15181.71	0	2.116368	45.39119	3.044846	0.023283	0.023862	0	0.0
San Mateo	2030 HHDT	Aggregate	Aggregate	Electricity	84.88807	7748.736	0	7748.736	800.5398	14660.23	0	0	0	0	0	0	0.0

[illegible]

CalEEMod EMFAC2021 Emission Factors Input

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.0041	0.002311	0.015963	0.229026242	0.006914	0	0	0.110559	0
A	CH4_RUNEX	0.001091	0.002215	0.001451	0.001466	0.00289	0.003582	0.009624	0.18305022	0.010248	0.641431362	0.129549	0.072674	0.004817
A	CH4_STREX	0.043749	0.056722	0.051039	0.052888	0.014423	0.007552	0.009135	3.05733E-07	0.008239	0.004511552	0.143907	0.008986	0.021494
A	CO_IDLEX	0	0	0	0	0.183464	0.137123	0.628743	4.574443284	0.49944	0	0	2.802822	0
A	CO_RUNEX	0.428969	0.660194	0.521738	0.516941	0.468992	0.321574	0.163527	1.442396346	0.162707	7.377393404	9.714966	0.912101	0.258927
A	CO_STREX	2.12334	2.838305	2.46486	2.462348	2.160461	1.186135	0.977377	0.016590448	0.832894	0.828623357	7.581403	1.218105	1.853708
A	CO2_NBIO_IDLEX	0	0	0	0	7.483418	12.87527	130.0816	692.3906648	88.86546	0	0	200.5332	0
A	CO2_NBIO_RUNEX	218.1367	285.5306	296.1322	352.6558	647.7805	684.09	1103.524	1514.609777	1192.98	954.9035774	185.2558	857.525	1657.153
A	CO2_NBIO_STREX	56.37559	72.5759	74.14137	87.76861	16.36469	8.635527	9.478708	0.198459779	7.623425	5.222861474	39.68002	6.586443	19.91475
A	NOX_IDLEX	0	0	0	0	0.027637	0.059703	0.658867	3.566245811	0.336592	0	0	1.035723	0
A	NOX_RUNEX	0.021508	0.04649	0.029936	0.03068	0.181449	0.284207	0.558221	1.874181967	0.646065	0.210138516	0.471636	1.45062	0.995886
A	NOX_STREX	0.176589	0.231426	0.213197	0.224713	0.2977	0.159643	1.115695	2.649753409	1.022028	0.043221096	0.087961	0.50246	0.254132
A	PM10_IDLEX	0	0	0	0	0.000617	0.001429	0.000636	0.00208163	0.000207	0	0	0.000758	0
A	PM10_PMBW	0.006346	0.007963	0.007767	0.007787	0.074001	0.086134	0.043306	0.093281284	0.048975	0.156110891	0.012	0.043175	0.04494
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009264	0.01047	0.012	0.034539384	0.012	0.061827696	0.004	0.009879	0.013342
A	PM10_RUNEX	0.0008	0.001038	0.000883	0.000858	0.006648	0.01245	0.005391	0.020667549	0.00762	0.003949707	0.002069	0.007092	0.011597
A	PM10_STREX	0.001471	0.001765	0.001499	0.001469	0.000104	4.97E-05	0.000118	1.82388E-06	8.4E-05	2.48573E-05	0.003639	9.36E-05	0.000248
A	PM25_IDLEX	0	0	0	0	0.00059	0.001367	0.000608	0.001985313	0.000198	0	0	0.000723	0
A	PM25_PMBW	0.002221	0.002787	0.002718	0.002725	0.0259	0.030147	0.015157	0.032648449	0.017141	0.054638812	0.0042	0.015111	0.015729
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002316	0.002617	0.003	0.008634846	0.003	0.015456924	0.001	0.00247	0.003336
A	PM25_RUNEX	0.000736	0.000955	0.000812	0.00079	0.006331	0.011898	0.005147	0.019767546	0.007285	0.003772866	0.00193	0.006762	0.011058
A	PM25_STREX	0.001353	0.001623	0.001378	0.001351	9.57E-05	4.57E-05	0.000109	1.67699E-06	7.72E-05	2.28554E-05	0.003402	8.61E-05	0.000228
A	ROG_DIURN	0.208006	0.310821	0.155511	0.165232	0.056781	0.034294	0.016264	0.000235524	0.029304	0.012421079	2.694632	0.052216	10.81642
A	ROG_HTSK	0.057819	0.083701	0.043823	0.045503	0.014537	0.008339	0.00391	6.49199E-05	0.00656	0.003424597	3.535952	0.011692	2.824213
A	ROG_IDLEX	0	0	0	0	0.016598	0.012899	0.023221	0.271787437	0.032176	0	0	0.326882	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.003852	0.009047	0.005145	0.005303	0.037462	0.06705	0.015705	0.022524009	0.017791	0.045171786	0.790266	0.045956	0.038893
A	ROG_RUNLS	0.160749	0.241641	0.119083	0.126689	0.083346	0.048385	0.033035	0.000391321	0.033896	0.013537374	3.670486	0.037896	0.068402
A	ROG_STREX	0.197071	0.267146	0.223211	0.238678	0.067869	0.035586	0.046415	1.65627E-06	0.04121	0.01608249	1.025021	0.051728	0.081937
A	SO2_IDLEX	0	0	0	0	7.29E-05	0.000123	0.001195	0.005616953	0.000834	0	0	0.001828	0
A	SO2_RUNEX	0.002156	0.002823	0.002927	0.003485	0.006325	0.006582	0.010485	0.013042303	0.011283	0.007230239	0.001831	0.008027	0.016233
A	SO2_STREX	0.000557	0.000717	0.000733	0.000868	0.000162	8.54E-05	9.37E-05	1.96198E-06	7.54E-05	5.16333E-05	0.000392	6.51E-05	0.000197
A	TOG_DIURN	0.208006	0.310821	0.155511	0.165232	0.056781	0.034294	0.016264	0.000235524	0.029304	0.012421079	0.066855	0.052216	10.81642
A	TOG_HTSK	0.057819	0.083701	0.043823	0.045503	0.014537	0.008339	0.00391	6.49199E-05	0.00656	0.003424597	3.535952	0.011692	2.824213
A	TOG_IDLEX	0	0	0	0	0.023432	0.017024	0.04258	0.526899253	0.043038	0	0	0.511291	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.005617	0.013201	0.007494	0.007717	0.044644	0.077093	0.027406	0.208786723	0.030062	0.693940204	0.977152	0.127141	0.047979
A	TOG_RUNLS	0.160749	0.241641	0.119083	0.126689	0.083346	0.048385	0.033035	0.000391321	0.033896	0.013537374	3.670486	0.037896	0.068402
A	TOG_STREX	0.215768	0.292491	0.244388	0.261323	0.074308	0.038963	0.050819	1.8134E-06	0.04512	0.017608302	1.115488	0.056636	0.08971
A	N2O_IDLEX	0	0	0	0	0.000532	0.001598	0.019855	0.113681015	0.013363	0	0	0.02289	0
A	N2O_RUNEX	0.002889	0.0045	0.003674	0.00417	0.032136	0.070442	0.126706	0.244505965	0.159364	0.142077729	0.035104	0.090896	0.066786
A	N2O_STREX	0.023753	0.02846	0.028293	0.028531	0.02612	0.013606	0.006893	1.7284E-07	0.007527	0.006837798	0.005584	0.006286	0.029442

CalEEMod EMFAC2021 Fleet Mix Input

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.392609	0.040642	0.308969	0.177896	0.031644	0.007414	0.008262	0.002362	0.002204	0.000645	0.024811	0.000394	0.002146

Attachment 4: Project Construction Emissions and Health Risk Calculations

580 Dubuque Ave, South San Francisco, CA

DPM Emissions and Modeling Emission Rates - Unmitigated

Construction		DPM	Area	DPM Emissions			Modeled Area	DPM Emission Rate
Year	Activity	(ton/year)	Source	(lb/yr)	(lb/hr)	(g/s)	(m ²)	(g/s/m ²)
2022	Construction	0.1130	CON_DPM	226.0	0.07285	9.18E-03	7,647	1.20E-06
2023	Construction	0.0627	CON_DPM	125.5	0.04045	5.10E-03	7,647	6.66E-07
2024	Construction	0.0057	CON_DPM	11.3	0.00366	4.61E-04	7,647	6.03E-08
Total		0.1814		362.8	0.1170	0.0147		

Construction Hours

hr/day = 8.5 (7am - 3:30pm)

days/yr = 365

hours/year = 3102.5

580 Dubuque Ave, South San Francisco, CA

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction		Area	PM2.5 Emissions				Modeled Area	PM2.5 Emission Rate
Year	Activity	Source	(ton/year)	(lb/yr)	(lb/hr)	(g/s)	(m ²)	g/s/m ²
2022	Construction	CON_FUG	0.0920	184.1	0.05933	7.48E-03	7,647	9.78E-07
2023	Construction	CON_FUG	0.0018	3.7	0.00118	1.49E-04	7,647	1.95E-08
2024	Construction	CON_FUG	0.0006	1.2	0.00040	5.07E-05	7,647	6.63E-09
Total			0.0945	189.0	0.0609	0.0077		

Construction Hours

hr/day = 8.5 (7am - 3:30pm)

days/yr = 365

hours/year = 3102.5

580 Dubuque Ave, South San Francisco, CA
Construction Health Impact Summary

Maximum Impacts at MEI Location - Without Mitigation

Emissions Year						
	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m³)
	Exhaust PM10/DPM (µg/m³)	Fugitive PM2.5 (µg/m³)				
			Infant/Child	Adult		
2022	0.0311	0.0256	5.53	0.09	0.01	0.06
2023	0.0173	0.0005	2.84	0.05	0.00	0.02
2024	0.0016	0.0002	0.04	0.00	0.00	0.00
Total	-	-	8.41	0.14		-
Maximum	0.0311	0.0256	-	-	0.01	0.06

580 Dubuque Ave, South San Francisco, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 7.6 meter receptor height

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

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

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

Where: C_{air} = concentration in air (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum		
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor		Hazard Index	Fugitive PM2.5	Total PM2.5
			Year	Annual			DPM Conc (ug/m3)	Year					
0	0.25	-0.25 - 0*	2022	0.0311	10	0.42	2022	0.0311	-	-			
1	1	0 - 1	2022	0.0311	10	5.11	2022	0.0311	1	0.09	0.006	0.026	0.06
2	1	1 - 2	2023	0.0173	10	2.84	2023	0.0173	1	0.05	0.003	0.001	0.02
3	1	2 - 3	2024	0.0016	3	0.04	2024	0.0016	1	0.00	0.000	0.000	0.00
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						8.41				0.14			

* Third trimester of pregnancy

580 Dubuque Ave, South San Francisco, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 4.5 meter receptor height

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

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

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

Where: C_{air} = concentration in air (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum		
			DPM Conc (ug/m3)		Age Sensitivity		Modeled		Age Sensitivity		Hazard Index	Fugitive PM2.5	Total PM2.5
			Year	Annual	Factor		DPM Conc (ug/m3)	Age Sensitivity	Year				
0	0.25	-0.25 - 0*	2022	0.0219	10	0.30	2022	0.0219	-	-			
1	1	0 - 1	2022	0.0219	10	3.60	2022	0.0219	1	0.06	0.004	0.020	0.04
2	1	1 - 2	2023	0.0122	10	2.00	2023	0.0122	1	0.03	0.002	0.000	0.01
3	1	2 - 3	2024	0.0011	3	0.03	2024	0.0011	1	0.00	0.000	0.000	0.00
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						5.93				0.10			

* Third trimester of pregnancy

580 Dubuque Ave, South San Francisco, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

Where: C_{air} = concentration in air (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum		
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor		Hazard Index	Fugitive PM2.5	Total PM2.5
			Year	Annual			DPM Conc (ug/m3)	Year					
0	0.25	-0.25 - 0*	2022	0.0266	10	0.36	2022	0.0266	-	-			
1	1	0 - 1	2022	0.0266	10	4.37	2022	0.0266	1	0.08	0.01	0.025	0.05
2	1	1 - 2	2023	0.0148	10	2.42	2023	0.0148	1	0.04	0.00	0.000	0.02
3	1	2 - 3	2024	0.0013	3	0.03	2024	0.0013	1	0.00	0.00	0.000	0.00
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						7.18				0.12			

* Third trimester of pregnancy

Attachment 5: Community Risk Modeling Information and Calculations

580 Dubuque Ave, South San Francisco, CA

Standby Emergency Generator Impacts

Off-site Sensitive Receptors

MEI Location = 7.6 meter receptor height

DPM Emission Rates		
Source Type	DPM Emissions per Generator	
	Max Daily (lb/day)	Annual (lb/year)
2,800-kW, 3,750-hp Generator	0.124	45.40
CalEEMod DPM Emissions	2.27E-02	tons/year

Modeling Information	
Model	AERMOD
Source	Diesel Generator Engine
Source Type	Point
Meteorological Data	2013-2017 San Francisco International Airport
Point Source Stack Parameters	
Generator Engine Size (hp)	3750
Stack Height (ft)	10.00
Stack Diameter (ft)**	0.60
Exhaust Gas Flowrate (CFM)*	2527.73
Stack Exit Velocity (ft/sec)**	149.00
Exhaust Temperature (°F)**	872.00
Emissions Rate (lb/hr)	0.005183

* AERMOD default

**BAAQMD default generator parameters

* Third trimester of pregnancy

CT-EMFAC2017 Emissions Factors

File Name: Grand Avenue & Airport Blvd.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 11/3/2021 1:52:50 PM
Area: San Mateo (SF)
Analysis Year: 2022
Season: Annual

```
=====
Vehicle Category      VMT Fraction      Diesel VMT Fraction  Gas VMT Fraction
                     Across Category    Within Category      Within Category
Truck 1               0.017             0.472                0.528
Truck 2               0.014             0.870                0.114
Non-Truck             0.969             0.017                0.964
=====
```

```
=====
Road Type:           Major/Collector
Silt Loading Factor:  CARB           0.032 g/m2
Precipitation Correction: CARB       P = 60 days   N = 365 days
=====
```

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

```
Pollutant Name      35 mph
PM2.5                0.001702
TOG                  0.038307
Diesel PM            0.000503
=====
```

Fleet Average Running Loss Emission Factors (grams/veh-hour)

```
|
Pollutant Name      Emission Factor
TOG                  1.245454
=====
```

Fleet Average Tire Wear Factors (grams/veh-mile)

```
Pollutant Name      Emission Factor
PM2.5                0.002046
=====
```

Fleet Average Brake Wear Factors (grams/veh-mile)

```
Pollutant Name      Emission Factor
PM2.5                0.016802
=====
```

Fleet Average Road Dust Factors (grams/veh-mile)

```
Pollutant Name      Emission Factor
PM2.5                0.014819
=====
```

=====END=====

File Name: Project Trips DBQ Ave.EF
 CT-EMFAC2017 Version: 1.0.2.27401
 Run Date: 11/18/2021 12:11:21 PM
 Area: San Mateo (SF)
 Analysis Year: 2025
 Season: Annual

```

=====
Vehicle Category      VMT Fraction      Diesel VMT Fraction  Gas VMT Fraction
                   Across Category  Within Category      Within Category
    Truck 1           0.017           0.498           0.502
    Truck 2           0.014           0.870           0.112
    Non-Truck         0.969           0.017           0.953
=====
  
```

```

=====
Road Type:          Major/Collector
Silt Loading Factor: CARB          0.032 g/m2
Precipitation Correction: CARB      P = 60 days      N = 365 days
=====
  
```

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

```

Pollutant Name      30 mph
    PM2.5           0.001533
    TOG             0.041378
    Diesel PM       0.000239
=====
  
