Appendix B

Air Quality and GHG Analysis

THE CROSSWINDS AT MORGAN HILL AIR QUALITY & GREENHOUSE GAS ASSESSMENT

Morgan Hill, 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 Crosswinds at Morgan Hill residential project located at the northwest corner of the Half Road and Mission View Drive intersection in Morgan Hill, California. The air quality impacts and GHG emissions would be associated with the demolition of the existing land uses at the site, construction of new building and infrastructure, and operation of the project. Air pollutant and GHG emissions associated with the construction and operation of the project were predicted using appropriate computer models. In addition, the potential project health risk impact (includes construction and operation) and the impacts of existing toxic air contaminant (TAC) sources affecting the nearby and proposed sensitive receptors were evaluated. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The approximately 31-acre project site consists of the Assessor's Parcel Numbers 728-30-001, 728-30-002, 728-30-002, and 728-30-004. The project site is mostly undeveloped with only a vacant single-family residence located in the southwestern section of the site. The project proposes demolish the existing uses and construct a total of 269 new residential units: 56 single-family, 64 duets, and 149 condominiums. There would be a total of 40 below-market-rate (BMR) units. The project would provide 606 parking spaces, including 538 covered spaces and 68 uncovered spaces. The project site would be accessed via three vehicular connections: two site entries from DePaul Drive and one entry from Mission View Drive. DePaul Drive is proposed to be extended approximately 2,000 feet south along the project site's eastern frontage to provide direct access to the project site.

Setting

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

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, reduce lung function, and increase coughing and chest discomfort.

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

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

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

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015.[2] See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

Regulatory Agencies

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

[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.

engines are a significant source of nitrogen oxides, or NO_X, and particulate matter (PM_{10} 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 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.

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[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.

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 addresses communities with higher air pollution levels. The program identifies areas where vulnerable populations are exposed to higher levels, applies the scientific methods and strategies to reduce air pollution health impacts in these areas and engages the community and other agencies to develop additional actions to reduce impacts. BAAQMD has developed maps that show areas with elevated pollution levels and identified impacted areas. Morgan Hill does not fall under any of these impacted areas.

The BAAQMD *California Environmental Quality Act (CEQA) Air Quality Guidelines*[5] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. *Attachment 1* includes detailed community risk modeling methodology.

[5] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May. (Updated May 2017)

Morgan Hill 2035General Plan

Adopted July 27, 2016, the *Morgan Hill 2035 General Plan* includes goals, policies, and actions to improve air quality issues facing the City of Morgan Hill.[6] The following goals, policies, and actions are applicable to the proposed project:

Goal NRE-10: Reduced air pollution emissions.

Policy NRE-10.1 **Regional and Subregional Cooperation**. Cooperate with regional agencies in developing and implementing air quality management plans. Support subregional coordination with other cities, counties, and agencies in the Santa Clara Valley and adjacent areas to address land use, jobs/housing balance, and transportation planning issues as a means of improving air quality.

Policy NRE-10.2 **State and Federal Regulation**. Encourage effective regulation of mobile and stationary sources of air pollution and support State and federal regulations to improve automobile emission controls.

Policy NRE-10.3 **Automobile Emissions**. Encourage the use of and infrastructure for alternative fuel, hybrid, and electric vehicles. Encourage new and existing public and private development to include electric vehicle charging stations.

Policy NRE-10.4 **Reduced Automobile Use**. To reduce air pollution the frequency and length of automobile trips and the amount of traffic congestion by controlling sprawl, promoting infill development, and encouraging mixed uses and higher density development near transit. Support the expansion and improvement of alternative modes of transportation. Encourage development project designs that protect and improve air quality and minimize direct and indirect air pollutant emissions by including components that reduce vehicle trips.

Goal NRE-11: Minimized exposure of people to toxic air contaminants such as ozone, carbon monoxide, lead, and particulate matter.

Policy NRE-11.1 **TACs and Proposed Sensitive Use**s. Require modeling for sensitive land uses, such as residential development, proposed near sources of pollution such as freeways and industrial uses. Require new residential development and projects categorized as sensitive receptors to incorporate effective mitigation measures into project designs or be located adequate distances from sources of toxic air contaminants (TACs) to avoid significant risk to health and safety.

[6] City of Morgan Hill, California (2016). "Chapter 8 Natural Resources and Environment". *City of Morgan Hill General Plan 2035.* https://www.morgan-hill.ca.gov/DocumentCenter/View/22839/MH2035-General-Plan---December-2017?bidId=

Policy NRE-11.2 **TACs and Existing Sensitive Uses**. Encourage the installation of appropriate air filtration mechanisms at existing schools, residences, and other sensitive receptors adversely affected by existing or proposed pollution sources.

Policy NRE-11.3 **Health Risk Assessments.** For proposed development that emits toxic air contaminants, require project proponents to prepare health risk assessments in accordance with Bay Area Air Quality Management District procedures as part of environmental review and implement effective mitigation measures to reduce potential health risks to less-than-significant levels. Alternatively, require these projects to be located an adequate distance from residences and other sensitive receptors to avoid health risks. Consult with the Bay Area Air Quality Management District to identify stationary and mobile toxic air contaminant sources and determine the need for and requirements of a health risk assessment for proposed developments

Policy NRE-11.4 **Truck Routes**. For development projects generating significant heavy-duty truck traffic, designate truck routes that minimize exposure of sensitive receptors to toxic air contaminants and particulate matter.

Policy NRE-11.5 **Truck Idling**. For development projects generating significant truck traffic, require signage to remind drivers that the State truck idling law limits truck idling to five (5) minutes.

Policy NRE-11.6 **Vegetation Buffers**. Encourage the use of pollution-absorbing trees and vegetation in buffer areas between substantial sources of toxic air contaminants and sensitive receptors.

Goal NRE-12: Minimized air pollutant emissions from demolition and construction activities

Policy NRE-12.1: **Best Practices.** Requirement that development projects implement best management practices to reduce air pollutant emissions associated with construction and operation of the project.

Policy NRE-12.2 **Conditions of Approvals.** Include dust, particulate matter, and construction equipment exhaust control measures as conditions of approval for subdivision maps, site development and planned development permits, grading permits, and demolition permits. At a minimum, conditions shall conform to construction mitigation measures recommended in the current Bay Area Air Quality Management District CEQA Guidelines.

Policy NRE-12.3 **Control Measures.** Require construction and demolition projects that have the potential to disturb asbestos (from soil or building material) to comply with all the requirements of the California Air Resource Board's air toxics

control measures (ATCMs) for Construction, Grading, Quarrying, and Surface Mining Operations.

Policy NRE-12.4 **Grading**. Require subdivision designs and site planning to minimize grading and use landform grading in hillside areas.

- Action NRE-12.A Standard Measures for Demolition and Grading. Adopt and periodically update dust, particulate matter, and exhaust control standard measures for demolition, grading, and construction activities to include on project plans mitigation measures as conditions of approval based Bay Area Air Quality Management District CEQA Guidelines. Include measures to prevent silt loading on roadways that generates particulate matter air pollution by prohibiting unpaved or unprotected access to public roadways from construction sites.
- Action NRE-12.B Grading Ordinance. Revise the grading ordinance and condition grading permits to require that graded areas be stabilized from the completion of grading to commencement and construction.