```

Fleet Average Running Loss Emission Factors (grams/veh-hour)

```

Pollutant Name      Emission Factor
    TOG             1.112044
=====
  
```

Fleet Average Tire Wear Factors (grams/veh-mile)

```

Pollutant Name      Emission Factor
    PM2.5           0.002045
=====
  
```

Fleet Average Brake Wear Factors (grams/veh-mile)

```

Pollutant Name      Emission Factor
    PM2.5           0.016812
=====
  
```

Fleet Average Road Dust Factors (grams/veh-mile)

```

Pollutant Name      Emission Factor
    PM2.5           0.014960
=====
  
```

=====END=====

**580 Dubuque Ave, South San Francisco, CA - Off-Site Residential
Cumulative Operation - Airport Blvd
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2022**

Emission Factors

Emission Factors from CT-EMFAC2017[illegible]

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.85%	522	3.17E-05	9	6.74%	913	5.55E-05	17	6.40%	868	5.27E-05
2	3.18%	431	2.62E-05	10	8.25%	1117	6.79E-05	18	4.10%	555	3.37E-05
3	2.35%	318	1.93E-05	11	6.24%	845	5.14E-05	19	2.38%	323	1.96E-05
4	1.01%	136	8.27E-06	12	7.41%	1004	6.10E-05	20	1.21%	164	9.98E-06
5	1.01%	136	8.27E-06	13	6.74%	913	5.55E-05	21	3.05%	414	2.51E-05
6	2.18%	295	1.79E-05	14	6.57%	890	5.41E-05	22	5.06%	686	4.17E-05
7	4.73%	641	3.89E-05	15	5.90%	799	4.86E-05	23	3.35%	454	2.76E-05
8	3.39%	459	2.79E-05	16	4.23%	573	3.48E-05	24	0.67%	91	5.52E-06
Total										13,546	

**580 Dubuque Ave, South San Francisco, CA - Off-Site Residential
Cumulative Operation - Airport Blvd
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2022**

[illegible]

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMI)	0.001702			

Emission Factors from CT-EMFAC2017

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

	% Per				% Per				% Per		
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s
1	1.12%	151	3.14E-05	9	7.12%	964	2.00E-04	17	7.43%	1006	2.09E-04
2	0.41%	56	1.16E-05	10	4.38%	593	1.23E-04	18	8.24%	1116	2.31E-04
3	0.38%	51	1.05E-05	11	4.65%	629	1.30E-04	19	5.72%	775	1.61E-04
4	0.17%	23	4.85E-06	12	5.89%	798	1.65E-04	20	4.30%	583	1.21E-04
5	0.45%	61	1.27E-05	13	6.17%	836	1.73E-04	21	3.26%	441	9.14E-05
6	0.85%	115	2.39E-05	14	6.05%	819	1.70E-04	22	3.31%	449	9.30E-05
7	3.73%	506	1.05E-04	15	7.05%	956	1.98E-04	23	2.49%	337	6.98E-05
8	7.77%	1052	2.18E-04	16	7.19%	974	2.02E-04	24	1.87%	254	5.26E-05
Total										13,546	

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

[illegible]

**580 Dubuque Ave, South San Francisco, CA - Off-Site Residential
Cumulative Operation - Airport Blvd
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2022**

[illegible]

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.03831			

Emission Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_AIR

	% Per				% Per				% Per		
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s
1	1.12%	151	7.07E-04	9	7.12%	964	4.50E-03	17	7.43%	1006	4.70E-03
2	0.41%	56	2.62E-04	10	4.38%	593	2.77E-03	18	8.24%	1116	5.21E-03
3	0.38%	51	2.37E-04	11	4.65%	629	2.94E-03	19	5.72%	775	3.62E-03
4	0.17%	23	1.09E-04	12	5.89%	798	3.72E-03	20	4.30%	583	2.72E-03
5	0.45%	61	2.87E-04	13	6.17%	836	3.90E-03	21	3.26%	441	2.06E-03
6	0.85%	115	5.38E-04	14	6.05%	819	3.82E-03	22	3.31%	449	2.09E-03
7	3.73%	506	2.36E-03	15	7.05%	956	4.46E-03	23	2.49%	337	1.57E-03
8	7.77%	1052	4.91E-03	16	7.19%	974	4.54E-03	24	1.87%	254	1.18E-03
Total										13,546	

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

Hour	% Per	VPH	g/mile	Hour	% Per	VPH	g/mile	Hour	% Per	VPH	g/mile
1	1.12%	151	7.01E-04	9	7.12%	964	4.46E-03	17	7.43%	1006	4.66E-03
2	0.41%	56	2.60E-04	10	4.38%	593	2.74E-03	18	8.24%	1116	5.16E-03
3	0.38%	51	2.36E-04	11	4.65%	629	2.91E-03	19	5.72%	775	3.59E-03
4	0.17%	23	1.08E-04	12	5.89%	798	3.69E-03	20	4.30%	583	2.70E-03
5	0.45%	61	2.84E-04	13	6.17%	836	3.87E-03	21	3.26%	441	2.04E-03
6	0.85%	115	5.33E-04	14	6.05%	819	3.79E-03	22	3.31%	449	2.08E-03
7	3.73%	506	2.34E-03	15	7.05%	956	4.42E-03	23	2.49%	337	1.56E-03
8	7.77%	1052	4.87E-03	16	7.19%	974	4.51E-03	24	1.87%	254	1.17E-03
Total										13,546	

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	151	6.51E-04	9	7.12%	964	4.15E-03	17	7.43%	1006	4.33E-03
2	0.41%	56	2.41E-04	10	4.38%	593	2.55E-03	18	8.24%	1116	4.80E-03
3	0.38%	51	2.19E-04	11	4.65%	629	2.71E-03	19	5.72%	775	3.33E-03
4	0.17%	23	1.01E-04	12	5.89%	798	3.43E-03	20	4.30%	583	2.51E-03
5	0.45%	61	2.64E-04	13	6.17%	836	3.60E-03	21	3.26%	441	1.90E-03
6	0.85%	115	4.95E-04	14	6.05%	819	3.52E-03	22	3.31%	449	1.93E-03
7	3.73%	506	2.18E-03	15	7.05%	956	4.11E-03	23	2.49%	337	1.45E-03
8	7.77%	1052	4.52E-03	16	7.19%	974	4.19E-03	24	1.87%	254	1.09E-03
Total										13,546	

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	151	6.16E-04	9	7.12%	964	3.92E-03	17	7.43%	1006	4.09E-03
2	0.41%	56	2.28E-04	10	4.38%	593	2.41E-03	18	8.24%	1116	4.54E-03
3	0.38%	51	2.07E-04	11	4.65%	629	2.56E-03	19	5.72%	775	3.15E-03
4	0.17%	23	9.52E-05	12	5.89%	798	3.25E-03	20	4.30%	583	2.37E-03
5	0.45%	61	2.50E-04	13	6.17%	836	3.40E-03	21	3.26%	441	1.79E-03
6	0.85%	115	4.69E-04	14	6.05%	819	3.33E-03	22	3.31%	449	1.82E-03
7	3.73%	506	2.06E-03	15	7.05%	956	3.89E-03	23	2.49%	337	1.37E-03
8	7.77%	1052	4.28E-03	16	7.19%	974	3.96E-03	24	1.87%	254	1.03E-03
Total										13,546	

**580 Dubuque Ave, South San Francisco, CA - Off-Site Residential
Cumulative Operation - Grand Avenue
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2022**

[illegible]

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.00050			

Emission Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and DPM Emissions - DPM_EB_GND

	% Per				% Per				% Per		
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s
1	3.85%	658	3.75E-05	9	6.74%	1150	6.56E-05	17	6.40%	1093	6.23E-05
2	3.18%	543	3.10E-05	10	8.25%	1408	8.02E-05	18	4.10%	700	3.99E-05
3	2.35%	400	2.28E-05	11	6.24%	1064	6.07E-05	19	2.38%	407	2.32E-05
4	1.01%	172	9.78E-06	12	7.41%	1265	7.21E-05	20	1.21%	207	1.18E-05
5	1.01%	172	9.78E-06	13	6.74%	1150	6.56E-05	21	3.05%	521	2.97E-05
6	2.18%	372	2.12E-05	14	6.57%	1122	6.40E-05	22	5.06%	864	4.93E-05
7	4.73%	807	4.60E-05	15	5.90%	1007	5.74E-05	23	3.35%	572	3.26E-05
8	3.39%	578	3.30E-05	16	4.23%	721	4.11E-05	24	0.67%	114	6.52E-06
Total										17,067	

2022 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_WB_GND

[illegible]

**580 Dubuque Ave, South San Francisco, CA - Off-Site Residential
Cumulative Operation - Grand Avenue
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2022**

[illegible]

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMI)	0.001702			

Emission Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 EB GND

[illegible]

2022 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5 WB GND

[illegible]

**580 Dubuque Ave, South San Francisco, CA - Off-Site Residential
Cumulative Operation - Grand Avenue
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2022**

[illegible]

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.03831			

Emission Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EB_GND

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	191	8.29E-04	9	7.12%	1215	5.28E-03	17	7.43%	1268	5.51E-03
2	0.41%	71	3.07E-04	10	4.38%	747	3.24E-03	18	8.24%	1406	6.10E-03
3	0.38%	64	2.78E-04	11	4.65%	793	3.44E-03	19	5.72%	977	4.24E-03
4	0.17%	29	1.28E-04	12	5.89%	1005	4.36E-03	20	4.30%	735	3.19E-03
5	0.45%	77	3.36E-04	13	6.17%	1054	4.57E-03	21	3.26%	556	2.41E-03
6	0.85%	145	6.30E-04	14	6.05%	1032	4.48E-03	22	3.31%	565	2.45E-03
7	3.73%	637	2.77E-03	15	7.05%	1204	5.23E-03	23	2.49%	424	1.84E-03
8	7.77%	1325	5.76E-03	16	7.19%	1227	5.33E-03	24	1.87%	320	1.39E-03
Total										17,067	

2022 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH WB GND

[illegible]

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	191	7.80E-04	9	7.12%	1215	4.97E-03	17	7.43%	1268	5.18E-03
2	0.41%	71	2.89E-04	10	4.38%	747	3.05E-03	18	8.24%	1406	5.75E-03
3	0.38%	64	2.62E-04	11	4.65%	793	3.24E-03	19	5.72%	977	3.99E-03
4	0.17%	29	1.20E-04	12	5.89%	1005	4.11E-03	20	4.30%	735	3.00E-03
5	0.45%	77	3.16E-04	13	6.17%	1054	4.31E-03	21	3.26%	556	2.27E-03
6	0.85%	145	5.93E-04	14	6.05%	1032	4.22E-03	22	3.31%	565	2.31E-03
7	3.73%	637	2.61E-03	15	7.05%	1204	4.92E-03	23	2.49%	424	1.73E-03
8	7.77%	1325	5.42E-03	16	7.19%	1227	5.01E-03	24	1.87%	320	1.31E-03
Total										17,067	

Year = 2022

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	191	7.38E-04	9	7.12%	1215	4.70E-03	17	7.43%	1268	4.90E-03
2	0.41%	71	2.74E-04	10	4.38%	747	2.89E-03	18	8.24%	1406	5.44E-03
3	0.38%	64	2.48E-04	11	4.65%	793	3.07E-03	19	5.72%	977	3.78E-03
4	0.17%	29	1.14E-04	12	5.89%	1005	3.89E-03	20	4.30%	735	2.84E-03
5	0.45%	77	2.99E-04	13	6.17%	1054	4.07E-03	21	3.26%	556	2.15E-03
6	0.85%	145	5.61E-04	14	6.05%	1032	3.99E-03	22	3.31%	565	2.19E-03
7	3.73%	637	2.46E-03	15	7.05%	1204	4.66E-03	23	2.49%	424	1.64E-03
8	7.77%	1325	5.13E-03	16	7.19%	1227	4.74E-03	24	1.87%	320	1.24E-03
Total										17,067	

**580 Dubuque Ave, South San Francisco, CA - Airport Blvd Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Residential MEI Receptors (1 Location - 7.6 meter receptor height)**

Emission Year 2022
Receptor Information Construction Residential MEI receptor
 Number of Receptors 1
 Receptor Height 7.6 Meters
 Receptor Distances At Construction Residential MEI locations

Meteorological Conditions
 BAAQMD San Francisco International Airport M 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0017	0.0917	0.0854

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0847	0.0806	0.0041

**580 Dubuque Ave, South San Francisco, CA - Grand Avenue Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Residential MEI Receptors (1 Location - 7.6 meter receptor height)**

Emission Year 2022
Receptor Information Construction Residential MEI receptor
 Number of Receptors 1
 Receptor Height 7.6 Meters
 Receptor Distances At Construction Residential MEI locations

Meteorological Conditions
 BAAQMD San Francisco International Airport M 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0006	0.0429	0.0399

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0396	0.0377	0.0019

580 Dubuque Ave, South San Francisco, CA - Airport Blvd Traffic Cancer Risk
Impacts at Construction Residential MEI - 7.6 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

Where: CPF = Cancer potency factor (mg/kg-day)⁻¹

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

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

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁻⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure	Age	Year	Age Sensitivity Factor		Exhaust	Evaporative	DPM	Exhaust TOG	Evaporative TOG	
	Duration (years)				DPM	TOG	TOG				
0	0.25	-0.25 - 0*	2022	10	0.0017	0.0917	0.0854	0.023	0.007	0.0004	0.03
1	1	0 - 1	2022	10	0.0017	0.0917	0.0854	0.274	0.086	0.0047	0.36
2	1	1 - 2	2023	10	0.0017	0.0917	0.0854	0.274	0.086	0.0047	0.36
3	1	2 - 3	2024	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
4	1	3 - 4	2025	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
5	1	4 - 5	2026	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
6	1	5 - 6	2027	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
7	1	6 - 7	2028	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
8	1	7 - 8	2029	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
9	1	8 - 9	2030	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
10	1	9 - 10	2031	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
11	1	10 - 11	2032	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
12	1	11 - 12	2033	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
13	1	12 - 13	2034	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
14	1	13 - 14	2035	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
15	1	14 - 15	2036	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
16	1	15 - 16	2037	3	0.0017	0.0917	0.0854	0.043	0.014	0.0007	0.06
17	1	16-17	2038	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
18	1	17-18	2039	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
19	1	18-19	2040	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
20	1	19-20	2041	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
21	1	20-21	2042	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
22	1	21-22	2043	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
23	1	22-23	2044	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
24	1	23-24	2045	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
25	1	24-25	2046	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
26	1	25-26	2047	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
27	1	26-27	2048	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
28	1	27-28	2049	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
29	1	28-29	2050	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
30	1	29-30	2051	1	0.0017	0.0917	0.0854	0.005	0.002	0.0001	0.01
Total Increased Cancer Risk								1.24	0.389	0.021	1.65

* Third trimester of pregnancy

Maximum
Hazard Index **Fugitive PM2.5** **Total PM2.5**
0.0003 0.08 0.08

580 Dubuque Ave, South San Francisco, CA - Grand Avenue Traffic Cancer Risk
Impacts at Construction Residential MEI - 7.6 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

Where: CPF = Cancer potency factor (mg/kg-day)⁻¹

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

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

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁻⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure	Age	Year	Age Sensitivity Factor		Exhaust	Evaporative	DPM	Exhaust TOG	Evaporative TOG	
	Duration (years)				DPM	TOG	TOG				
0	0.25	-0.25 - 0*	2022	10	0.0006	0.0429	0.0399	0.008	0.003	0.0002	0.01
1	1	0 - 1	2022	10	0.0006	0.0429	0.0399	0.095	0.040	0.0022	0.14
2	1	1 - 2	2023	10	0.0006	0.0429	0.0399	0.095	0.040	0.0022	0.14
3	1	2 - 3	2024	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
4	1	3 - 4	2025	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
5	1	4 - 5	2026	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
6	1	5 - 6	2027	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
7	1	6 - 7	2028	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
8	1	7 - 8	2029	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
9	1	8 - 9	2030	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
10	1	9 - 10	2031	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
11	1	10 - 11	2032	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
12	1	11 - 12	2033	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
13	1	12 - 13	2034	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
14	1	13 - 14	2035	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
15	1	14 - 15	2036	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
16	1	15 - 16	2037	3	0.0006	0.0429	0.0399	0.015	0.006	0.0003	0.02
17	1	16-17	2038	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
18	1	17-18	2039	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
19	1	18-19	2040	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
20	1	19-20	2041	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
21	1	20-21	2042	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
22	1	21-22	2043	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
23	1	22-23	2044	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
24	1	23-24	2045	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
25	1	24-25	2046	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
26	1	25-26	2047	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
27	1	26-27	2048	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
28	1	27-28	2049	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
29	1	28-29	2050	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
30	1	29-30	2051	1	0.0006	0.0429	0.0399	0.002	0.001	0.0000	0.00
Total Increased Cancer Risk								0.43	0.182	0.010	0.62

* Third trimester of pregnancy

Maximum
Hazard Index **Fugitive PM2.5** **Total PM2.5**
0.0001 0.04 0.04

**580 Dubuque Ave, South San Francisco, CA - Off-Site Residential
Project Trips - Dubuque Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2025**

[illegible]

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.00024			

Emission Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and DPM Emissions - DPM_NB_DBQ

[illegible]

2025 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_DBQ

[illegible]

**580 Dubuque Ave, South San Francisco, CA - Off-Site Residential
Project Trips - Dubuque Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2025**

[illegible]

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMI)	0.001533			

Emission Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_NB_DBQ

[illegible]

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5 SB DBQ

[illegible]

580 Dubuque Ave, South San Francisco, CA - Off-Site Residential
Project Trips - Dubuque Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2025

[illegible]

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.04138			

Emission Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_DBQ

[illegible]

2025 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_SB_DBQ

[illegible]

[illegible]

Year = 2025

[illegible]

**580 Dubuque Ave, South San Francisco, CA - Dubuque Avenue Traffic - TACs & PM2.5 - Project Trips
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Residential MEI Receptors (1 Location - 7.6 meter receptor height)**

<u>Emission Year</u>	2025
<u>Receptor Information</u>	Construction Residential MEI receptor
Number of Receptors	1
Receptor Height	7.6 Meters
Receptor Distances	At Construction Residential MEI locations

Meteorological Conditions

BAAQMD San Francisco International Airport M	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0000	0.0045	0.0041

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0039	0.0037	0.0002

580 Dubuque Ave, South San Francisco, CA - Grand Avenue Traffic Cancer Risk - Project Trips
Impacts at Construction Residential MEI - 7.6 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

Where: CPF = Cancer potency factor (mg/kg-day)⁻¹

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

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

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁻⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
	Duration (years)										
0	0.25	-0.25 - 0*	2025	10	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
1	1	0 - 1	2025	10	0.0000	0.0045	0.0041	0.005	0.004	0.0002	0.01
2	1	1 - 2	2026	10	0.0000	0.0045	0.0041	0.005	0.004	0.0002	0.01
3	1	2 - 3	2027	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
4	1	3 - 4	2028	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
5	1	4 - 5	2029	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
6	1	5 - 6	2030	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
7	1	6 - 7	2031	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
8	1	7 - 8	2032	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
9	1	8 - 9	2033	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
10	1	9 - 10	2034	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
11	1	10 - 11	2035	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
12	1	11 - 12	2036	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
13	1	12 - 13	2037	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
14	1	13 - 14	2038	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
15	1	14 - 15	2039	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
16	1	15 - 16	2040	3	0.0000	0.0045	0.0041	0.001	0.001	0.0000	0.00
17	1	16-17	2041	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
18	1	17-18	2042	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
19	1	18-19	2043	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
20	1	19-20	2044	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
21	1	20-21	2045	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
22	1	21-22	2046	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
23	1	22-23	2047	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
24	1	23-24	2048	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
25	1	24-25	2049	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
26	1	25-26	2050	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
27	1	26-27	2051	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
28	1	27-28	2052	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
29	1	28-29	2053	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
30	1	29-30	2054	1	0.0000	0.0045	0.0041	0.000	0.000	0.0000	0.00
Total Increased Cancer Risk								0.02	0.019	0.001	0.04

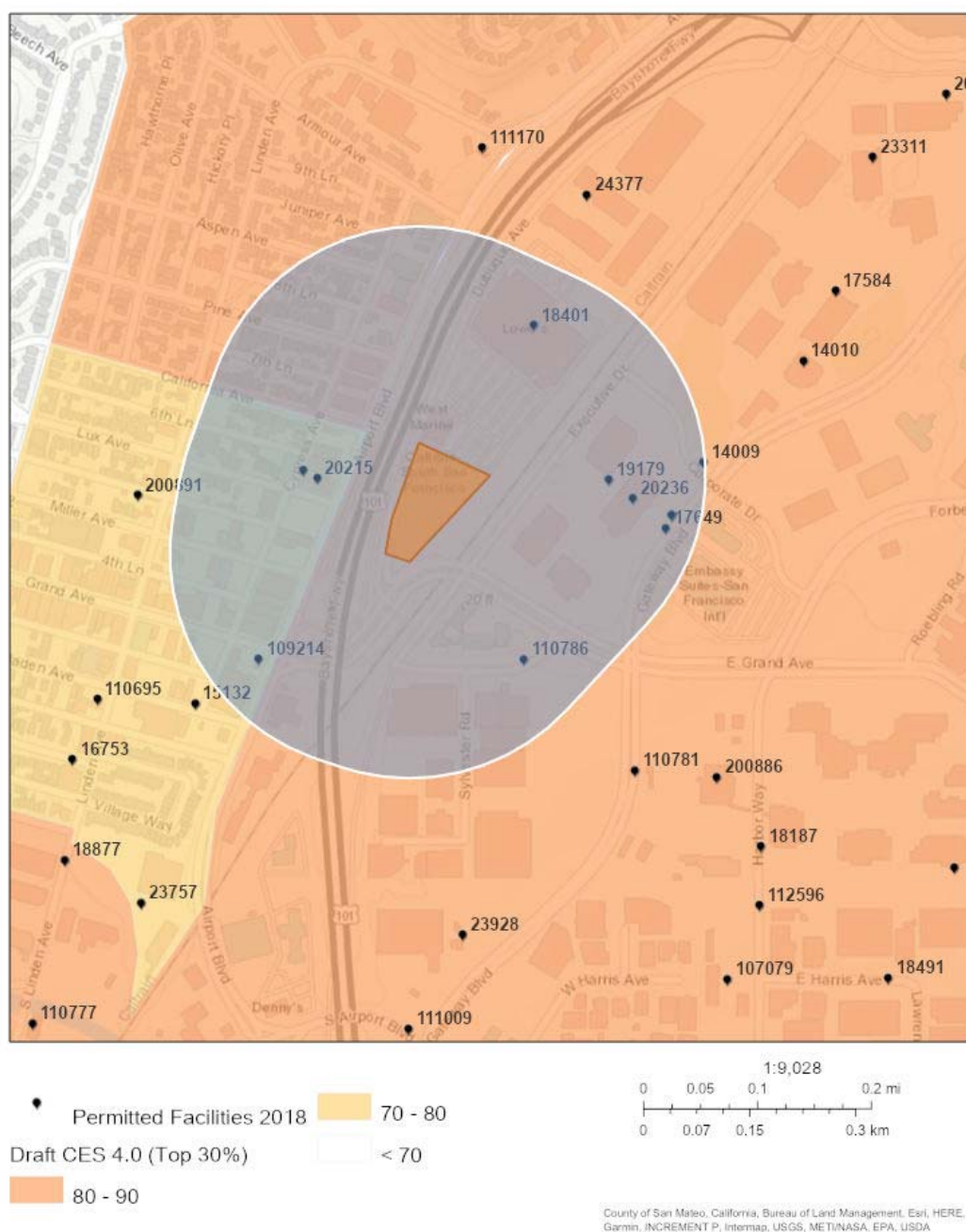
* Third trimester of pregnancy

Maximum
Hazard
Index
 0.0000
 Fugitive
PM2.5
 0.00
 Total
PM2.5
 0.00



Area of Interest (AOI) Information

Oct 27 2021 13:00:04 Eastern Daylight Time



Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	11	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	14009	Boston Properties	651 Gateway Boulevard	South San Francisco	CA
2	15916	Boston Properties	611 Gateway Boulevard	South San Francisco	CA
3	16024	Genentech, Inc	611 Gateway Boulevard	South San Francisco	CA
4	17649	Alexandria Real Estate Equities, Inc	Gateway Boulevard	South San Francisco	CA
5	18401	Lowe's HIW Inc	720 Dubuque Avenue	South San Francisco	CA
6	19179	MacroGenics West, Inc	One Corporate Drive	South San Francisco	CA
7	20215	NOD Auto Body Shop Inc	110 Lux Ave	South San Francisco	CA
8	20236	Biotech Gateway - HCP c/o CBRE	2 Corporate Drive	South San Francisco	CA
9	109214	Unocal #1020 --Grand Martco Inc	221 Airport Blvd	South San Francisco	CA
10	110786	Flyers #411	190 E Grand Ave	South San Francisco	CA
11	201062	A&K Supreme Auto	510 CYPRESS AVE # 512	S SAN FRAN	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	94080	San Mateo	20.250	0.030	0.330	Contact BAAQMD	1
2	94080	San Mateo	1.770	0.000	0.000	Contact BAAQMD	1
3	94080	San Mateo	2.730	0.010	0.000	Generators	1
4	94080	San Mateo	9.310	0.010	0.010	Generators	1
5	94080	San Mateo	9.470	0.000	0.010	Generators	1
6	94080	San Mateo	39.610	0.020	0.050	Generators	1
7	94080	San Mateo	0.000	0.000	0.000	Contact BAAQMD	1
8	94080	San Mateo	1.660	0.000	0.000	Generators	1
9	94080	San Mateo	24.520	0.110	0.000	Gas Dispensing Facility	1
10	94080	San Mateo	10.030	0.040	0.000	Gas Dispensing Facility	1
11	94080	Santa Clara	0.000	0.000	0.000	Contact BAAQMD	1

Note: The estimated risk and hazard impacts from these sources would be expected to be substantially lower when site specific Health Risk Screening Assessments are conducted.

The screening level map is not recommended for evaluating sensitive land uses such as schools, senior centers, day cares, and health facilities.

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BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Risk & Hazard Stationary Source Inquiry Form

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

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

[Click here for guidance on conducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.](#)

[Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.](#)

Table A: Requester Contact Information

Date of Request	10/27/2021
Contact Name	Zachary Palm
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x117
Email	zpalm@illingworthrodkin.com
Project Name	580 Dubuque Ave
Address	580 Dubuque Ave
City	South San Francisco
County	San Mateo
Type (residential, commercial, mixed use, industrial, etc.)	Lab/Office
Project Size (# of units or building square feet)	274k sqft
Comments:	

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

1. Complete all the contact and project information requested in **Table A**. Incomplete forms will not be processed. Please include a project site map.
2. Download and install the free program Google Earth, <http://www.google.com/earth/download/ge/>, and then download the county specific Google Earth stationary source application files from the District's website, <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>. The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.
5. List the stationary source information in **Table B** blue section only.
6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRS) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRS values are presented, these values have already been modeled and cannot be adjusted further.
7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

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

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

Table B: Google Earth data											Construction MEI			
Distance from Receptor (feet) or MEI ¹	Plant No.	Facility Name	Address	Cancer Risk ²	Hazard Risk ²	PM _{2.5} ²	Source No. ³	Type of Source ⁴	Fuel Code ⁵	Status/Comments	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
1000+	24795	Boston Properties	651 Gateway Boulevard	20.246	0.0315	0.3314		Generators, Boilers		2018 Dataset	0.04	0.81	0.001	0.01
1000+	24795	Boston Properties	611 Gateway Boulevard	1.77	0.00	0.00		Generators, Boilers		2018 Dataset	0.04	0.07	0.000	0.00
1000+	16024	Genentech, Inc	611 Gateway Boulevard	2.73	0.01	0.00		Generators		2018 Dataset	0.04	0.11	0.000	0.00
1000+	17649	Alexandria Real Estate Equities, Inc	Gateway Boulevard	9.31	0.01	0.01		Generators		2018 Dataset	0.04	0.37	0.001	0.00
1000+	18401	Lowe's HIW Inc	720 Dubuque Avenue	9.47	0.00	0.01		Generators		2018 Dataset	0.04	0.38	0.000	0.00
1000+	19179	MacroGenics West, Inc	One Corporate Drive	39.61	0.02	0.05		Generators		2018 Dataset	0.04	1.58	0.001	0.00
100	20215	NOD Auto Body Shop Inc	110 Lux Ave		0.00			Auto Body Coating Operation		2018 Dataset	0.78	0.00	0.000	0.00
1000+	20236	Biotech Gateway - HCP c/o CBRE	2 Corporate Drive	1.66	0.00	0.00		Generators		2018 Dataset	0.04	0.07	0.000	0.00
730	109214	Unocal #1020 --Grand Martco Inc	221 Airport Blvd	24.52	0.11			Gas Dispensing Facility		2018 Dataset	0.03	0.61	0.003	0.00
1000+	110786	Flyers #411	190 E Grand Ave	10.03	0.04			Gas Dispensing Facility		2018 Dataset	0.02	0.15	0.001	0.00
200	201062	A&K Supreme Auto	510 CYPRESS AVE # 512		0.0048			Auto Body Coating Operation		2018 Dataset	0.64	0.00	0.003	0.00

Footnotes:

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

Date last updated:

03/13/2018

Attachment 6: City of South San Francisco Climate Action Plan Checklist

DEVELOPMENT REVIEW CHECKLIST

APPENDIX - E: DEVELOPMENT REVIEW CHECKLIST

This appendix presents the items that City staff will monitor to track implementation of the Climate Action Plan. On a project-by-project basis, City staff will monitor these criteria using a separate development checklist that identifies departmental responsibility and project-level measures. The following tables identify the illustrative criteria necessary for tracking project-level contributions to the Climate Action Plan target. Yet the separate development checklist will clearly identify applicable measures by project type, providing a streamlined process for applicants and City staff using a simple checklist format. By maintaining the development checklist as a separate, stand-alone implementation item of the Climate Action Plan, the City will have flexibility to modify the checklist over time and adapt to the information that applicants can easily provide.

PROJECT INFORMATION FOR ADDITIONS, ALTERATIONS, AND TENANT IMPROVEMENTS

This list includes project-level criteria from the Climate Action Plan relevant to additions, alterations, and tenant improvements. City staff will use a separate development checklist to monitor project compliance with these key actions.

Climate Action Plan Measures for Additions, Alterations, and Tenant Improvements
Does the project provide bicycle facilities, bicycle lanes, or other facilities?
Will the project provide a bike share program for employees or residents?
Will there be a commute shuttle or public transit stop within 500 feet?
Is the project subject to a Transportation Demand Management (TDM) program?
Will the project provide incentives for commuters?
Is the project subject to a traffic impact fee?
How will the net number of parking spaces change on-site?
Is the project located within a specific plan area, station area, or Priority Development Area?
Will this project provide any alternative-fuel stations?
Will the project have any pre-wiring or conduits to accommodate renewable energy facilities or electric vehicle charging stations in the future?
Will project construction activities implement best management practices, such as the BAAQMD's recommended construction mitigations identified in the BAAQMD CEQA Guidelines?
Is the building more than 30 years old?
Will certification of the building be sought under LEED or another green building criteria?
Will the project be built to CALGreen Tier 1 energy efficiency standards?