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, infants and children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children.

The closest sensitive receptors to the project site are the residents in the single-family homes to the south and east of the site opposite the roadways. There are other single-family residences to the north, east, and south of the site at further distances. The De Paul Health Center is located to the north of the site. In addition, there are children (13 years and older) at the Live Oak High School to the southeast of the site. This project would also introduce new sensitive receptors (residents).

Significance Thresholds

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

Table 1. BAAQMD Air Quality and GHG Significance Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)**	
Excess Cancer Risk	>10.0 per one million	>100 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual $PM_{2.5}$	>0.3 $\mu g/m^3$	>0.8 $\mu g/m^3$	
Greenhouse Gas Emissions			
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020) *		

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

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

AIR QUALITY IMPACTS AND MITIGATION MEASURES

Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan?

BAAQMD is the regional agency responsible for overseeing compliance with State and Federal laws, regulations, and programs within the San Francisco Bay Area Air Basin (SFBAAB). BAAQMD, with assistance from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), prepares and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2017 Clean Air Plan*.[7] The primary goals of the Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions and protect the climate. The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality and GHG impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which, in turn, affects region-wide emissions of air pollutants and GHGs.

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

Impact AIR-2: 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 O_3 and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM_{10} under the California Clean Air Act, but not the federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for O_3, $PM_{2.5}$ and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for O_3 precursor pollutants (ROG and NOx), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 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 2017 (EMFAC2017) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[8]

[7] Bay Area Air Quality Management District (BAAQMD), 2017. *Final 2017 Clean Air Plan.*
[8] See CARB's EMFAC2017 Web Database at https://www.arb.ca.gov/emfac/2017/

The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2017 vehicle emissions modeling outputs are included in *Attachment 3*.

CalEEMod Inputs

Land Use Inputs

The proposed residential project would be constructed in five phases. Separate CalEEMod runs were conducted for each phase as each phase would construct new buildings and roadways over several years. The land uses for each construction phase were entered into CalEEMod as described in Table 2.

Table 1. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Whole Site Preparation/Grading Phase, 2022				
Single Family Housing	269	Dwelling Units	512,363	30.5
Phase 1, 2022-2023				
Single Family Housing	54	Dwelling Units	39,600	12.2
Condo/Townhouse	40	Dwelling Units	40,000	
Recreational Swimming Pool	3	1,000-sf	3,000	
Other Asphalt Surface	1.2	Acre	52,272	
DePaul Extension Phase, 2023				
Other Asphalt Surface	1.4	Acre	60,984	1.4
Phase 2, 2023-2024				
Single Family Housing	66	Dwelling Units	118,800	12.9
Condo/Townhouse	45	Dwelling Units	45,000	
Other Asphalt Surface	1.3	Acre	56,628	
Phase 3, 2025				
Condo/Townhouse	64	Dwelling Units	64,000	2.9
Other Asphalt Surface	0.5	Acre	21,780	

Construction Inputs

The project's construction analysis was originally assessed under Option 1 where the stormwater drainage would be directed to the Madrone Channel. An alternative construction method (Option 2), which includes on-site underground water tanks for stormwater drainage, may potentially be used for this project. This work would be completed by hand, as they are modular systems, during the grading/excavation phase this phase would include one additional excavator. With this approach for Option 2, the number of workdays would increase by 16 days but would not alter the overall timeframe.

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-site activity includes worker, hauling, and vendor traffic. The construction build-out scenario, including equipment list and schedule, were based on construction information provided by the project applicant for both options.

The CalEEMod construction equipment worksheet provided by the applicant included the schedule for each phase for both scenarios (included in *Attachment 2*). Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was provided. Since different equipment would have different estimates of the working days per phase, the hours per day for each phase was computed by dividing the total number of hours that the equipment would be used by the total number of days in that phase. The construction schedule for both options assumed that the earliest possible start date would be May 2022 and the project would be built out over a period of approximately 3 years and 5 months, or 724 construction workdays. The first year of full operation was assumed to be 2026.

Construction Truck Traffic Emissions

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2014 motor vehicle emission factor model. This model has been superseded by the EMFAC2017 model; however, CalEEMod has not been updated to include EMFAC2017. 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. 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. For both construction scenarios, the haul trips for demolition were estimated from the provided demolition volumes by assuming each truck could carry 10 tons per load. The number of concrete and asphalt total round haul trips for both options were provided for the project and converted to total one-way trips, assuming two trips per round-trip delivery.

The construction traffic information was combined with EMFAC2017 motor vehicle emissions factors. EMFAC2017 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 LDT1and 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 (demolition material export and soil import/export). Since CalEEMod does not address cement or asphalt trucks, these were treated as vendor travel distances. Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On-road emission rates in Santa Clara County for the year 2022 were used. Table 3 provides the traffic inputs that were combined with the EMFAC2017 emission factors to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2017 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker Trips[1]	Total Vendor Trips[1]	Total Haul Trips[2]	
Vehicle mix[1]	72% LDA 6% LDT1 22% LDT2	38% MHDT 62% HHDT	100% HDDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Cement/Asphalt)	CalEEMod default distance with 5-min truck idle time.
Whole Site Preparation/Grading Phase, 2022 (*Option 2*)				
Demolition	12	-	9	1,900-sf building demolition. CalEEMod default worker trips.
Site Preparation	40 (*50*)	-	-	CalEEMod default worker trips.
Grading	250 (*324*)	-	250	Estimated 1,000-cy export and 1,000-cy import. CalEEMod default worker trips.
Phase 1, 2022-2023				
Trenching	280	-	-	CalEEMod default worker trips.
Building Construction	12,425	2,800	290	145 cement roundtrips. CalEEMod default worker and vendor trips.
Architectural Coating	224	-	-	CalEEMod default worker trips.
Paving	250	-	112	562-cy asphalt. CalEEMod default worker trips.
DePaul Extension Phase, 2023				
Grading	150	-	-	CalEEMod default worker trips.
Trenching	280	-	-	CalEEMod default worker trips.
Paving	250	-	140	612-cy asphalt. CalEEMod default worker trips.
Phase 2, 2023-2024				
Trenching	280	-	-	CalEEMod default worker trips.
Building Construction	14,000	3,675	356	178 cement roundtrips. CalEEMod default worker and vendor trips.
Architectural Coating	256	-	-	CalEEMod default worker trips.
Paving	250	-	140	700-cy asphalt. CalEEMod default worker trips.
Phase 3, 2025				
Trenching	200	-	-	CalEEMod default worker trips.
Building Construction	6,000	1,575	160	80 cement roundtrips. CalEEMod default worker and vendor trips.
Architectural Coating	192	-	-	CalEEMod default worker trips.
Paving	250	-	72	300-cy asphalt. CalEEMod default worker trips.

Notes: [1] Based on 2022 EMFAC2017 light-duty vehicle fleet mix for Santa Clara County.
[2] Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed.

Summary of Computed Construction Period Emissions

Average daily emissions for both construction options were annualized for each year of construction by dividing the annual construction emissions by the number of active workdays during that year. Table 4 shows average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project for both options. As indicated in Table 4, predicted construction period emissions would not exceed the BAAQMD significance thresholds for both options.

Table 4. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2022 (Whole Site Prep/Grading Phase and Phase 1) (*Option 2*)	1.05 (*1.06*)	0.67 (*0.70*)	0.03 (*0.04*)	0.03 (*0.03*)
2023 (Phase 1, DePaul Extension Phase, and Phase 2)	0.03	0.29	0.02	0.02
2024 (Phases 2)	1.20	0.27	0.02	0.01
2025 (Phase 3)	0.49	0.27	0.01	0.01
Annualized Daily Construction Emissions (pounds/day)				
2022 (154 construction workdays) (*Option 2*)	13.68 (*13.74*)	8.64 (*9.10*)	0.44 (*0.47*)	0.42 (*0.44*)
2023 (220 construction workdays)	0.30	2.60	0.18	0.17
2024 (210 construction workdays)	11.39	2.53	0.15	0.14
2025 (140 construction workdays)	6.95	3.85	0.21	0.21
BAAQMD Thresholds (pounds per day)	*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 PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less-than-significant if best management practices are implemented to reduce these emissions. *Mitigation Measure AQ-1 would implement BAAQMD-recommended best management practices*.

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

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

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

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

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

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

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

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

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

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

Effectiveness of Mitigation Measure AQ-1

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

Operational Period Emissions

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

CalEEMod Inputs

Land Uses

Due to the project's phased construction, a separate CalEEMod run was conducted in order to calculate the operational emission of the project. The proposed operational project land uses were input into CalEEMod as follows:

- 269 dwelling units and 512,363-sf entered as "Single Family Housing" on 30.5 acres,
- 3,000-sf entered as "Recreational Swimming Pool" and
- 3 acres entered as "Other Asphalt Surfaces".

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 2026 if construction begins in 2022. Emissions associated with build-out later than 2026 would be lower.

Trip Generation Rates and VMT

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-specific daily trip generation rate provided by the traffic consultant was entered into the model.[9] The weekday trip generation rates were adjusted using the traffic daily rates. 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.

The CalEEMod overall trip length with Passby and Diverted trips was computed at 6.33 miles for this project. The Traffic Report vehicle miles travelled (VMT) analysis reports that without any mitigation applied, the project would generate 27.41 miles per capita per day. The California Department of Finance Population and Housing Estimate reports 3.11-persons per household for 2019.[10] This equates to 837 residents that would result in a weekday VMT estimate of 22,942 miles per day. The VMT per trip was computed at 9.04 miles. This trip rate was used in CalEEMod with Passby and diverted trip effects set to 0.

EMFAC2017 Adjustment

The vehicle emission factors and fleet mix used in CalEEMod are based on EMission FACtors from 2014 (EMFAC2014), which is an older CARB emission inventory for on road and off road mobile sources. Since the release of CalEEMod Version 2016.3.2, new emission factors have been produced by CARB. EMFAC2017 became available for use in March 2018 and approved by the EPA in August 2019. It includes the latest data on California's car and truck fleets and travel activity. Additionally, CARB has recently released EMFAC off-model adjustment factors to

[9] Correspondence with Maria Kisyova, Assistant Project Manager, David J. Powers & Associates, Inc., November 10, 2020, *Hexagon - The Crosswinds Trip Gen and Volumes 11-10-20*.
[10] State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2010-2019*. Sacramento, California. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/.

account for the Safer Affordable Efficient (SAFE) Vehicle Rule Part one.[11,12] The SAFE vehicle Rule Part One revoked California's authority to set its own GHG emission standards and set zero emission vehicle mandates in California. As a result of this ruling, mobile criteria pollutant and GHG emissions would increase. Therefore, the CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2017, which were adjusted with the CARB EMFAC off-model adjustment factors. More details about the updates in emissions calculation methodologies and data are available in the EMFAC2017 Technical Support Document.[13]

Electricity

CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards. GHG emissions modeling includes those indirect emissions from electricity consumption. The electricity produced emission rate was modified in CalEEMod. CalEEMod has a default emission factor of 641.3 pounds of CO_2 per megawatt of electricity produced, which is based on Pacific Gas and Electric's (PG&E) 2008 emissions rate. However, PG&E published in 2019 emissions rates for 2010 through 2017, which showed the emission rate for delivered electricity had been reduced to 210 pounds CO2 per megawatt of electricity delivered in the year 2017.[14] However, this project would use electricity supplied by Silicon Valley Clean Energy (SVCE)

SVCE purchases carbon-free electricity and partners with PG&E to deliver this electricity over existing power lines that they maintain. SVCE provides 100-percent carbon-free energy. However, customers have the option to opt out of the program and purchase electricity from PG&E, which is not carbon free, as described above. This analysis assumes a 10-percent non-participation rate with SVCE. Therefore, an electricity emission rate of 21 pounds per of CO_2 per megawatt of electricity delivered was used for this analysis.

Natural Gas

Ordinance No. 2306 add Chapter 15.63 to the Morgan Hill Municipal Code: Prohibition of Natural Gas Infrastructure in New Buildings. Under this newly adopted code, natural gas infrastructure would be prohibited in newly constructed buildings; however, there is an exception where an applicant can establish that it is not feasible. For this analysis, only newly constructed residences were assumed to be all electric with no gas usage.

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[11] California Air Resource Board, 2019. *EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One*. November. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf

[12] California Air Resource Board, 2020. *EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO_20 Emissions to Accounts for the SAFE Vehicles Rule Part One and the Final SAFE Rule*. June. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf?utm_medium=email&utm_source=govdelivery

[13] See CARB 2018: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac

[14] PG&E, 2019. *Corporate Responsibility and Sustainability Report*. Web: http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf

Other Inputs

Default model assumptions for emissions associated with solid waste generation use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions. All hearths were assumed to be powered by natural gas per BAAQMD Regulation 6, Rule 3, which requires that new building construction not install a wood-burning device (effective as of November 1, 2016).

Existing Uses

The existing land uses on the project site include a vacant single-family residence. This use produces little to no operational and traffic emissions which would not considerably offset emissions from the proposed project. Therefore, the emissions from the existing uses were not considered, nor used to offset proposed project conditions.

Summary of Computed Operational Period Emissions

Annual emissions were predicted using CalEEMod and daily emissions were estimating assuming 365 days of operation. Table 5 shows average daily emissions of ROG, NO_X, total PM_{10}, and total $PM_{2.5}$ during operation of the project. The operational period emissions would not exceed the BAAQMD significance thresholds.

Table 5. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2026 Project Operational Emissions (*tons/year*)	3.35 tons	1.68 tons	3.12 tons	0.86 tons
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Thresholds?	No	No	No	No
2026 Project Operational Emissions (*lbs./day*)[1]	18.36 lbs.	9.21 lbs.	17.10 lbs.	4.71 lbs.
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-3: 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 and stationary sources).