APPENDIX E

Climate Action Plan Measures for Additions, Alterations, and Tenant Improvements
Does the project include any energy-efficient improvements (e.g., double-paned windows, increased insulation, weatherization)?
Does the project include any upgrades of appliances to more energy efficient models?
Will mechanical equipment (e.g., HVAC equipment, boilers, water heaters) be upgraded to more energy efficient models?
Will roofs or surface paving be replaced with high-reflectivity ("cool") surfaces?
How will the net number of trees change on-site?
Will any renewable energy system be installed as part of this project?
Is the project a new conversion of unconditioned space 5,000 square feet or more?
Is there a plan for construction and demolition waste recycling?
Will there be composting on-site?
Will any water fixtures be replaced with more efficient fixtures?
Will there be any effort to educate occupants and tenants about water conservation?
Does the project incorporate low-impact development (LID) practices?
Will any xeriscaping be installed?
Will captured rainwater or graywater be used for irrigation?

PROJECT INFORMATION FOR NEW DEVELOPMENT

This list includes criteria from the Climate Action Plan that are applicable to new development. These measures should be included in the project design as feasible.

Climate Action Plan Measures for New Development
Does the project include bicycle facilities (e.g., bicycle lanes, parking, lockers)?
Will the project support bike sharing/rental programs?
Will there be a commute shuttle or public transit stop on-site or within 500 feet?
Is the project within ¼ mile of a Caltrain or BART stop?
Will the project include high-density housing and a diverse range of housing?
Will the project provide traffic calming treatments?
Is the project paying a traffic impact fee to fund bicycle and pedestrian improvements?

DEVELOPMENT REVIEW CHECKLIST

Climate Action Plan Measures for New Development
Will the project provide shared or reduced parking?
Will the project provide designated parking spaces for electric vehicles, carpool vehicles, or other low-emissions vehicles?
Will the project have any ground-level commercial space?
Does the project include any alternative-fuel stations?
Will the project have any pre-wiring or conduit construction to easily add electric vehicle charging stations or alternative energy facilities at a later date?
If this project is replacing an existing building, is the building being replaced more than 30 years old?
Will certification of the building be sought under LEED or other green building criteria?
Will the project include any high-reflectivity ("cool") roof or surface paving?
Will there be a net increase in the number of mature trees on-site once the project is completed?
Will any renewable energy system be installed as part of this project?
Is the project a new nonresidential conditioned space of 5,000 square feet or more?
Will this project use renewable energy generated off-site?
Will there be composting collection on-site?
Will any water fixtures exceed CALGreen standards?
Will the project incorporate low-impact development (LID) practices?
Will any xeriscaping be installed?
Will captured rainwater or graywater be used for irrigation?

CULTURAL RECORDS SEARCH, NATIVE AMERICAN HERITAGE COMMISSION RESPONSE

ATTACHMENT B

to the
580 Dubuque Avenue Project Initial Study / Mitigated Negative Declaration



August 22, 2021

NWIC File No.: 21-0249

Rebecca Auld
Lamphier- Gregory, Inc.
4100 Redwood Road, STE 20A - #601
Oakland, CA 94619

Re: Record search results for the proposed 580 Dubuque Avenue Project in the City of South San Francisco, CA.

Dear Ms. Rebecca Auld:

Per your request received by our office on the 12th of August, 2021, a rapid response records search was conducted for the above referenced project by reviewing pertinent Northwest Information Center (NWIC) base maps that reference cultural resources records and reports, historic-period maps, and literature for San Mateo County. Please note that use of the term cultural resources includes both archaeological resources and historical buildings and/or structures.

As per information received by this office, the 1.89- acre project site was formerly used for industrial purposes but is currently vacant. The site includes Assessor's Parcel Number 015-021-998. The project proposes to construct approximately 295,000 square feet of research & development/office space adjacent to the recently relocated South San Francisco Caltrain station. The project will involve excavation for subsurface parking and removal of contaminated soil extending to depths of about 48 to 60 feet below ground surface.

Review of this information indicates that there have been five cultural resource studies that in total cover approximately 100% of the 580 Dubuque Avenue project area (see enclosed report listing). This 580 Dubuque Avenue project area contains no recorded archaeological resources. The State Office of Historic Preservation Built Environment Resources Directory (OHP BERD), which includes listings of the California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and the National Register of Historic Places, lists no recorded buildings or structures within the proposed 580 Dubuque Avenue project area,

although there is one recorded property adjacent to the project area on Dubuque Avenue, the South San Francisco Freight Spur and Loading Platform (OTIS # 521430). This resource has a status code of 6Y, meaning this property was determined ineligible for the National Register by consensus through Section 106 process, Not evaluated for the California Register or local listing. In addition to these inventories, the NWIC base maps show no recorded buildings or structures within the proposed 580 Dubuque Avenue project area.

At the time of Euroamerican contact the Native Americans that lived in the area were speakers of the Ramaytush language, part of the Costanoan/Ohlone language family (Levy 1978: 485). There are Native American resources in the general area of the proposed 580 Dubuque Avenue project area referenced in the ethnographic literature (Levy 1976, Nelson 1909). Using Milliken's study of various mission records, the proposed project area is located within the lands of the Urebure tribe, whose territory was located "in the San Bruno Creek area just south of San Bruno Mountain on the San Francisco Peninsula. (Milliken 1995: 258-9).

Based on an evaluation of the environmental setting and features associated with known sites, Native American resources in this part of San Mateo County have been found in areas marginal to the San Francisco Bay shore and inland in valleys, near intermittent and perennial watercourses and near areas populated by oak, buckeye, manzanita, and pine, as well as near a variety of plant and animal resources. The 580 Dubuque Avenue project area is located west of Point San Bruno, approximately 40 meters west of the historic San Francisco Bay shore margins. Given the similarity of these environmental factors and the ethnographic sensitivity of the area, there is a moderate to high potential for unrecorded Native American resources to be within the proposed 580 Dubuque Avenue project area.

Review of historical literature and maps indicated the possibility of historic-period activity within the 580 Dubuque Avenue project area. Early San Mateo County maps indicated the project area was located within the South San Francisco Land and Improvements Co., Abattoire (Bromfield 1894). In addition, the 1915 San Mateo USGS 15-minute topographic quadrangle indicated a portion of railroad spur within and adjacent to the project area. With this in mind, there is a moderate to high potential for unrecorded historic-period archaeological resources to be within the proposed 580 Dubuque Avenue project area.

The 1956 photo revised 1980 San Francisco South USGS 7.5-minute depicts a railroad spur within and adjacent to the 580 Dubuque Avenue project area. If present, this unrecorded structure meets the Office of Historic Preservation's minimum age standard that buildings, structures, and objects 45 years or older may be of historical value.

RECOMMENDATIONS:

1) There is a moderate to high potential of identifying Native American archaeological resources and a moderate to high potential of identifying historic-period archaeological resources in the project area. Although previous studies included field survey of the project area, the 580 Dubuque Avenue project will involve excavation for subsurface parking and removal of contaminated soil extending to depths of about 48 to 60 feet below ground surface. Therefore, we recommend a qualified archaeologist conduct further archival and field study to identify possible buried cultural resources, and provided project specific recommendations. Field study may include, but is not limited to, pedestrian survey, hand auger sampling, shovel test units, or geoarchaeological analyses as well as other common methods used to identify the presence of archaeological resources. Please refer to the list of consultants who meet the Secretary of Interior's Standards at <http://www.chrisinfo.org>.

2) We recommend the lead agency contact the local Native American tribe(s) regarding traditional, cultural, and religious heritage values. For a complete listing of tribes in the vicinity of the project, please contact the Native American Heritage Commission at 916/373-3710.

3) The proposed 580 Dubuque Avenue project area is located adjacent to, and may contain a portion of one recorded structure, the South San Francisco Freight Spur and Loading Platform (OTIS # 521430), with a status code of 6Y, that is included in the OHP BERD. Therefore, prior to commencement of project activities, it is recommended that this resource be assessed by a professional familiar with the architecture and history of San Mateo County. Please refer to the list of consultants who meet the Secretary of Interior's Standards at <http://www.chrisinfo.org>.

4) Review for possible historic-period buildings or structures has included only those sources listed in the attached bibliography and should not be considered comprehensive.

5) If archaeological resources are encountered **during construction**, work should be temporarily halted in the vicinity of the discovered materials and workers should avoid altering the materials and their context until a qualified professional archaeologist has evaluated the situation and provided appropriate recommendations. **Project personnel should not collect cultural resources.** Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies.

6) It is recommended that any identified cultural resources be recorded on DPR 523 historic resource recordation forms, available online from the Office of Historic Preservation's website: https://ohp.parks.ca.gov/?page_id=28351

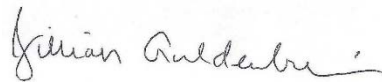
Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the California Historical Resources Information System (CHRIS) Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State

Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

Thank you for using our services. Please contact this office if you have any questions, (707) 588-8455.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jillian Guldenbrein", written in dark ink.

Jillian Guldenbrein
Researcher

LITERATURE REVIEWED

In addition to archaeological maps and site records on file at the Northwest Information Center of the Historical Resources Information System, the following literature was reviewed:

Brabb, Earl E., Fred A. Taylor, and George P. Miller

1982 *Geologic, Scenic, and Historic Points of Interest in San Mateo County, California*. Miscellaneous Investigations Series, Map I-1257-B, 1:62,500. Department of the Interior, United States Geological Survey, Washington, D.C.

Bromfield, Davenport

1894 Official Map of San Mateo County, California

General Land Office

1858, 1864 Survey Plat for Rancho Buri Buri, Township 3 South/Range 5 West.

Heizer, Robert F., editor

1974 *Local History Studies*, Vol. 18., "The Costanoan Indians." California History Center, DeAnza College, Cupertino, CA.

Helley, E.J., K.R. Lajoie, W.E. Spangle, and M.L. Blair

1979 *Flatland Deposits of the San Francisco Bay Region - Their Geology and Engineering Properties, and Their Importance to Comprehensive Planning*. Geological Survey Professional Paper 943. United States Geological Survey and Department of Housing and Urban Development.

Kroeber, A.L.

1925 *Handbook of the Indians of California*. Bureau of American Ethnology, Bulletin 78, Smithsonian Institution, Washington, D.C. (Reprint by Dover Publications, Inc., New York, 1976)

Levy, Richard

1978 Costanoan. In *California*, edited by Robert F. Heizer, pp. 485-495. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Milliken, Randall

1995 *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810*. Ballena Press Anthropological Papers No. 43, Menlo Park, CA.

Nelson, N.C.

1909 *Shellmounds of the San Francisco Bay Region*. University of California Publications in American Archaeology and Ethnology 7(4):309-356. Berkeley. (Reprint by Kraus Reprint Corporation, New York, 1964)

Nichols, Donald R., and Nancy A. Wright

1971 Preliminary Map of Historic Margins of Marshland, San Francisco Bay, California.
U.S. Geological Survey Open File Map. U.S. Department of the Interior, Geological
Survey in cooperation with the U.S. Department of Housing and Urban Development,
Washington, D.C.

San Mateo County Historic Resources Advisory Board

1984 *San Mateo County: Its History and Heritage*. Second Edition. Division of Planning
and Development Department of Environmental Management.

State of California Department of Parks and Recreation

1976 *California Inventory of Historic Resources*. State of California Department of Parks
and Recreation, Sacramento.

State of California Office of Historic Preservation **

2020 *Built Environment Resources Directory*. Listing by City (through March 3, 2020). State
of California Office of Historic Preservation, Sacramento.

**Note that the Office of Historic Preservation's *Historic Properties Directory* includes National
Register, State Registered Landmarks, California Points of Historical Interest, and the California
Register of Historical Resources as well as Certified Local Government surveys that have
undergone Section 106 review.

Report List

NWIC File # 21-0249 580 Dubuque Avenue Project

Report No.	Other IDs	Year	Author(s)	Title	Affiliation
S-029657	OHP PRN - FTA021021A; Voided - S-37863; Voided - S-42672; Voided - S-43525	2002	Wendy J. Nelson, Tammara Norton, Larry Chiea, and Reinhard Pribish	Archaeological Inventory for the Caltrain Electrification Program Alternative in San Francisco, San Mateo, and Santa Clara Counties, California	Far Western Anthropological Research Group, Inc.
S-029657a		2002	Rand F. Herbert	Finding of No Adverse Effect, Caltrain Electrification Program, San Francisco, San Mateo, and Santa Clara Counties, California	JRP Historical Consulting Services
S-029657b		2002		Historic Property Survey for the Proposed Caltrain Electrification Program, San Francisco, San Mateo, and Santa Clara Counties, California	Parsons; JRP Historical Consulting Services; Far Western Anthropological Research Group, Inc.
S-029657c		2002	Knox Mellon	FTA021021A; Caltrain Electrification Program, San Francisco, San Mateo, and Santa Clara Counties	Office of Historic Preservation
S-029657d		2003	Meta Bunse	Final Finding of Effect Amendment, Caltrain Electrification Project, San Francisco, San Mateo, and Santa Clara Counties, California	JRP Historical Consulting Services

Report List

NWIC File # 21-0249 580 Dubuque Avenue Project

Report No.	Other IDs	Year	Author(s)	Title	Affiliation
S-029657e		2001	Rand F. Herbert	Draft Finding of No Adverse Effect, Caltrain Electrification Program, San Francisco, San Mateo, and Santa Clara Counties, California	JRP Historical Consulting Services
S-029657f		2008	Sharon A. Waechter, Jack Meyer, and Laura Leach-Palm	Cultural Resources Addendum for the Caltrain Electrification Program Alternative: San Francisco, San Mateo, and Santa Clara Counties, California	Far Western Anthropological Research Group, Inc.
S-029657g		2008	Meta Bunse	Addendum Finding of Effect, Caltrain Electrification Program, San Francisco to San Jose (MP 0.0 to 52.0); San Francisco, San Mateo, and Santa Clara Counties, California	JRP Historical Consulting, LLC
S-029657h		2002		Inventory and Evaluation of Historic Resources, Caltrain Electrification Program, San Francisco to Gilroy (MP 0.0 to 77.4) (Draft)	JRP Historical Consulting Services
S-030760		2005	Laura Leach-Palm and Brian F. Byrd	Archaeological Inventory for the South San Francisco Four-Tracking and New Station Project, Caltrain Peninsula Corridor Line, San Mateo County, California; From North of Tunnel Avenue in Brisbane, MP 6.1, to Colma Creek in San Bruno, MP 9.72	Far Western Anthropological Research Group, Inc.
S-031824	OHP PRN - FTA040913A	2006		Peninsula Corridor Joint Powers Board, South San Francisco Station and Track Work Project; Brisbane and South San Francisco, San Mateo County, California; Caltrans Mile Posts: 06.10 to 10.60	JRP Historical Consulting
S-031824a		2006	Laura Leach-Palm and Brian F. Byrd	Archaeological Inventory for the South San Francisco Station and Track Work Project, Caltrain Peninsular Corridor Line, San Mateo County, California, From North of Tunnel Avenue in Brisbane, MP 6.1., to Scott Street in San Bruno, MP 10.6	Far Western Anthropological Research Group, Inc.
S-031824b		2007	Milford Wayne Donaldson	Finding of Effect (No Adverse Effect), South San Francisco Station and Track Work Project, San Mateo County, California Section 106 Consultation [Section 106 Consultation (Rncl.02) on the South San Francisco Station and Track Work Project, San Mateo County,	California Office of Historic Preservation

Report List

NWIC File # 21-0249 580 Dubuque Avenue Project

Report No.	Other IDs	Year	Author(s)	Title	Affiliation
S-036747	OHP PRN - FTA021021A	2006	Rand Herbert, Christopher Morris, and Cynthia Toffelier	Finding of No Adverse Effect for the Peninsula Corridor Joint Powers Board, South San Francisco Station and Track Work Project, Brisbane, South San Francisco and San Bruno, San Mateo County, California, Caltrain Mile Posts: 06.10 to 10.60	JRP Historical Consulting
S-036747a		2002	Knox Mellon	FTA021021A; Caltrain Electification Program, San Francisco, San Mateo, and Santa Clara	California Office of Historic Preservation
S-036747b		2006	Milford Wayne Donaldson	FTA021021A; Caltrain Electification Program, San Francisco, San Mateo, and Santa Clara	California Office of Historic Preservation

Report List

NWIC File # 21-0249 580 Dubuque Avenue Project

Report No.	Other IDs	Year	Author(s)	Title	Affiliation
S-048738		2011	Denise Jurich and Amber Grady	California High-Speed Train Project, Environmental Impact Report/Environmental Impact Statement, San Francisco to San Jose Section, Archaeological Survey Report, Technical Report [Draft]	PBS&J

Report List

NWIC File # 21-0249 580 Dubuque Avenue Project

Report No.	Other IDs	Year	Author(s)	Title	Affiliation
S-048738a		2011	Amber Grady and Richard Brandi	California High-Speed Train Project, Environmental Impact Report/Environmental Impact Statement, San Francisco to San Jose Section, Historic Architectural Survey Report, Technical Report [Draft]	PBS&J

**NATIVE AMERICAN HERITAGE COMMISSION**

October 22, 2021

Rebecca Auld
Lamphier-GregoryVia Email to: rauld@lamphier-gregory.comCHAIRPERSON
Laura Miranda
*Luiseño*VICE CHAIRPERSON
Reginald Pagaling
*Chumash*SECRETARY
Merri Lopez-Keifer
*Luiseño*PARLIAMENTARIAN
Russell Attebery
*Karuk*COMMISSIONER
William Mungary
*Paiute/White Mountain
Apache*COMMISSIONER
Julie Tumamait-Stenslie
*Chumash*COMMISSIONER
[Vacant]COMMISSIONER
[Vacant]COMMISSIONER
[Vacant]EXECUTIVE SECRETARY
Christina Snider
*Pomo***NAHC HEADQUARTERS**
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, 580 Dubuque Ave. Project, San Mateo County.