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would not include the installation of an emergency generator powered by a diesel engine, which would produce TAC and air pollutant emissions. The project would generate some traffic, consisting of light-duty vehicles. However, the number of daily trips

generated by the project are low (i.e., 2,539 daily trips)[15] and emissions from automobile traffic generated by the project would be spread out over a broad geographical area and not localized. Project traffic was not considered a source of substantial TACs or $PM_{2.5}$ that could lead to health impacts.

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 that includes the project contribution, as well as the risk on the new sensitive receptors introduced by the project.

Community Risk Methodology for Construction and Operation

Community risk impacts were addressed by predicting increased 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,[16] 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 south, east, and north of the site, the patients at the De Pal Health Center to the north, and the students at the high school to the southeast of the project site, as shown in Figure 1. Residential receptors and receptors at the health center were assumed to include all receptor groups (i.e., infants, children, and adults) with almost continuous exposure to project emissions. Community risks were also computed for children at the Live Oak High School (13 years and older).

[15] Correspondence with Maria Kisyova, Assistant Project Manager, David J. Powers & Associates, Inc., November 10, 2020, *Hexagon - The Crosswinds Trip Gen and Volumes 11-10-20*.
[16] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines.* December 2016.

Community Health Risk from Project Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issue associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$.[17] This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod model and EMFAC2017 calculations provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total PM_{10} exhaust emissions from all construction stages for both options reported in Table 6. The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod and EMFAC2017 for the overall construction period for both options and are included as part of the Total $PM_{2.5}$ emissions reported in Table 6.

Table 6. Localized Project Construction Emissions of DPM and Fugitive $PM_{2.5}$

Description	DPM	$PM_{2.5}$
Whole Site Prep/Grading Phase (2022) (*Option 2*)	0.0096 tons (19 pounds) *0.0122 tons (24 pounds)*	0.0040 tons (8 pounds) *0.0039 tons (8 pounds*)
Phase 1 (2022-2023)	0.0273 tons (55 pounds)	0.0074 tons (15 pounds)
DePaul Extension Phase (2023)	0.0022 tons (4 pounds)	0.0007 tons (1 pounds)
Phase 2 (2023-2024)	0.0279 tons (56 pounds)	0.0097 tons (19 pounds)
Phase 3 (2025)	0.0147 tons (29 pounds)	0.0046 tons (9 pounds)

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences, daycare, and high school) 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.[18] Emission

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

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.[19] 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.

AERMOD Inputs and Meteorological Data

The modeling used a five-year data set (2013-2017) of hourly meteorological data from the San Martin Airport that was prepared for use with the AERMOD model by BAAQMD. Construction emissions were modeled as occurring daily between 7:00 a.m. to 4:00 p.m., when the majority of construction activity would occur. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2022-2025 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) were used to represent the breathing height on the first floors of nearby single-family residences and the health center.[20] Receptor heights of 5 feet (1.5 meter) were also used to represent the breathing height of the older children at the high school.

[19] 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

[20] 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

Summary of Construction Community Risk Impacts

The increased cancer risk calculations were based on applying the BAAQMD recommended age sensitivity factors to the TAC concentrations, as described in *Attachment 1*. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. The range of infant through adult exposures were assumed to occur at all residences and child exposure was assumed to occur at the high school during the entire construction period. Infant exposure at residences was used as a worst-case assumption, while child and adult exposures would be less.

The maximum modeled annual $PM_{2.5}$ concentration was calculated based on combined exhaust and fugitive concentrations. The maximum computed HI values was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation reference exposure level of 5 $\mu g/m^3$.

The maximum modeled annual DPM and $PM_{2.5}$ concentrations for both construction options, which include both the DPM and fugitive $PM_{2.5}$ concentrations, were identified at nearby sensitive receptors to find the MEI. Results of this assessment indicated that the MEI most affected by construction for both options was located on the first floor (5 feet above ground) of a single-family residence to the south of the project site opposite Half Road. The location of the MEI and nearby sensitive receptors are shown in Figure 1.

In addition, the maximum cancer risks, $PM_{2.5}$ concentrations, and HI at the Live Oak High School are all below the BAAQMD single-source thresholds. Table 7 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction activities for both options. *Attachment 4* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations for both options.

Community Risks from Project Operation – Generator and Traffic

Operation of the project would have long-term emissions from mobile sources (i.e., traffic). Stationary equipment that could emit substantial TACs (e.g., emergency generators) are not planned for this project. Per BAAQMD recommended risks and methodology, a road with less than 10,000 total vehicles per day is considered a low-impact source of TACs.[21] This project would generate 2,539 daily trips dispersed on the roadway systems with a majority of the trips being from light-duty vehicles (i.e., passenger automobiles), which is a fraction of 10,000 daily vehicles. Therefore, emissions from project traffic are considered negligible and not included within this analysis.

Summary of Project-Related Community Risks at the Off-site Project MEI

For this project, the sensitive receptor identified in Figure 1 as the construction MEI is also the project MEI. At this location, the MEI would be exposed to four years of construction cancer risks. The annual $PM_{2.5}$ concentration and HI values are based on an annual maximum risk for the entirety of the project. As shown in Table 7, the unmitigated maximum cancer risks, $PM_{2.5}$

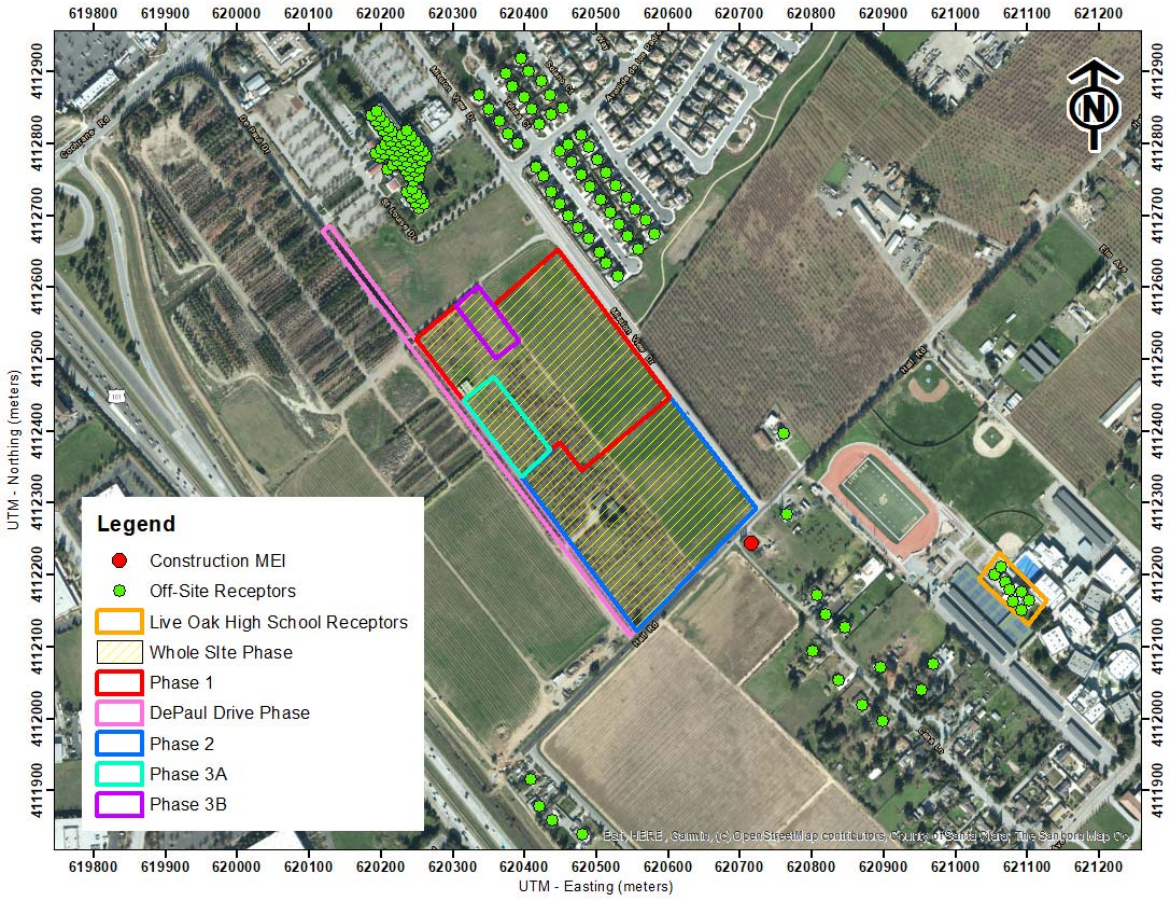
[21] Bay Area Air Quality Management District, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

concentration, and HI from construction activities at the MEI location would not exceed the BAAQMD single-source significance thresholds.

Table 7. Construction and Operation Risk Impacts at the Off-Site Receptors

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction (*Option 2 – Unmitigated*)	Unmitigated	3.6 (infant) *(3.8 (infant))*	0.02 *(0.02)*	<0.01 *(<0.01)*
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
Live Oak High School Student Receptors				
Project Construction (*Option 2 – Unmitigated*)	Unmitigated	0.1 (child) *(0.1 (child))*	<0.01 *(<0.01)*	<0.01 *(<0.01)*
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceeds Threshold?	Unmitigated	*No*	*No*	*No*

Figure 1. Project Construction Site, Locations of Off-Site Sensitive Receptors and Maximum TAC Impact Locations (MEI)

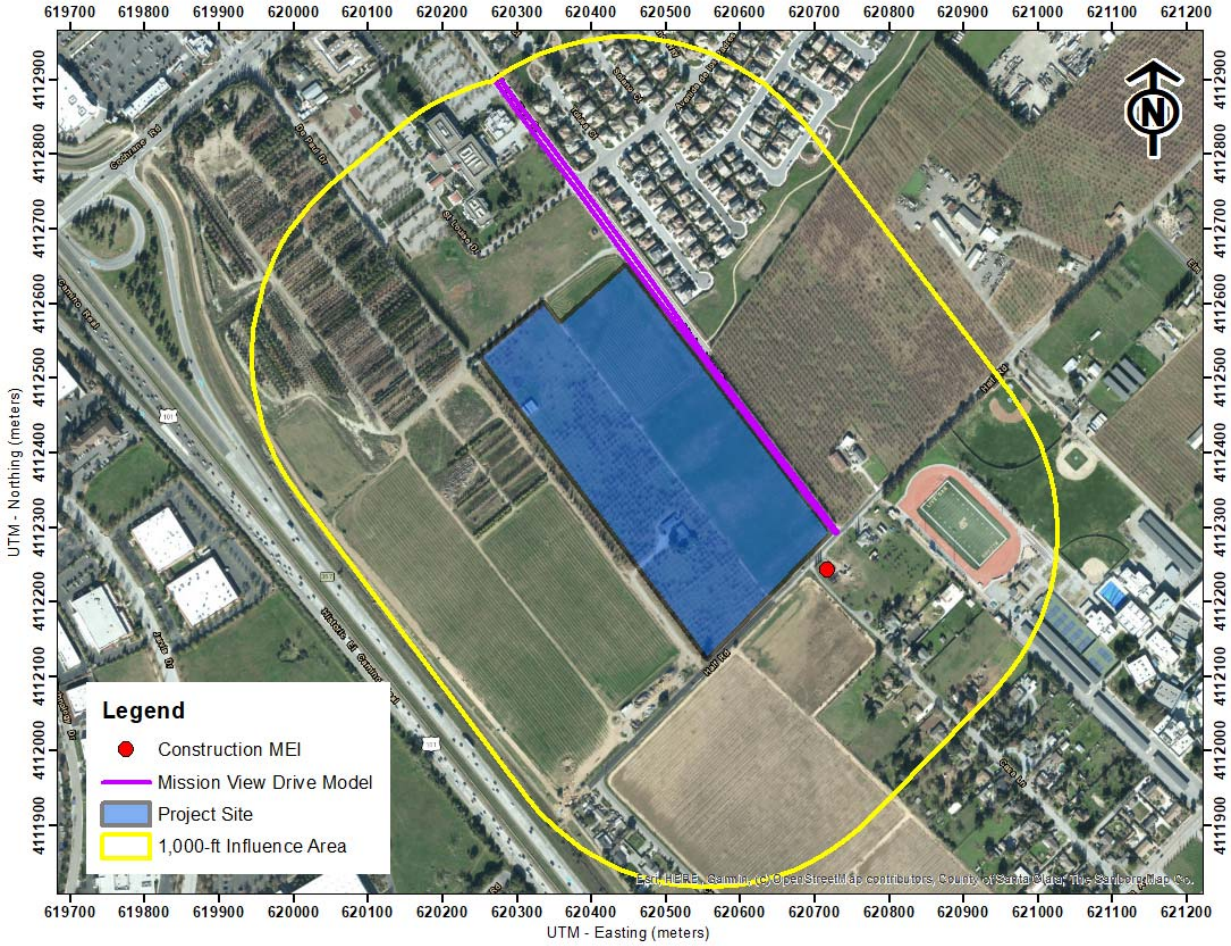


Combined Impact of All TAC Sources on the Off-Site Construction MEIs

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 the project site (i.e., influence area). These sources include rail lines, freeways or highways, busy surface streets, and stationary sources identified by BAAQMD.

A review of the project area indicates that traffic on Mission View Drive has an average daily traffic (ADT) of over 10,000 vehicles. All other roadways within the area are assumed to have an ADT that is less than 10,000 vehicles. No stationary sources were identified within the 1,000-foot influence area using the BAAQMD's stationary source geographic information systems (GIS) map tool.[22] Figure 2 shows the sources affecting the project site and MEI. Community risk impacts from these sources upon the MEI are reported in Table 8. Details of the modeling and community risk calculations are included in *Attachment 5*.

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



[22] BAAQMD, https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

Local Roadways – Mission View Drive

A refined analysis of potential health impacts from vehicle traffic on Mission View Drive 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

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on both roadways using the Caltrans version of the EMFAC2017 emissions model, known as CT-EMFAC2017. 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 (i.e., Santa Clara County), type of road(i.e., major/collector), truck percentage for non-state highways in Santa Clara County (3.51 percent),[23] traffic mix assigned by CT-EMFAC2017 for the county, year of analysis (2022 – construction start year), and season (annual).