Dear Ms. Auld:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

- Any report that may contain site forms, site significance, and suggested mitigation measures.

All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Katy.Sanchez@nahc.ca.gov.

Sincerely,



Katy Sanchez
Associate Environmental Planner

Attachment

**Native American Heritage Commission
Native American Contacts List
October 22, 2021**

Amah Mutsun Tribal Band of Mission San Juan Bautista Irene Zwierlein, Chairperson 3030 Soda Bay Road Lakeport ,CA 95453 amahmutsuntribal@gmail.com (650) 851-7489 Cell (650) 332-1526 Fax	Ohlone/Costanoan	The Ohlone Indian Tribe Andrew Galvan P.O. Box 3388 Fremont ,CA 94539 chochenyo@AOL.com (510) 882-0527 Cell (510) 687-9393 Fax	Ohlone Bay Miwok Plains Miwok Patwin
Costanoan Rumsen Carmel Tribe Tony Cerda, Chairman 244 E. 1st Street Pomona ,CA 91766 rumsen@aol.com (909) 629-6081 (909) 524-8041 Fax	Ohlone/Costanoan	Wuksache Indian Tribe/Eshom Valley Band Kenneth Woodrow, Chairperson 1179 Rock Haven Ct. Salinas ,CA 93906 kwood8934@aol.com (831) 443-9702	Foothill Yokuts Mono Wuksache
Indian Canyon Mutsun Band of Costanoan Ann Marie Sayers, Chairperson P.O. Box 28 Hollister ,CA 95024 ams@indiancanyons.org (831) 637-4238	Ohlone/Costanoan		
Muwekma Ohlone Indian Tribe of the SF Bay Area Charlene Nijmeh, Chairperson 20885 Redwood Road, Suite 232 Castro Valley ,CA 94546 cnijmeh@muwekma.org (408) 464-2892 (408) 205-9714	Ohlone / Costanoan		
Tamien Nation Quirina Luna Geary, Chairperson P.O. Box 8053 San Jose ,CA 95155 qgeary@tamien.org (707) 295-4011	Ohlone/Costanoan		

CALIFORNIA LAND REUSE AND REVITALIZATION ACT (CLRRRA) AGREEMENT

ATTACHMENT C

to the
580 Dubuque Avenue Project Initial Study / Mitigated Negative Declaration

STANDARD AGREEMENT

California Land Reuse and Revitalization Act

Docket No. HSA-CLRRA **HSA-FY19/20-013**
(the "Agreement")

Overview

The California Land Reuse and Revitalization Act of 2004 ("CLRRA" or the "Act") was enacted by Assembly Bill No. 389, Montanez, on September 23, 2004, and extended and amended by Senate Bill 143, Cedillo, on October 11, 2009.¹ CLRRA provides for an eligible bona fide purchaser ("BFP"), innocent landowner ("ILO"), contiguous property owner ("CPO") or prospective purchaser in contract to acquire a site ("PP") (a "Person" under this Agreement) to qualify for specified immunities from liability for certain response costs or damage claims under applicable State of California ("State") statutes. Under CLRRA, a Person seeking the immunities provided by the Act is required to enter into an agreement with the Department of Toxic Substances Control ("DTSC"). By entering into this Agreement, **South City Ventures LLC**, meets the CLRRA requirements to enter into such an agreement. The CLRRA program is a voluntary program afforded to qualify Persons and does not alter existing State law regarding liability for releases or discharges of hazardous substances or hazardous materials not addressed by this Agreement.

South City Ventures LLC and DTSC hereby agree as follows:

1. Introduction

- 1.1 Parties. This Agreement is entered into by **South City Ventures LLC** and DTSC, who are collectively the "Parties" to this Agreement.
- 1.2 Site Description. This Agreement applies to the "Site" which is defined as the real property located on **Dubuque Avenue** in **South San Francisco, San Mateo** County, California **94080**, identified by **San Mateo** Assessor's Parcel Numbers **015-021-998**. The Site is approximately **1.9** acres in size and is bordered by **the South San Francisco Cal Train Station parking lot to the east and south with Grand Avenue beyond, Dubuque Avenue and Highway 101 to the west, and commercial property to the north. Current zoning of the site is Freeway Commercial**. A diagram of the Site and a location map are attached as Exhibit A.

¹ Assembly Bill No. 389 added Chapter 6.82 (commencing with Section 25395.60) and Chapter 6.83 (commencing with Section 25395.110) to Division 20 of the Health and Safety Code; Senate Bill No. 143 amended Section 25395.91.

- 1.3 Jurisdiction. CLRRRA, as codified in Health and Safety Code (H&SC) Sections 25395.91-25395.92, authorizes DTSC to enter into an Agreement with **South City Ventures LLC** with respect to the Site.
- 1.4 Purpose. The purpose of this Agreement is to implement CLRRRA for the assessment and remediation of the Site, so that **South City Ventures LLC** may qualify for the immunities afforded under CLRRRA and DTSC may be reimbursed for the costs incurred by DTSC.
- 1.5 Agreement Not an Admission. Entry into this Agreement by **South City Ventures LLC** does not constitute an admission of fact or liability or conclusion of law for any purpose or proceeding nor does it limit or waive any defense to responsibility or liability that may be available to **South City Ventures LLC** under any provision of law.
- 1.6 Agreement Not a Limitation. Nothing in this Agreement limits DTSC's authority to conduct a response action DTSC determines is necessary to protect public health and safety or the environment pursuant to any applicable statute. Except as otherwise expressly provided, nothing in this Agreement limits DTSC's authority to issue an order or take any other action under any provision of law to protect public health and safety or the environment or to pursue any existing legal, equitable or administrative remedies pursuant to State or federal law.

2. Definitions

- 2.1 Unless otherwise specified, definitions of terms used in this Agreement are those set forth in H&SC, Division 20, Chapters 6.82 and 6.83.
- 2.2 "Applicable statute" means the statutory provisions listed in HSC §25395.66(a)-(e).

3. Findings

- 3.1 Site History.

The property was undeveloped during the late-1800s and early-1900s. By the early-1940s, a series of structures appeared present near the middle of the property. Railroad tracks were constructed on the western portion of the subject property by the mid-1940s, with the property also utilized for storage of assorted materials at that time. By the mid-1950s, an additional rail spur line was present on the property, with an adjoining structure. Additional small structures appeared to have been constructed and removed from the property from that time through the late-1960s. The existing loading dock/ramp was constructed by the mid-1970s. The railroad tracks on the western portion of the property appear to have been removed

by the early-1990s, at which time the existing spurs both appeared present.

3.2 Site Eligibility.

On **February 25, 2019**, **South City Ventures LLC** submitted to DTSC a complete application that provides sufficient information for DTSC, pursuant to H&SC §25395.92(c), to prepare this Agreement. **South City Ventures LLC** submitted documents to DTSC in order to determine that the Site is an eligible Site under H&SC §25395.79.2 and to determine that **South City Ventures LLC** meets the conditions that apply as of the Effective Date of this Agreement to qualify as a **Prospective Purchaser** under §25395.91(2). Based on the information submitted in the application, DTSC has determined that the Site meets the definition of a site specified under H&SC §25395.79.2 because it is real property located in an urban infill area and its redevelopment is complicated by the presence of hazardous materials and is not excluded as a National Priorities List site or State superfund site and is not solely impacted by a petroleum release.

South City Ventures LLC has submitted to DTSC a complete application that provides sufficient information for DTSC, pursuant to H&SC §25395.92(c), to prepare this Agreement, to determine that the Site is an eligible site under H&SC §25395.79.2 and to determine that **South City Ventures LLC** meets the conditions that apply as of the effective date of this Agreement to qualify as a Prospective Purchaser under §25395.91(2).

If, at the time the **South City Ventures LLC** acquires ownership of the Site, the **South City Ventures LLC** meets the requirements of H&SC §25395.69 as verified by DTSC, the **South City Ventures LLC** will transition to the status of BFP capable of receiving the immunities of H&SC §25395.81. Notice of the ownership change shall be submitted to DTSC in writing at the time of transfer, along with a copy of the recorded title transfer document provided for DTSC's files. **South City Ventures LLC** will ensure that all appropriate inquiries (AAI) is current at the time of acquisition and will provide any applicable updates/documentation to DTSC, as needed, for review and verification of BFP status.

The anticipated acquisition date is **August, 2020**.

3.3 Eligibility of **South City Ventures LLC**. Based on the information submitted in the application, DTSC has determined that **South City Ventures LLC** meets the definition of a **Prospective Purchaser pursuant to §25395.91(2)**. and that **South City Ventures LLC** made all appropriate inquiries pursuant to H&SC §25395.65 or will make all appropriate inquiries pursuant to H&SC

§25395.65 at the time of acquisition and meets the conditions under H&SC §25395.80 that apply as of the effective date of this Agreement.

The Party, as a Prospective Purchaser, has conducted AAI, consisting of the following documents; however, AAI will be updated prior to acquisition and provided to DTSC:

- 1. Environmental Site Assessment, prepared by AllWest Environmental, dated March 23, 2017;**
- 2. Site Characterization Report, prepared by AllWest Environmental, dated February 23, 2018.**

4. Immunities, Withdrawal and Termination

- 4.1 Immunities. **South City Ventures LLC** will be entitled to the immunities provided for by CLRRRA, subject to its limitations and conditions, upon entry into this Agreement **and acquisition of the Site**. Any successor-in-interest to the Site will also be entitled to the immunities set forth by CLRRRA provided: (a) such successor-in-interest executes a written agreement (in the form attached hereto as Exhibit E) to assume any remaining obligations under the Agreement not performed by **South City Ventures LLC**, including, without limitation, long-term operation and maintenance; (b) DTSC finds that such successor-in-interest meets all of the qualifying conditions of H&SC §25395.80 and either H&SC §25395.69 or §25395.70, as applicable; and (c) DTSC accepts the assumption by such successor-in-interest of the remaining obligations under this Agreement. DTSC's acceptance of the successor-in-interest qualifying under the conditions of H&SC §25395.80 and either H&SC §25395.69 or §25395.70, as applicable, shall be evidenced solely by DTSC's execution of the assumption agreement by such successor-in-interest. Such agreement in the executed form shall then be incorporated into the Agreement as a subsequent exhibit.
- 4.2 Withdrawal and Termination. The circumstances and procedures under which **South City Ventures LLC** or DTSC may withdraw from or terminate this Agreement, and the consequences of withdrawal or termination, are as set forth in CLRRRA.
- 4.3 Opportunity to Cure. **South City Ventures LLC** shall be given notice and an opportunity to cure within a reasonable period of time before DTSC terminates this Agreement for an unapproved material deviation from the Agreement pursuant to H&SC §25395.81(c)(1) and §25395.93(d).

5. Activities

- 5.1 Activities. **South City Ventures LLC** and DTSC agree that the following activities are to be conducted under this Agreement in accordance with the schedule contained in Exhibit B.

- 5.2 Submittal of Existing Data. **South City Ventures LLC** shall make available to DTSC, and shall provide copies of, all known data and information concerning contamination at the Site whether or not such data and information was developed pursuant to this Agreement. **South City Ventures LLC** will also inform DTSC of any other known reports and documents, not in its possession, pertinent to the hazardous materials management and/or release, characterization and cleanup of the Site, including the name of the document (if known) and the identity and address of the person/entity with possession of the document (if known).
- 5.3 Site Assessment. If requested by DTSC, **South City Ventures LLC** shall submit a Site Assessment Plan that contains all necessary information required under H&SC §25395.94(b) and (c). If DTSC requires a health risk assessment (HRA), **South City Ventures LLC** shall prepare an HRA in accordance with H&SC §25356.1.5(b), (c), and (d).

5.3.1 Site Assessment Workplan and Report of Findings. **South City Ventures LLC** shall **submit a Site Assessment Plan/Report of Findings containing all information required under H&SC §25395.94(b) and (c), and H&SC §25395.95.**

If a Site Assessment Workplan is not required by DTSC, the Report of Findings may be included as part of the Response Plan.

- 5.3.2 Approval of Site Assessment Plan. If DTSC finds the Site Assessment Plan is adequate and contains all necessary information required pursuant to H&SC §25395.94(b) and (c) H&SC §25395.95, DTSC will approve the plan and notify appropriate persons, including any public drinking water system that relies on impacted groundwater for public drinking water purposes, including California Water Service (Cal Water).
- 5.4 Response Plan. If DTSC determines response action is necessary to prevent or eliminate an unreasonable risk, **South City Ventures LLC** shall submit a Response Plan to DTSC for approval. Once the Response Plan is approved, **South City Ventures LLC** shall implement the Response Plan. The Response Plan shall contain the information specified in H&SC §25395.96(a) and (b) and shall provide that implementation of the plan will place the Site in condition that allows it to be used for its reasonably anticipated future land use without unreasonable risk to human health and safety and the environment. Public participation shall meet the requirements of H&SC §25395.96, including a DTSC public meeting if requested. Upon approval of the Response Plan, DTSC will notify all appropriate persons including **South San Francisco, California Water**

Service (Cal Water), the San Francisco Bay Regional Water Quality Control Board, and any local agency involved in environmental decision making.

- 5.4.1 Agreement to Implement Response Plan. Pursuant to H&SC §25395.92(d)(1), **South City Ventures LLC** agrees to take all actions required for a response action pursuant to H&SC, Division 20, Chapter 6.8 and Water Code Division 7. Required actions may include actions necessary to prevent an unreasonable risk before approval of the Response Plan.
- 5.4.2 Schedule for Compliance. The Response Plan shall include a timetable that identifies a schedule for compliance with the response action activities required for the Site.
- 5.4.3 Determination of Appropriate Care. Within sixty (60) calendar days after DTSC receives the Response Plan submitted under Section 5.4, or sooner, DTSC will make a written determination as to whether proper completion of the Response Plan will constitute appropriate care for the purposes of H&SC §25395.67(a).
- 5.4.4 Certificate of Completion. DTSC will issue a certificate of completion upon determining that all response actions have been satisfactorily completed in accordance with the approved Response Plan and that, based upon the data provided to DTSC at the time of the determination, no further remedial action, except only compliance with operation and maintenance and land use restriction requirements, if any, is necessary. If the Response Plan includes long-term obligations that have not been completed, including operation and maintenance (O&M) requirements or monitoring, DTSC will not issue a certificate of completion unless DTSC determines that all response actions other than the long-term O&M requirements and monitoring in the Response Plan have been completed, **South City Ventures LLC** has submitted an adequate long-term O&M plan and **South City Ventures LLC** has demonstrated initial compliance with the O&M plan.
- 5.4.5 Notification of Prospective Change in Land Use. After the Response Plan is approved, **South City Ventures LLC** shall notify DTSC of any proposed change in the use or anticipated use of the Site. If the proposed change in use or anticipated use of the Site requires a higher level of protection than use or anticipated use identified in the Response Plan, DTSC may require **South City Ventures LLC** to prepare and implement a new response plan that takes into account the change in use or anticipated use of the Site. **South City Ventures LLC** shall not make any change in use of the Site

inconsistent with any recorded land use control without the express approval of DTSC made in accordance with H&SC §25395.99(f).

- 5.5 Land Use Controls. **South City Ventures LLC** will execute and record any land use controls required under the approved Response Plan.
- 5.6 Operation and Maintenance. If DTSC determines long-term Operation and Maintenance (O&M) is required, as provided in an approved Response Plan, DTSC may, as a condition of issuing a certificate of completion, enter into an O&M agreement with the **South City Ventures LLC** that governs long-term O&M activities and that provides for adequate financial assurance. **South City Ventures LLC** shall select financial assurance provisions from the options available in Title 22, California Code of Regulations section 66264.145. DTSC may agree to the assignment and termination of **South City Ventures LLC's** O&M obligations, if any, if it is provided satisfactory evidence of financial assurance for the O&M obligations by the assignee and such successor enters into an acceptable O&M Agreement with DTSC. Such agreement shall not be unreasonably withheld.
- 5.7 CEQA Compliance. **South City Ventures LLC** shall submit to DTSC all documentation necessary for compliance with the California Environmental Quality Act, Public Resources Code sections 21000-21177 (CEQA).
- 5.8 Final Reports. For all final reports, **South City Ventures LLC** shall submit one hard (paper) copy (if requested by DTSC) and an electronic copy with all applicable attachments, appendices, signatures and certification stamps as a text-readable Portable Document Formatted (pdf).
- 5.9 Endangerment. **South City Ventures LLC** shall notify DTSC's Project Manager, immediately upon learning of any previously unknown condition that endangers public health or safety or that poses an unreasonable risk to human health and safety or the environment.
- 5.9.1 In the event DTSC determines that any activity (whether or not pursued in compliance with this Agreement) may pose an imminent or substantial endangerment to the health and safety of people on the Site or in the surrounding area or to the environment, DTSC may order **South City Ventures LLC** to stop further implementation of this Agreement for such period of time as may be needed to abate the endangerment.
- 5.10 Further Response Actions. DTSC may require **South City Ventures LLC** to conduct further response actions only under the circumstances set forth in CLRRRA.

- 5.11 Disclosure Provisions. **South City Ventures LLC** will provide all notices and satisfy reporting requirements required by State or federal law with respect to the discovery or release of hazardous substances at the Site.
- 5.12 Exclusion from Permit Requirements. DTSC may exclude any portion of a response action conducted entirely on a site subject to an approved Response Plan from the hazardous waste facilities permit requirements if the Response Plan specifies that the response action will be conducted in compliance with the standards, requirements, criteria or limitations specified in H&SC §25395.100(b), including any condition imposed by DTSC.
- 5.13 Access. While **South City Ventures LLC** is the owner or prospective purchaser of the Site, **South City Ventures LLC** shall provide and/or coordinate access to the Site and take all reasonable efforts to obtain access to offsite areas to which access is necessary to implement this Agreement. Such access shall be provided to DTSC's employees, contractors, and consultants at all reasonable times. Nothing in this paragraph is intended or shall be construed to limit in any way the right of entry or inspection that DTSC or any other agency may otherwise have by operation of any law.
- 5.14 Notification of Field Activities. **South City Ventures LLC** shall inform DTSC at least seven (7) calendar days in advance of all field activities pursuant to this Agreement and shall allow DTSC and its authorized representatives to take duplicates of any samples collected pursuant to this Agreement.

6. Oversight, Management and Payment

- 6.1 Oversight Agreement Managers and Project Managers. **Karen Steen** is designated by DTSC as its Project Manager for this Agreement. **Scott Mendelsohn** is designated by **South City Ventures LLC** as its Project Manager for this Agreement. Each Party will provide at least ten (10) calendar days' advance written notice to the other Party of a change of its designated Project Manager. All notices, documents and communications unless otherwise specified will be sent to the following addresses:

To: **Karen Steen, P.E.**
Project Manager
Department of Toxic Substances Control
Site Mitigation and Restoration Program
700 Heinz Avenue #200
Berkeley, California 94710

To: **Scott Mendelsohn**
South City Ventures LLC
50 Queva Vista
Novato, California 94947

6.2 Payment of DTSC's Costs. **South City Ventures LLC** shall follow the procedures for payment of DTSC's oversight costs.

6.2.1 Costs Included. **South City Ventures LLC** shall reimburse DTSC for all DTSC's costs. Subject to the provisions of Section 6.2.6 below, **South City Ventures LLC** will reimburse DTSC costs in accordance with H&SC Division 20, Chapter 6.66. DTSC's costs are recoverable pursuant to H&SC §25360.

6.2.2 Cost Estimate. An estimate of DTSC oversight costs ("Cost Estimate") is contained in Exhibit C. The cost estimate is the estimated cost of DTSC oversight of the activities discussed in Section 5, above. The Parties acknowledges that the Cost Estimate is not the final cost figure. DTSC will provide an updated Cost Estimate if the estimated oversight cost increases or the scope of work changes. If the DTSC revises the Cost Estimate in Exhibit C, such revision will be incorporated into this Agreement as an update to Exhibit C.

6.2.3 Payment Procedures. In anticipation of the costs to be incurred under this Agreement, including costs of preparing this Agreement, **South City Ventures LLC** will make an advance payment of **\$37,703**. If the advance payment does not cover all costs payable to DTSC, DTSC will invoice **South City Ventures LLC** quarterly. **South City Ventures LLC** shall pay all invoices within thirty (30) calendar days of the mailing date of the invoice. If payment is not received by DTSC within sixty (60) calendar days of the date of the invoice, **South City Ventures LLC** may be deemed to be in material default of this Agreement. Any payment for billing not received by DTSC within sixty (60) calendar days is subject to interest based on applicable federal and State laws and regulations, including but not limited to H&SC §25360.1.

6.2.4 Billing Address. DTSC will provide a Statement of Account to **South City Ventures LLC** at least quarterly. **South City Ventures LLC's** billing address is:

South City Ventures LLC
50 Queva Vista
Novato, California 94947

- 6.2.5 Payment Address. All payments made by **South City Ventures LLC** pursuant to this Agreement shall be by check made payable to DTSC and bearing on its face the project code for the Site **202240** and the docket number of this Agreement, **HSA-FY19/20-013**. Payments shall be sent to:

Department of Toxic Substances Control
Accounting/Cashier
1001 I Street, 21st Floor
P.O. Box 806
Sacramento, California 95812-0806

- 6.2.6 Dispute Resolution. If **South City Ventures LLC** has a dispute regarding the charges or related services appearing in the billing package received from DTSC, **South City Ventures LLC** must notify DTSC of the dispute in writing within 45 calendar days from the date of the billing package. The invoice dispute notice must identify the name of the Site, Site Code, invoice number, invoice date, charges contested, employee name associated with contested charges, and the amount disputed. The invoice dispute notice also must include a detailed statement of the legal and/or factual basis for the dispute and the remedy sought. For timely and good-faith invoice disputes, DTSC will waive the imposition of interest until resolution of the dispute.

The invoice dispute notice must be addressed to:

Chief, Collections and Resolution Unit
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806

A copy of the invoice dispute notice should also be sent to the project manager by using the contact information on the last page of the billing letter included in the billing package.

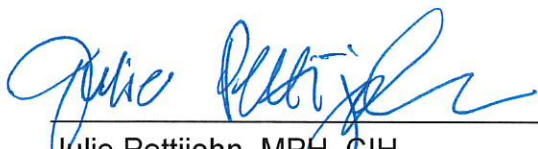
If **South City Ventures LLC** is disputing only a portion of the costs included in the invoice, **South City Ventures LLC** should pay for those costs that are not being disputed. Filing a dispute will not stay the imposition of the interest charges for undisputed costs.

- 6.2.7 Effect of Billing Dispute. The existence of a billing dispute shall not excuse, stay, or suspend any other compliance obligation or deadline required pursuant to this Agreement.

7. Additional Provisions

- 7.1 Exhibits. All Exhibits are incorporated into this Agreement by reference.
- 7.2 Liens. DTSC shall have a lien on the property constituting the site for its unrecovered costs of any response action carried out at the Site, if the response action increased the fair market value of the Site that existed before the response action was initiated. DTSC and **South City Ventures LLC** may agree to substitute a lien on another property or other assurance of payment for the unrecovered response costs.
- 7.3 Proponent Liabilities. Except as specified in CLRRRA, nothing in this Agreement shall constitute or be considered a satisfaction or release from liability for any condition or claim arising as a result of **South City Ventures LLC's** past, current, or future operations.
- 7.4 Government Liabilities. The State of California shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by **South City Ventures LLC** or by related parties in carrying out activities pursuant to this Agreement, nor shall the State of California be held as a party to any contract entered into by **South City Ventures LLC** or its agents in carrying out the activities pursuant to this Agreement.
- 7.5 Third Party Actions. In the event that **South City Ventures LLC** is a party to any suit or claim for damages or contribution to which DTSC is not a party, relating to the Site, **South City Ventures LLC** will notify DTSC in writing within ten (10) calendar days after service of the complaint in the third-party action. However, failure to give such notice within ten (10) calendar days will not be a material breach of this Agreement, and this requirement confers no rights on any third parties not party to this Agreement.
- 7.6 California Law. This Agreement shall be governed, performed and interpreted under the laws of the State of California.
- 7.7 Severability. If any portion of this Agreement is ultimately determined not to be enforceable, that portion will be severed from this Agreement and the severability shall not affect the enforceability of the remaining terms of this Agreement.
- 7.8 Parties Bound. This Agreement applies to and is binding, jointly and severally, upon **South City Ventures LLC** and its business entity successors and assigns, and upon DTSC and any successor agency of DTSC that may have responsibility for, and jurisdiction over, the subject matter of this Agreement.

- 7.9 Amendment. This Agreement may be amended in writing by mutual agreement of DTSC and **South City Ventures LLC**. Any agreed-upon amendment shall be in writing, shall be signed by both Parties, shall be effective upon the date the amendment is signed by DTSC and, once signed by DTSC, is incorporated in this Agreement. An amendment may include changes to the terms and conditions of this Agreement, including an addition of another party in Exhibit D (provided that the party meets all of the qualifying conditions of H&SC §25395.80 and either H&SC §25395.69 or H&SC §25395.70, as applicable) and any other changes DTSC determines to be necessary. Such amendment shall then be incorporated into the Agreement as a subsequent exhibit.
- 7.10 Effective Date. The Effective Date of this Agreement is the date when this Agreement is fully executed.
- 7.11 Representative Authority. Each undersigned representative of the Parties to this Agreement certifies that she or he is fully authorized to enter into the terms and conditions of this Agreement and to execute and legally bind the Parties to this Agreement.
- 7.12 Counterparts. This Agreement may be executed and delivered in any number of counterparts, each of which when executed and delivered shall be deemed to be an original, but such counterparts shall together constitute one and the same document.



Date:

1/23/2020

Julie Pettijohn, MPH, CIH

Branch Chief

Site Mitigation and Restoration Program

Department of Toxic Substances Control



Date:

1/10/2020

Scott Mendelsohn

Project Manager

South City Ventures LLC

LIST OF EXHIBITS

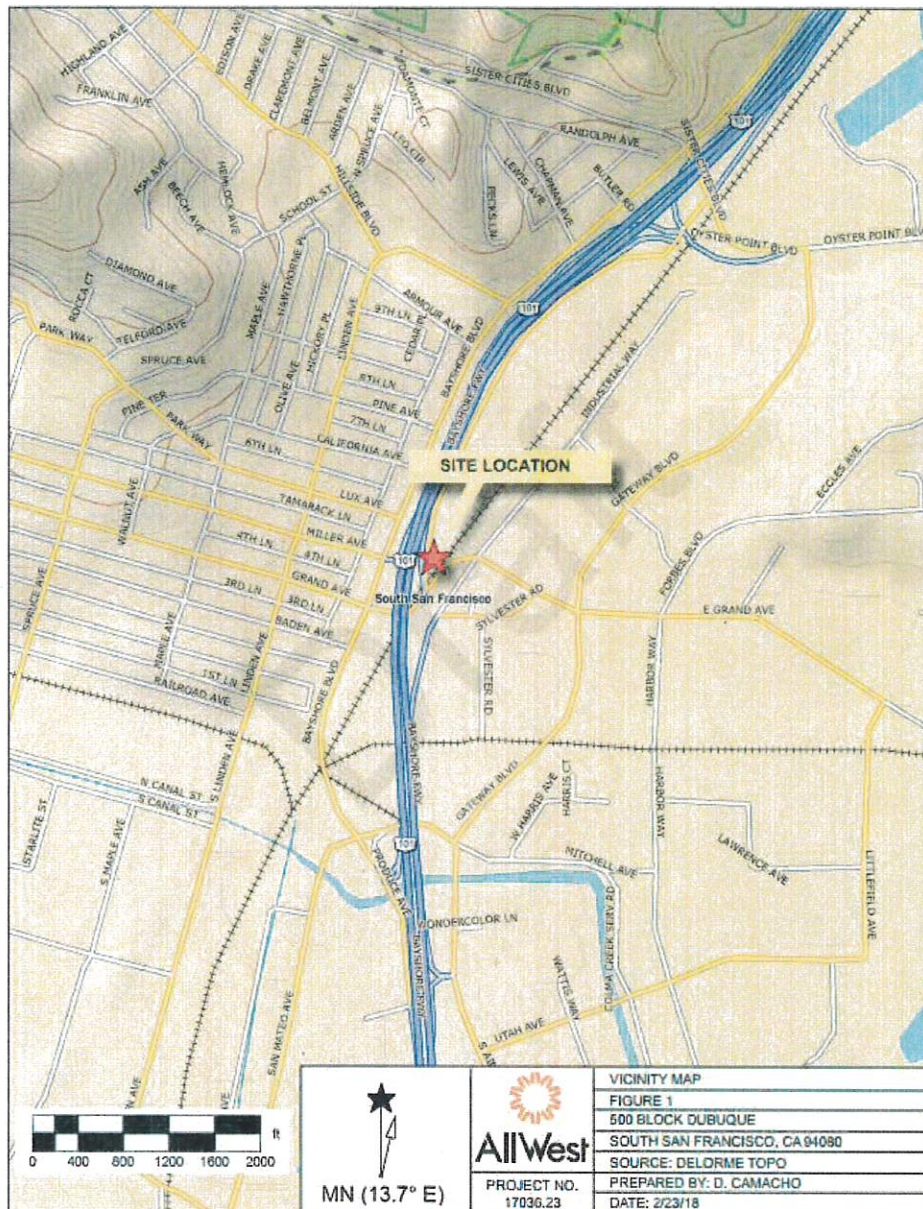
Exhibit A: Site Location

Exhibit B: Site Map

Exhibit C: Schedule

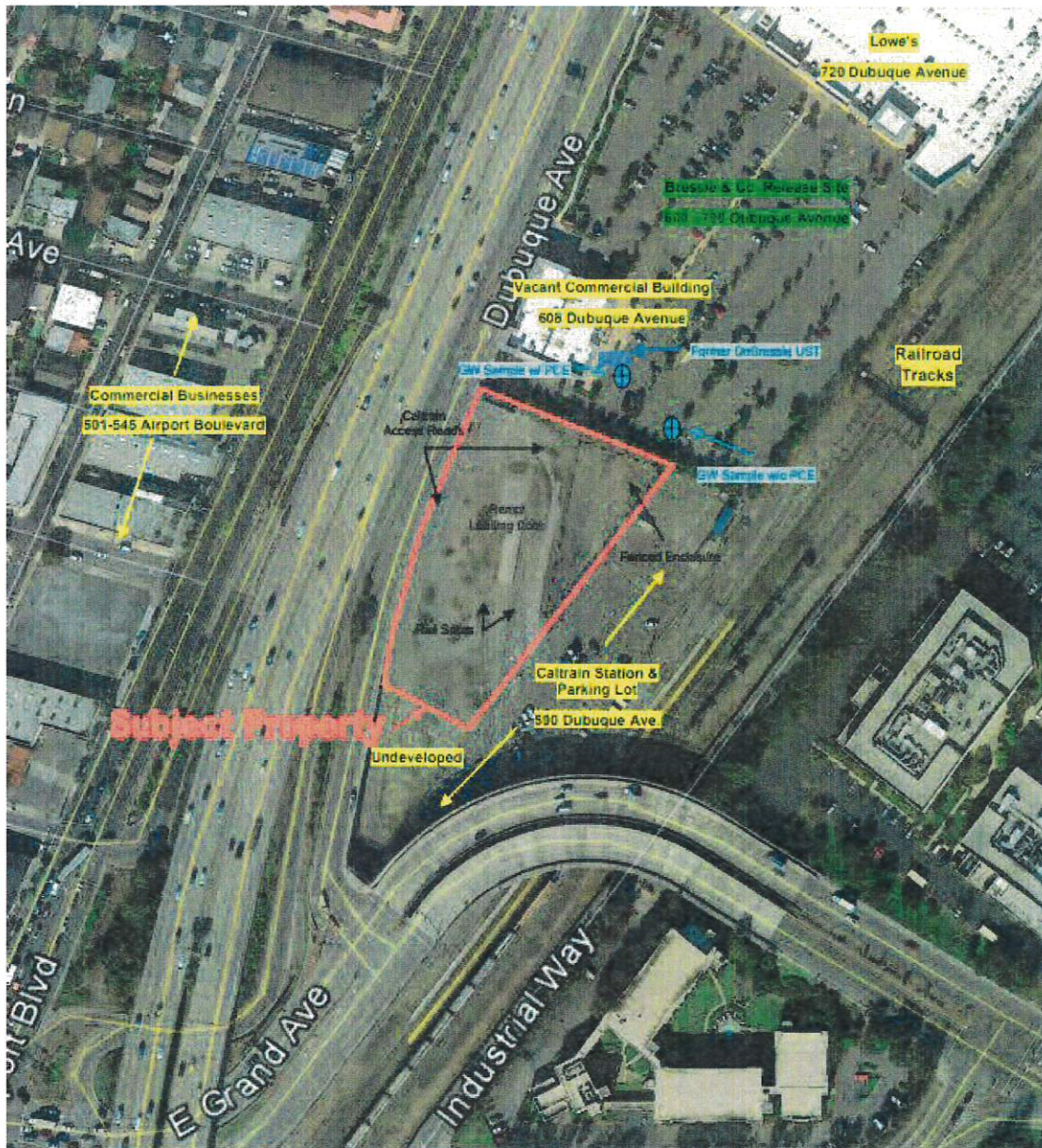
Exhibit D: DTSC Oversight Cost Estimate

EXHIBIT A Site Location



UNION PACIFIC PROPERTY
 Dubuque Avenue
 South San Francisco, CA

EXHIBIT B Site Map



UNION PACIFIC PROPERTY
Dubuque Avenue
South San Francisco, CA

EXHIBIT C

Schedule

If **South City Ventures LLC** is unable to perform any activity or submit any document within the schedule outlined below, **South City Ventures LLC** shall notify DTSC's Project Manager prior to the date the task was to be completed in the schedule below. If DTSC determines that the revised schedule will have a significant effect on the schedule outlined below or upon its review schedule, the schedule shall be updated.

Activity	Schedule
Submit existing data	Submitted to DTSC April 12, 2019
Submit Draft Response Plan, including Report of Findings	By 2/28/2020
DTSC will prepare Community Profile	Within 60 days of DTSC's receipt of the Response Plan
Submit CEQA documentation	Concurrently with the Response Plan
DTSC review and comment on Draft Response Plan	Within 30 days of Response Plan submittal
Submit revised Draft Response Plan to DTSC for public review	Within 30 days of DTSC comments
DTSC will prepare public notice and fact sheet	Upon DTSC's approval of Response Plan for public review and comment.
Public Review/Comment Period, mailing of fact sheet to site mailing list and placement of public notice in local newspaper.	Upon DTSC's approval of Response Plan for public review and comment.
DTSC approval of Response Plan	DTSC to approve Response Plan, if appropriate, after addressing public comments.
Implement Response Plan and submit Completion Report	Within 365 days from the date of DTSC's approval of Response Plan, and prior to start of project construction.
DTSC to provide comments on the Completion Report.	Within 30 days of submittal of the Completion Report
Submit Final Completion Report	Within 30 days of DTSC comments
DTSC approval of Completion Report	Within 30 days of receipt of Final Completion Report

Submit Operation, Maintenance and Monitoring Plan (O&M Plan), if required	Within 30 days of DTSC approval of Completion Report
Submit Financial Assurance Cost Estimate, if required	Concurrently with the O&M Plan
DTSC review and comment on O&M Plan and Financial Assurance Cost Estimate	Within 30 days of O&M Plan submittal
Submit Final O&M Plan, if required	Within 30 days of DTSC comments
DTSC to provide draft land use restriction and O&M Agreement, if required	Within 30 days of DTSC's receipt of the O&M Plan
Submit Financial Assurance Documentation	Within 30 days of DTSC approval of Financial Assurance Cost Estimate
Submit Notice of Ownership Change and Copy of Transfer Document for PP	At the time of transfer
Submit AAI Update/verification of validity for PP	At the time of transfer
DTSC's issuance of a Certificate of Completion or No Further Action	Within 30 days of receipt of an acceptable Completion Report, O&M Plan and Agreement (if required), and the executed land use restriction (if required).

EXHIBIT D
DTSC Oversight Cost Estimate

[illegible]

TRANSPORTATION ANALYSIS

ATTACHMENT D

to the
580 Dubuque Avenue Project Initial Study / Mitigated Negative Declaration



HEXAGON TRANSPORTATION CONSULTANTS, INC.



580 Dubuque Avenue

Transportation Analysis



Prepared for:

Lamphier-Gregory



January 18, 2022



Hexagon Transportation Consultants, Inc.

Hexagon Office: 4 North Second Street, Suite 400
San Jose, CA 95113

Phone: 408.971.6100

Hexagon Job Number: 21TD01

Client Name: Lamphier-Gregory

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www.hextrans.com

Areawide Circulation Plans Corridor Studies Pavement Delineation Plans Traffic Handling Plans Impact Fees Interchange Analysis Parking
Transportation Planning Traffic Calming Traffic Control Plans Traffic Simulation Traffic Impact Analysis Traffic Signal Design Travel Demand Forecasting

This report includes an analysis of Vehicle Miles Travelled (VMT) and an evaluation of potential impacts to transit, pedestrian, and bicycle facilities for the proposed Office/Research & Development building at 580 Dubuque Avenue in South San Francisco, as required by the California Environmental Quality Act (CEQA).

Project Description

This report presents the results of the CEQA transportation analysis (TA) conducted for the proposed Office/ Research & Development (R&D) building at 580 Dubuque Avenue in South San Francisco, California. The project proposes to construct approximately 295,000 square feet of Lab/ R&D and office space (inclusive of a 4,000 square feet café) adjacent to the new South San Francisco Caltrain station. The development is consistent with the proposed 2040 General Plan update, which plans for higher-density, transit-oriented uses at and around the project site. Structured parking would be provided in four stories below grade, with approximately 350 parking spaces. Vehicular access to the project would be provided via Dubuque Avenue.

CEQA Analysis

VMT Analysis

Pursuant to SB 743, the CEQA 2019 Update Guidelines Section 15064.3, subdivision (b) states that vehicle miles travelled (VMT) will be the metric in analyzing transportation impacts for land use projects for California Environmental Quality Act (CEQA) purposes. The City of South San Francisco has adopted certain thresholds of significance based on the project type to guide in determining when a project will have a significant transportation impact. For non-retail land use projects, a significant impact would occur if the VMT would be above the threshold, which is defined as 15% below the regional average.

The City of South San Francisco provides screening criteria for development projects. The criteria are based on the type of project, characteristics, and/or location. If a project meets the City's screening criteria, the project is expected to result in less-than-significant impacts, and a detailed CEQA VMT analysis is not required. The City's policy states that projects within ½ mile of an existing or planned high-quality transit corridor or major transit station should be presumed to have no impact on VMT. However, this presumption would not apply if the project FAR is less than 0.75, includes parking that is higher than required by the City, is inconsistent with Plan Bay Area, or replaces affordable residential units with a smaller number of market-rate units. The project site is located adjacent to the South San Francisco Caltrain Station. The project is proposing an FAR of 3.19, fewer than required parking spaces, is consistent with the land use zoning that is proposed under the City's 2040 General Plan Update and would develop a vacant site.

Therefore, a detailed VMT analysis would not be required.

The project would also implement a Transportation Demand Management (TDM) program as required by the Municipal Code, which requires all non-residential projects that would generate more than 100 daily trips to implement various trip reduction measures to reduce single occupancy vehicle trips (SOV) and achieve a minimum 28% alternative mode use. The project would also provide parking that is less than the parking required by the code to encourage employees and visitors to use transit, given its proximity to the Caltrain station.

Cumulative Impact Analysis

According to the Governor's Office of Planning and Research (OPR), a finding of a less-than-significant project impact would imply a less than significant cumulative impact. Also, the project is consistent with the South San Francisco General Plan. Shape SSF 2040 is an update to the City's currently General Plan that is currently in progress. The project aligns with the updated land use controls currently proposed under the 2040 General Plan Update, which plans for higher-density, transit-oriented uses at and around the project site: reimagining the area as a new urban corridor accessible to pedestrians, bicyclists, and transit riders. Therefore, the project would be considered as part of the cumulative solution to meet the General Plan's long-range transportation goals and would result in a less-than-significant cumulative impact.

Transit, Pedestrian and Bicycle Analysis

Pedestrian: Sidewalks and crosswalks are provided on most streets in the immediate vicinity of the proposed project. Sidewalks exist along the east side of Dubuque Avenue, on Grand Avenue and Airport Boulevard. A metal staircase on the northeast corner and a crosswalk across the east leg of the signalized Dubuque Avenue/E Grand Avenue intersection currently provide connections for pedestrians

from areas east of the Caltrain tracks and downtown areas to the Caltrain station. As part of the South San Francisco Caltrain Reconstruction Project that is currently in progress, an underpass is being constructed that would provide a direct connection for pedestrians and bicyclists between areas to the west and east of the Caltrain tracks. This underpass would also provide a connection to the new Caltrain station platform. As the project is located adjacent to the Caltrain station, the new underpass would provide an alternative pedestrian connection between the project, downtown destinations, and areas to the east of the Caltrain tracks.

A significant impact would occur if the proposed project conflicted with applicable or adopted policies, plans or programs related to pedestrian facilities or otherwise decreased the performance or safety of pedestrian facilities. The South San Francisco General Plan requires project proponents to provide sidewalks and street trees as part of frontage improvements for new development. The project would provide a clear walkway between the existing sidewalk on Dubuque Avenue and the main building entrance that would be provided on the north side of the building. A pedestrian walkway with landscaping and lighting would be constructed along the western edge of the property along the access road that would run parallel to Dubuque Avenue. The project will coordinate with Caltrain/Joint Powers Board (JPB) who currently own the parcels to the south and east of the project site to provide pedestrian access between the project site and the Caltrain station in a permittable and accessible manner. The project is anticipated to have a less-than-significant impact on the existing and planned pedestrian facilities.

Bicycle: Bicycle access to the project site is currently limited as there are no bike lanes on Dubuque Avenue. In the vicinity of the project, Class II bike lanes are located on Airport Boulevard (north of Miller Avenue), along Poletti Way, Gateway Boulevard (between E Grand Avenue and Airport Boulevard), along Sister Cities Boulevard, and along Oyster Point Boulevard (east of Gateway Boulevard). An impact to bicyclists would occur if the proposed project disrupted existing bicycle facilities or conflicted with or created inconsistencies with adopted bicycle system plans, guidelines, and policies. According to the South San Francisco Bicycle Master Plan, Class III Bicycle Routes are proposed along Dubuque Avenue between E Grand Avenue and Oyster Point Boulevard. Class III Bicycle Routes are recommended on roadways frequently used by bicyclists that do not have the necessary right-of-way (ROW) for installing bicycle lanes. Bicycle Routes are identified by either signs or shared lane markings and they typically have a shared wide outside lane for vehicles and bicycles. Because additional ROW from the project site is not necessary to implement the planned bicycle facility along Dubuque Avenue, the project would not conflict with existing and planned bicycle facilities. Therefore, the impact to bicycle facilities would be less-than-significant.

Transit: The City of South San Francisco, in partnership with Caltrain is currently reconstructing the South San Francisco Caltrain station, which is expected to be completed by November 2021. The reconstructed station includes a new median platform, underpass entrances connecting to downtown and East Grand Avenue, and a shuttle loading area along Poletti Way. Combined with the Caltrain Electrification project, the reconstructed station is expected to see increased service levels, which has been included in Caltrain planning. Since the project is located adjacent to the Caltrain station, it is expected to generate trips via transit services. According to OPR guidelines, the addition of new transit riders should not be treated as an adverse impact as such development also improves regional flow by adding less vehicle travel onto the regional network. Therefore, the project is anticipated to have a less-than-significant impact on transit facilities and services.

Safety

A project safety impact is considered significant if the proposed project would provide inadequate design features that present safety concerns within the project site or on the adjacent streets. Vehicles would access the project site from an existing driveway on Dubuque Avenue that would also provide

access to the Caltrain station parking lot. The existing site access roadway would be reconstructed along the western property boundary. Visitor drop-offs would occur at the entry plaza located at the northwest corner of the project site. Parking access would be provided along the south end of the building.

In order to address potential conflict in vehicular movement on the Caltrain access road and internal roads serving the project site, the project will install stop signs at each intersecting point for exiting vehicles (see Figure 1).

According to the South San Francisco Municipal Code, the speed limit on Dubuque Avenue is 30 mph. Although the project would not construct any new driveways on Dubuque Avenue, the project should coordinate with the City of South San Francisco to improve sight distance for vehicles exiting onto Dubuque Avenue. Field observations showed that the curved alignment of Dubuque Avenue combined with the fence/retaining wall impacts the visibility of northbound traffic for drivers exiting onto Dubuque Avenue from the Caltrain station parking lot. Additionally, signs attached to the fence and vegetation at the corner of the property to the north obstruct sight distance between southbound Dubuque Avenue traffic and vehicles exiting the shared project and Caltrain driveway under existing conditions. Because the proposed project would add traffic to the existing driveway on Dubuque Avenue, the project would result in a potential safety impact. The following mitigation would improve the safety at the intersection of Dubuque Avenue the shared Caltrain /project driveway.