The average daily traffic (ADT) for Mission View Drive were based on AM and PM peak-hour cumulative plus project traffic volumes for the nearby roadways provided by the project's traffic consultant.[24] The calculated ADT on Mission View Drive was 14,020 vehicles. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[25] which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for the roadway. An average travel speed of 40 miles per hour (mph) on Mission View Drive was used for all hours of the day based on posted speed limit signs on the roadway.

In order 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). Year 2022 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated.

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[23] 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

[24] Correspondence with Maria Kisyova, Assistant Project Manager, David J. Powers & Associates, Inc., November 10, 2020, *Hexagon - The Crosswinds Trip Gen and Volumes 11-10-20*.

[25] The 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.

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.[26] TAC and $PM_{2.5}$ emissions from traffic on Mission View Drive within 1,000 feet of the project site were evaluated. Vehicle traffic on the roadway was modeled using a series of adjacent volume sources along a line (line volume sources); with line segments used for the northbound and southbound travel directions on Mission View Drive. 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 and elevations, hourly traffic emissions, and receptor locations. Annual TAC and $PM_{2.5}$ concentrations for 2022 from traffic on Mission View Drive were calculated using the model. Concentrations were calculated at the project MEI with receptor heights of 5 feet (1.5 meters) to represent the breathing heights of residents in the single-family home.

Figure 2 shows the roadway segments modeled and residential receptor locations used in the modeling. Table 8 lists the risks and hazards from the roadway. The emission rates and roadway calculations used in the analysis are shown in *Attachment 5*.

Summary of Cumulative Risks at Off-Site Project MEI

Table 8 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e., the MEI). Without mitigation, the project's community risk from project construction activities would not exceed the single-source maximum increased cancer risk, $PM_{2.5}$ concentration, or HI thresholds. In addition, the combined unmitigated cancer risk, $PM_{2.5}$ concentration, and HI values would not exceed their respective cumulative thresholds.

Table 8. Cumulative Community Risk Impacts from Combined TAC Sources at MEIs

Source		Cancer Risk* (per million)	Annual $PM_{2.5}$* ($\mu g/m^3$)	Hazard Index
Project Impacts				
Project Construction	Unmitigated	3.6 (infant)	0.02	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
Cumulative Sources				
Mission View Drive, ADT 14,020		1.5 (infant)	0.09	<0.01
Combined Sources	*Unmitigated*	5.1 (infant)	0.11	<0.02
BAAQMD Cumulative Source Threshold		***>100***	***>0.8***	***>10.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

[26] BAAQMD. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012

Non-CEQA: On-Site Community Risk Assessment for TAC Sources - New Project Residences

In addition to evaluating health impact from project construction, a health risk assessment was completed to assess the impact that existing TAC sources would have on the new proposed sensitive receptors (residents) that the project would introduce. The same TAC sources identified above were used in this health risk assessment.[27]

Local Roadways – Mission View Drive

The roadway analysis for the project residents was conducted in the same manner as described above for the off-site MEI. The project set of receptors were placed around the boundary of the project residential area and were spaced every 39 feet (12 meters). Roadway impacts were modeled at receptor heights of 5 feet (1.5 meters) representing sensitive receptors on the first floor on the future single-family homes and condo/townhomes. The portions of Mission View Drive included in the modeling are shown in Figure 3 along with the project site and receptor locations where impacts were modeled.

Maximum increased cancer risks were calculated for the residents at the project site using the maximum modeled TAC concentrations. A 30-year exposure period was used in calculating cancer risks assuming the residents would include third trimester pregnancy and infants/children and were assumed to be in the new housing area for 24 hours per day for 350 days per year. The highest impacts from Mission View Drive occurred at the first-floor receptor in a home along the eastern boundary of the project site closest to the roadway. Cancer risks associated with Mission View Drive are greatest closest to Mission View Drive and decrease with distance from the road. The roadway community risk impacts at the project site are shown in Table 9. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 5.*

Cumulative Community Health Risk at Project Site

Community risk impacts from the combined sources upon the project site are reported in Table 9. The TAC sources are compared against the BAAQMD single-source threshold and then combined and compared against the BAAQMD cumulative-source threshold. As shown, the cancer risks and HIs from the nearby sources do not exceed their single-source or cumulative-source thresholds. However, annual $PM_{2.5}$ concentrations are estimated to exceed the single-source threshold, but not the cumulative-source threshold, due to emissions from Mission View Drive.

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

Figure 3. Project Site, On-Site Residential Receptors, Roadway Segments Evaluated, and Locations of Maximum Roadway TAC Impacts

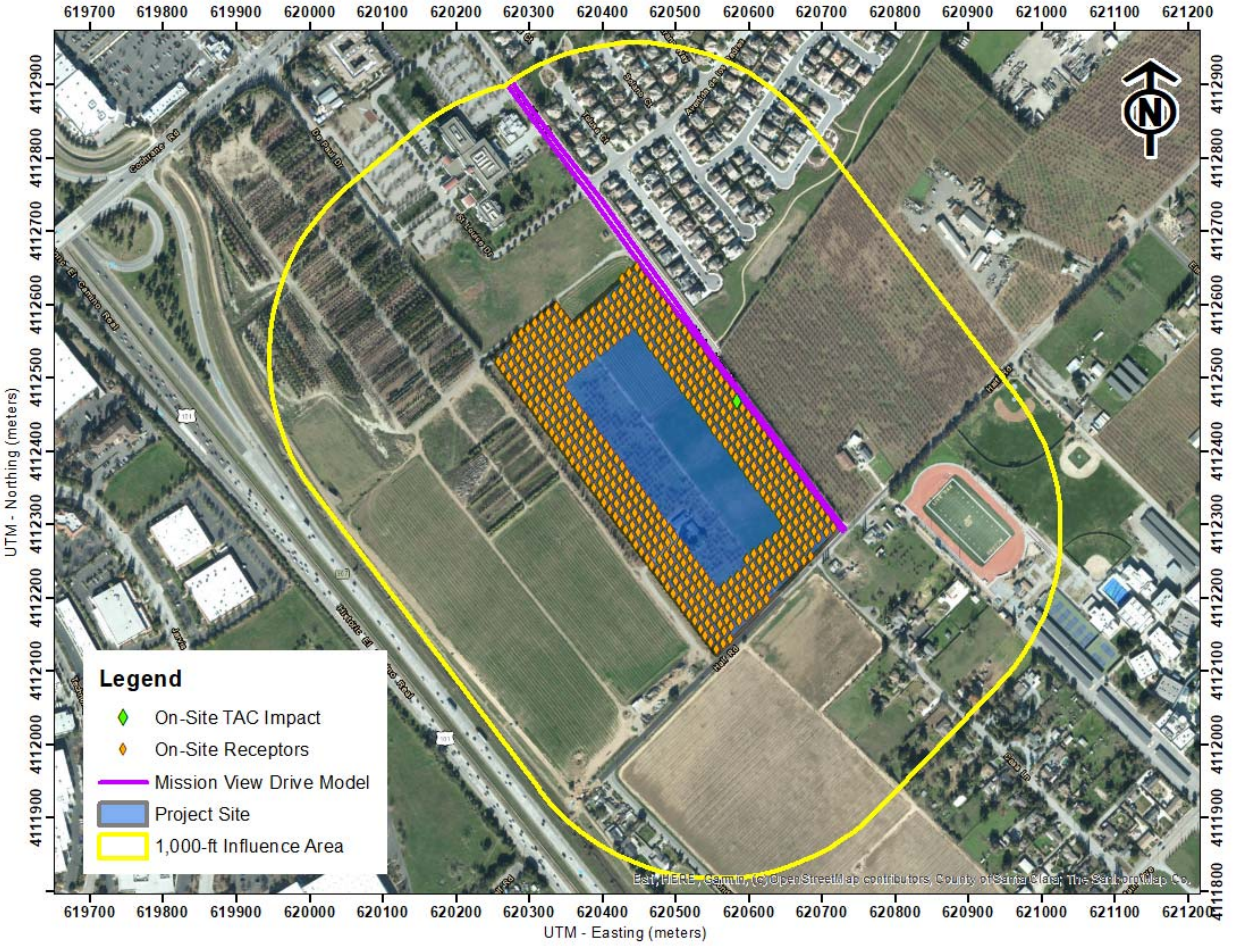

Table 9. Impacts from Combined Sources to Project Site Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Mission View Drive, ADT 14,020	8.5 (infant)	**0.55**	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	***Yes***	*No*
Cumulative Total	8.5	0.55	<0.01
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?	*No*	*No*	*No*

Recommended Design Features to Reduce Project Receptor Exposure

Filtration in ventilation systems at the project site would be recommended to reduce the level of harmful pollutants to below the significant thresholds. The significant exposure for new project receptors is judged by two effects: (1) increased cancer risk, and (2) annual $PM_{2.5}$ concentration. Exposure to annual $PM_{2.5}$ concentrations from Mission View Drive traffic is above its respective threshold. Cancer risk is mostly the result of exposure to diesel particulate matter, although, gasoline vehicle exhaust contributes to this effect. Annual $PM_{2.5}$ concentrations are based on the exposure to $PM_{2.5}$ resulting from emissions attributable to truck and auto exhaust, the wearing of brakes and tires and re-entrainment of roadway dust from vehicles traveling over pavement. The modeled $PM_{2.5}$ exposure to future residents drives the mitigation plan. Reducing particulate matter exposure would reduce both annual $PM_{2.5}$ exposures and cancer risk.

The project shall include the following measures to minimize long-term increased cancer risk and annual $PM_{2.5}$ exposure for new project occupants:

1. Install air filtration in project residential dwelling units (buildings) within 75 feet of Mission View Drive travel lanes. Air filtration devices shall be rated MERV13 or higher. To ensure adequate health protection to sensitive receptors (i.e., residents), this ventilation system, whether mechanical or passive, shall filter all fresh air that would be circulated into the dwelling units.

2. The ventilation system shall be designed to keep the building at positive pressure when doors and windows are closed to reduce the intrusion of unfiltered outside air into the building

3. As part of implementing this measure, an ongoing maintenance plan for the buildings' heating, ventilation, and air conditioning (HVAC) air filtration system shall be required.

4. Ensure that the use agreement and other property documents: (1) require cleaning, maintenance, and monitoring of the affected buildings for air flow leaks, (2) include assurance that new owners or tenants are provided information on the ventilation system, and (3) include provisions that fees associated with owning or leasing a unit(s) in the building include funds for cleaning, maintenance, monitoring, and replacements of the filters, as needed.

Effectiveness of Recommended Design Features

A properly installed and operated ventilation system with MERV13 would achieve an 80-percent reduction.[28] The overall effectiveness calculations take into account the amount of time spent outdoors and away from home. Assuming that the filtration system is 80-percent effective and the

[28] Bay Area Air Quality Management District (2016). Appendix B: Best Practices to Reduce Exposure to Local Air Pollution, *Planning Healthy Places A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning* (p. 38). http://www.baaqmd.gov/~/media/files/planning-and-research/planning-healthy-places/php_may20_2016-pdf.pdf?la=en

individual is being exposed to 21 hours of indoor filtered air and three hours of outdoor unfiltered air, then the overall effectiveness of a MERV13 filtration system would be about 70-percent for $PM_{2.5}$ exposure. This would reduce the maximum annual $PM_{2.5}$ concentration from Mission View Drive to 0.16 $\mu g/m^3$. With this recommended design feature, impacts from Mission View Drive would be below their respective single-source thresholds.

Impact AIR-4: Create objectionable odors affecting a substantial number of people?

The project would generate localized emissions of diesel exhaust during construction equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and are not likely to adversely affect people off-site by resulting in confirmed odor complaints. The project would not include any sources of significant odors that would cause complaints from surrounding uses.

Greenhouse Gas Emissions

Setting

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

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

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

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

Recent Regulatory Actions for California 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 (AB 32), California Global Warming Solutions Act (2006)

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

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

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

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

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

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

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

- Cap and Trade program places a firm limit on 80 percent of the State's emissions;
- Achieving a 50-percent Renewable Portfolio Standard by 2030 (currently at about 29 percent statewide);
- Increase energy efficiency in existing buildings;
- Develop fuels with an 18-percent reduction in carbon intensity;
- Develop more high-density, transit-oriented housing;
- Develop walkable and bikeable communities;
- 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 HFCs by 40 percent.

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons CO_2e per capita (statewide) by 2030 and no more than 2 metric tons CO_2e per capita by 2050. The statewide per capita targets account for all emissions sectors, 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.

SB 350 Renewable Portfolio Standards

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

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

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

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 (CO_2e).[31] 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.[32] 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.[33] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011

Morgan Hill 2035 General Plan

The Climate Change section of the Natural Resources and Environment chapter of the Morgan Hill 2035 General Plan contains goals, policies and implementing actions that pertain to GHG emissions. Applicable General Plan policies are listed below:

Goal NRE-15 An adaptive and resilient community that responds to climate change.

Policy NRE-15.1 **Greenhouse Gas Emission Reduction Targets**. Maintain a greenhouse gas reduction trajectory that is consistent with the greenhouse gas reduction targets of Executive Orders B-30-15 (40 percent below 1990 levels by 2030) and S-03-05 (80 percent below 1990 levels by 2050) to ensure the City is consistent with statewide efforts to reduce greenhouse gas emissions.

Policy NRE-15.2 **Linking Land Use and Transportation**. Encourage land use and transportation patterns that reduce dependence on automobiles.

Policy NRE-15.3 **Climate Action Plan**. Utilize policies in this General Plan denoted with the green leaf symbol as the City's greenhouse gas emissions reduction strategy.

Policy NRE-15.4 **Sustainable Land Use**. Promote land use patterns that reduce the number and length of motor vehicle trips.