Transportation Mitigation 1: Shared Dubuque Avenue Driveway Safety Improvements. The applicant shall coordinate the following safety improvements for the intersection of Dubuque Avenue and the shared Caltrain / project driveway to provide adequate sight distance between northbound Dubuque Avenue traffic and vehicles exiting the shared Dubuque Avenue driveway.

- a) The applicant shall coordinate with the City to decrease the speed limit on Dubuque Avenue to 25 mph.
- b) The applicant shall coordinate with the City to reduce the height of the fence along the retaining wall on Dubuque Avenue to the south of the project site to improve visibility of approaching northbound traffic.

Additionally, the applicant shall coordinate with the City and adjacent properties as reasonably feasible to address existing sight distance obstructions at the intersection of Dubuque Avenue and the shared Caltrain / project driveway as follows:

- c) Coordinate with Caltrain to relocate or reduce the height of the existing “Caltrain Station Parking” sign located on the south side of the shared Dubuque Avenue driveway to provide adequate sight distance between northbound Dubuque Avenue traffic and vehicles exiting the shared Dubuque Avenue driveway.
- d) Coordinate with the property owner to the north to clear obstructing signs and vegetation from the corner of their property to provide adequate sight distance between southbound Dubuque Avenue traffic and vehicles exiting the shared Dubuque Avenue driveway.

With the implementation of these mitigation measures, the shared Caltrain / project Dubuque Avenue driveway would have adequate sight distance and the project would not result in significant safety impacts.

Emergency Access

The proposed project would not reroute or change any of the City streets in its vicinity that would impact emergency vehicle access to properties along Dubuque Avenue. The existing site access roadway that would be reconstructed along the western property boundary would accommodate emergency vehicles. Thus, the project would not result in any emergency vehicle access impact that would be considered significant.

Conclusions

The project would not result in a potentially significant impact to VMT relative to employee trips as the project site is located within ¼ mile of the South San Francisco Caltrain station.

The project would also implement a Transportation Demand Management (TDM) program as required by the Municipal Code that requires all non-residential projects that would generate more than 100 daily trips to implement various trip reduction measures to reduce single occupancy vehicle trips (SOV) and achieve a minimum 28% alternative mode use. The project would also provide parking that is less than the parking required by the code to encourage employees and visitors to use transit. Given its proximity to the Caltrain station and reduced on-site parking spaces, the project is expected to achieve a higher than the minimum 28% alternative mode use.

The project would not result in any impacts to existing and planned pedestrian and bicycle facilities. With mitigation, the project would not result in any significant safety impacts. The project would not result in any significant emergency vehicle access impacts.

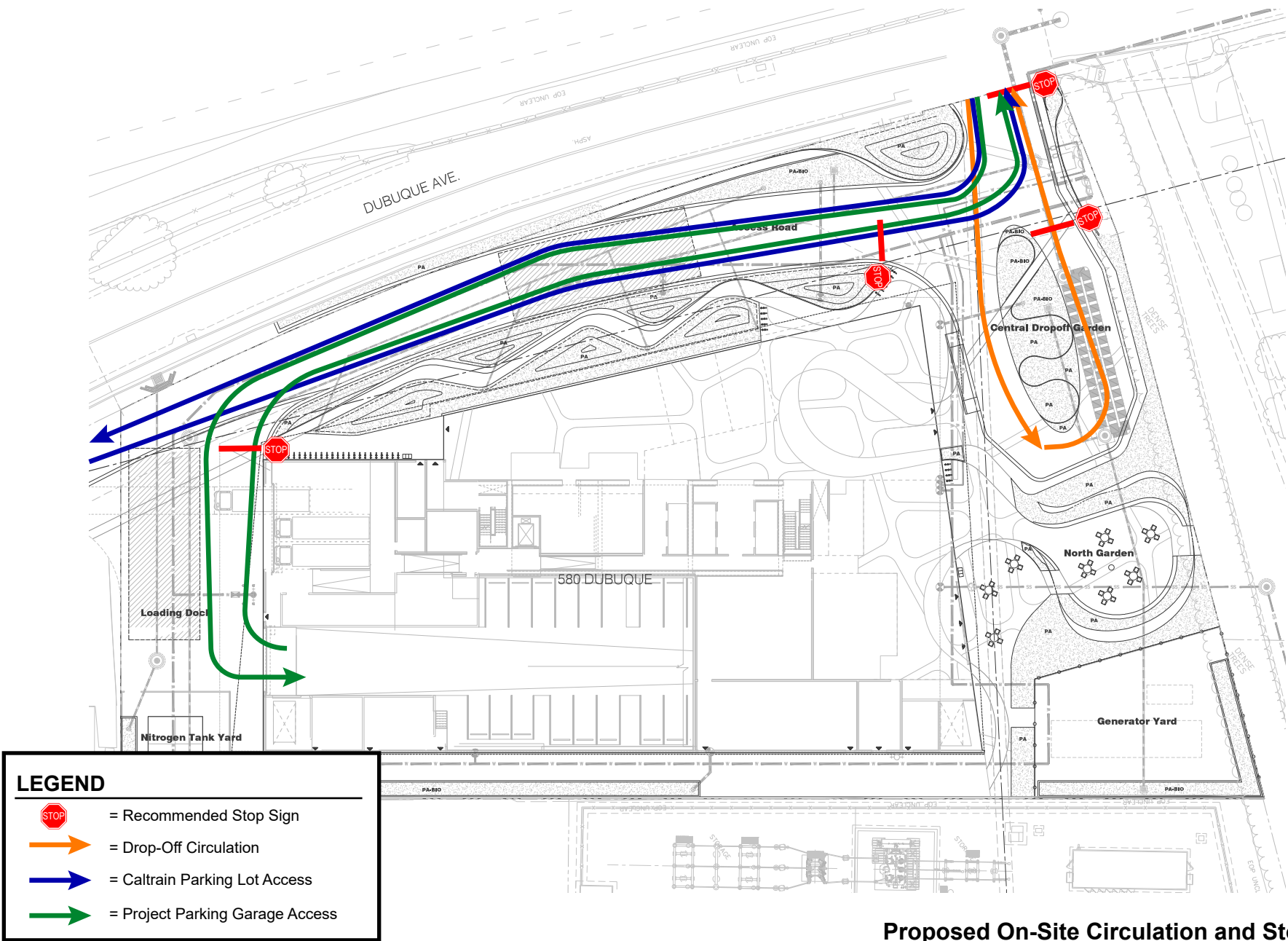


Figure 1
Proposed On-Site Circulation and Stop Signs



NOTICE OF AVAILABILITY OF PUBLIC REVIEW AND NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE PROPOSED 580 DUBUQUE AVENUE PROJECT

NOTICE IS HEREBY GIVEN: that the City of South San Francisco Planning Division has completed the *Initial Study/ Mitigated Negative Declaration (IS/MND) for the 580 Dubuque Avenue Project*. This IS/MND is now available for public review and comment. The IS/MND may be accessed on the City's website at <https://weblink.ssf.net/weblink/> under Planning Division/Environmental Reports (<https://weblink.ssf.net/weblink/Browse.aspx?dbid=0>).

Physical copies of the IS/MND and all documents incorporated by reference are available for review at the Planning Division at 315 Maple Avenue. Additional physical copies of the IS/MND are available at the Orange Avenue Library at 804 W. Orange Avenue, the Grand Avenue Library at 306 Walnut Avenue, and the City Clerk's Office at 400 Grand Avenue.

PROJECT LOCATION: The 1.89-acre project site (Assessor's Parcel Number 015-021-998) is located in the City of South San Francisco, California at the southern end of Dubuque Avenue, north of the Grand Avenue overpass as it intersects with U.S. 101. It is bordered by Dubuque Avenue and the U.S. 101 highway on the west, the Caltrain right-of-way and station property on the east and south, and development and parking on the 720 Dubuque Avenue parcel to the north. **Figure 1** shows the project location. As a part of the Caltrain station relocation and upgrade, the project site was recently used for construction staging. The project site is currently vacant and fenced.

The site is impacted by contamination from historic and adjacent uses, mostly due to historic railroad use of the site and undocumented fill. The main contamination of concern is mainly low levels of lead and other metals in the soil. Removal of impacted soil is proposed as part of the project (see below).

PROJECT DESCRIPTION: The project applicant, South City Ventures, LLC, is proposing construction and operation of a new 295,000-square-foot, 8-story, office / research and development (R&D) building and structured parking 4 stories below grade, with approximately 350 parking spaces. Project site improvements would also include sidewalks, landscaping, and lighting along Dubuque Avenue. Ground floor amenities would include a fitness center, conference space, and a café with an adjacent outdoor terrace near the building's entry lobby. The applicant is targeting life science tenants. **Figure 2** shows the site plan.

The site is within the boundaries of the Downtown Station Area Specific Plan (DSASP). However, the site was not specifically indicated for development in the DSASP as it was in use as part of the Caltrain station property at the time, prior to the station relocation and upgrade. Project applicants are requesting a rezoning from Freeway Commercial to Downtown Station Area Specific Plan District; Transit Office/R&D Core Subdistrict as well as a related General Plan Amendment (land use map and text amendments), East of 101 Area Plan Amendment, Downtown Station Area Specific Plan Amendment (land use map and text amendments), Zoning Map Amendments, Conditional Use Permits (Parking Reduction, Floor Area Ratio Increase), Design Review, and a Transportation Demand Management Plan.

Project construction activities are anticipated to span approximately 2 years. The project would involve removal of contaminated soil, with approximately 5 to 9 feet of soil being removed across 60% of the site and disposal of the contaminated soil off site. Excavation for subsurface parking would extend to depths of up to about 60 feet below ground surface and would require construction during excavation. Site preparation and foundation work would run approximately the first 9 months, followed by building

construction over about 12 months and finishing/paving/landscaping over about 3 months. A total of about 325 workers are anticipated to be onsite throughout the construction process.

ENVIRONMENTAL IMPACTS: The IS/MND that has been prepared for the project concludes that impacts of the project are considered to be less than significant with mandatory compliance with existing federal, State and local standards and the implementation of mitigation measures listed in the document. Mitigation measures relate to minimizing potential construction-period impacts, including construction dust and emissions best practices; surveys for and buffering of nesting birds; monitoring for and appropriate response to undocumented cultural, paleontological, or tribal cultural resources; compliance with design plans prepared by appropriate engineers; implementation of a Response Plan pursuant to the previously-approved CLRRRA Agreement (Docket No HSA-FY19/20-013) in coordination with the California Department of Toxic Substances Control to safely remove the contaminated soil at the project site; and implementation of measures to improve driver site distance at the shared project/Caltrain parking lot driveway intersection with Dubuque Avenue. Implementation of the project would not degrade the quality and extent of the environment or result in adverse effects on human beings, provided the project adheres to all mandated policies, rules and regulations of all relevant governing bodies.

PUBLIC REVIEW COMMENT PERIOD: The City of South San Francisco is soliciting comments regarding the analysis contained in the IS/MND. **All comments must be received by the City of South San Francisco Planning Division no later than 5:00 PM on February 17, 2022.** Written comments on the IS/MND may be sent via email or U.S. mail and addressed to:

Christopher Espiritu, Senior Planner
City of South San Francisco
Economic and Community Development Department
315 Maple Avenue
South San Francisco, CA 94080
Comments may also be sent via email to Christopher.Espiritu@ssf.net

For comments sent via email, please include "MND Comments: 580 Dubuque Project" in the subject line and the name and physical address of the commenter in the body of the email.

For additional information please contact Christopher Espiritu, Senior Planner at (650) 877-8535 and/or Christopher.Espiritu@ssf.net.

Date: January 19, 2022

Christopher.Espiritu@ssf.net
Telephone: (650) 877-8535

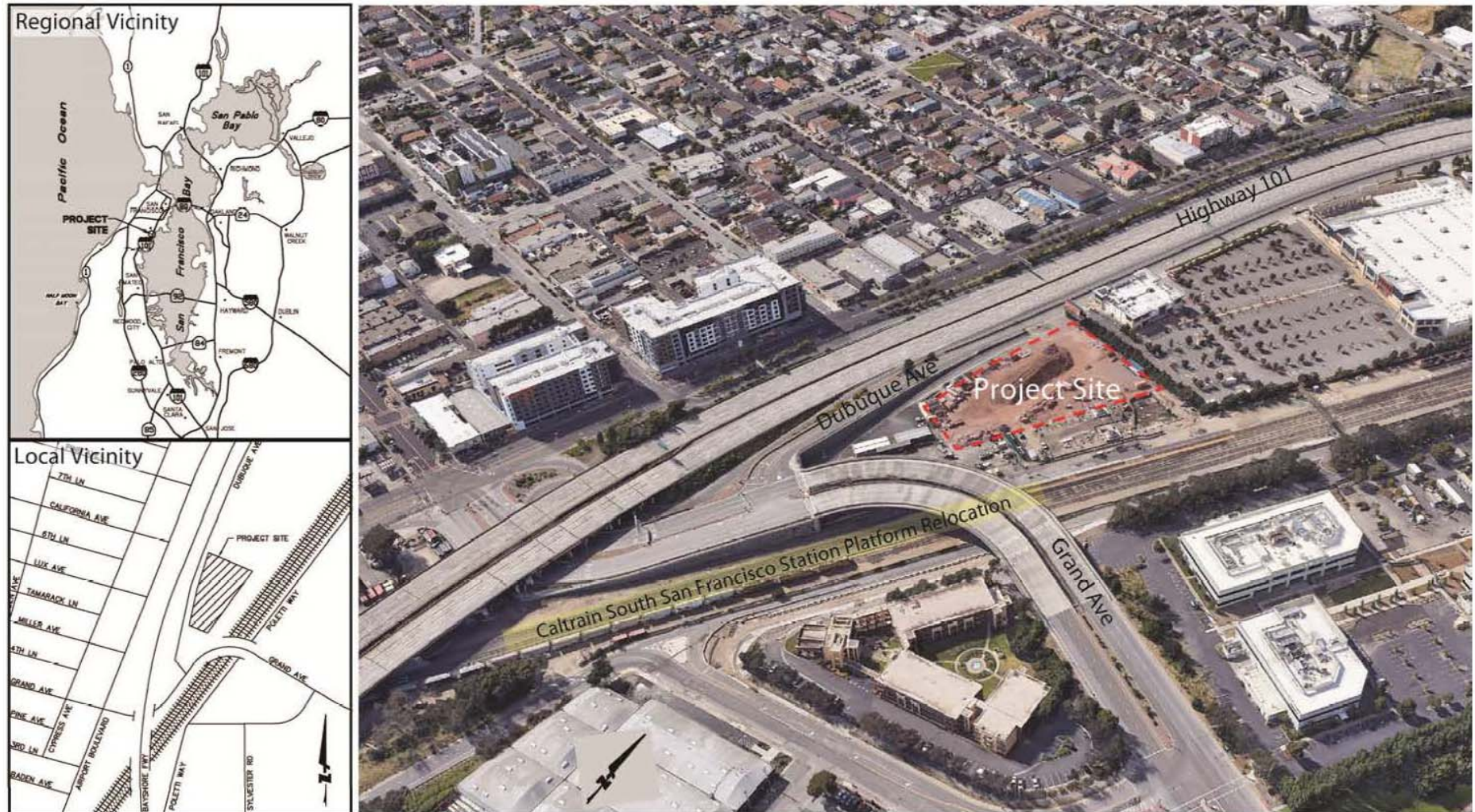


Figure 1: Project Location



Figure 2: Project Site Plan