Policy NRE-15.5 **Jobs Housing Balance**. To the extent feasible, encourage a balance and match between jobs and housing.

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[31] 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.

[32] 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.

[33] 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.

Policy NRE-15.6 **Residential Near Transit**. Encourage higher density residential and mixed-use development adjacent to commercial centers and transit corridors – the land along or within walking distance of a street served by transit.

Policy NRE-15.7 **Mix of Uses in Employment Centers**. Encourage employment areas to include a mix of support services to minimize the number of employee trips.

Policy NRE-15.8 **Walkable City**. Encourage retail and office areas to be located within walking and biking distance of existing and proposed residential developments.

Policy NRE-15.9 **Urban Forest**. Support development and maintenance of a healthy, vibrant urban forest through outreach, incentives, and strategic leadership.

Policy NRE-15.10 **VMT Reduction**. Continue to work with the Santa Clara Valley Transportation Authority on regional transportation solutions that will reduce vehicle miles traveled and greenhouse gas emissions.

Policy NRE-15.11 **Green Building**. Promote green building practices in new development.

The General Plan's Energy Efficiency section contains policies that indirectly reduce GHG emissions:

Goal NRE-16 Conservation of energy resources.

Policy NRE-16.1 **Energy Standards for New Development**. New development, including public buildings, should be designed to exceed State standards for the use of energy.

Policy NRE-16.2 **Energy Conservation**. Promote energy conservation techniques and energy efficiency in building design, orientation, and construction.

Policy NRE-16.3 **Energy Use Data and Analysis**. Provide information to increase building owner, tenant, and operator knowledge about how, when, and where building energy is used.

Policy NRE-16.5 **Energy Efficiency**. Encourage development project designs that protect and improve air quality and minimize direct and indirect air pollutant emissions by including components that promote energy efficiency.

Policy NRE-16.6 **Landscaping for Energy Conservation**. Encourage landscaping plans for new development to address the planting of trees and shrubs that will provide shade to reduce the need for cooling systems and allow for winter daylighting.

Policy NRE-16.7 **Renewable Energy**. Encourage new and existing development to incorporate renewable energy generating features, like solar panels and solar hot water heaters.

Policy NRE-16.8 **Residential Development Code**. Emphasize energy conservation building techniques for new residential construction through the implementation of Chapter 18.78 of the Municipal Code.

Policy NRE-16.9 **Subdivision Design**. In compliance with Section 66473.1 of the State Subdivision Map Act, promote subdivision design that provides for passive solar heating and natural cooling through the Development Review Committee subdivision review procedures.

However, the City does not have a CAP, a CAP Compliance Checklist, or a specific metric ton GHG threshold for project-level construction or operation. Therefore, the BAAQMD's CEQA Air Quality Guideline's thresholds are used.

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

Although BAAQMD has not published a quantified threshold for 2030 yet, this assessment uses a "Substantial Progress" efficiency metric of 2.8 MT CO_2e/year/service population and a bright-line threshold of 660 MT CO_2e/year based on the GHG reduction goals of EO B-30-15. The service population metric of 2.8 is calculated for 2030 based on the 1990 inventory and the projected 2030 statewide population and employment levels.[34] 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

[34] Bay Area Air Quality Management District, 2016. *CLE International 12th Annual Super-Conference CEQA Guidelines, Case Law and Policy Update*. December.

vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.

CalEEMod Modeling

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

Service Population Emissions

The project service population efficiency rate is based on the number of future residents. For this project, the number of future residents was estimated by multiplying the total number of units (i.e., 269 units) by the persons per household rate for the City of Morgan Hill found in the California Department of Finance Population and Housing Estimate report.[35] Using the 3.11-person per household 2019 rate, the number of future residents was estimated to be 837 residents. This total service population was used to calculate the per capita emissions.

Construction Emissions

GHG emissions associated with construction were computed to be 451 MT of CO_2e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

Operational Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with operation of the fully developed site under the proposed project. As shown in Table 10, the annual emissions resulting from operation of the new dwelling units of the proposed project are predicted to be 2,784 MT of CO_2e in 2026 and 2,549 MT of CO_2e in 2030. The service population emission for the year 2026 and 2030 are predicted to be 3.33 and 3.05 MT/CO_2e/year/service population, respectively.

To be considered an exceedance, the project must exceed both the GHG significance threshold in metric tons per year and the service population significance threshold in the future year of 2030. The project would exceed the annual emissions bright-line threshold of 660 MT CO_2e/year in 2030

[35] State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2010-2019*. Sacramento, California. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/.

and would exceed the per service population threshold of 2.8 MT of CO_2e/year/service population in 2030. Therefore, the project would be in exceedance for GHG emissions.

Table 10. Annual Project GHG Emissions (CO_2e) in Metric Tons and Per Capita

Source Category	Proposed Project in 2026	Proposed Project in 2030
Area	3	3
Energy Consumption	23	23
Mobile	2,577	2,341
Solid Waste Generation	171	171
Water Usage	10	10
Total (MT CO_{2e}/year)	**2,784**	**2,549**
Significance Threshold	***660 MT CO2e/year***	***660 MT CO_2e/year***
Service Population Emissions (MT CO_{2e}/year/service population)	3.33	3.05
Significance Threshold	***3.52 in 2026***	***2.8 in 2030***
Exceeds both thresholds?	*No*	*Yes*
Emissions over threshold(MT CO_{2e}/year)		206 MT

Measures to Consider to Reduce GHG Emissions

Develop a GHG reduction plan to reduce GHG emissions in the build-out year by 206 MT/year. These reductions shall be kept in place by the project until the City adopts it's GHG reduction plan that contains goals and associated strategy to decrease emissions in a manner consistent with meeting the State's interim 2030 GHG emissions reduction target of 40 percent below 1990 levels. The following GHG reduction measure should be considered to further reduce GHG emissions from operation of the project and the service population efficiency metric such that the metric would be below the significance threshold. Elements of this recommendation may include, but would not be limited to, the following:

1. Implementation of a transportation demand management (TDM) program to reduce mobile GHG emissions;

2. Installation of solar power systems or other renewable electric generating systems that provide electricity to power on-site equipment and possibly provide excess electric power;

3. Provide infrastructure for electric vehicle charging in residential units (i.e., provide 220 VAC power);

4. Increase water conservation above State average conditions for residential uses by installing low flow water utilities and irrigation; and

5. Purchase verifiable carbon emission offsets.

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. For example, proposed buildings would be constructed in conformance with CALGreen and the Title 24 Building Code, which requires high-efficiency water fixtures, water-efficient irrigation systems, and compliance with current energy efficacy standards.

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 EMFAC2017 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. AERMOD dispersion modeling files for these assessments, 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 on-site sensitive receptors.

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.[36] 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.[37] 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.[38] 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

[36] 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.
[37] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[38] 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:

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

Where:

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

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

Where:

C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
8HrBR = 8-hour breathing rate (L/kg body weight-8 hours)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

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

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

Parameter	*Exposure Type* →	Infant		Child	Adult
	Age Range →	3rd Trimester	0<2	2 < 16	16 - 30
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80th Percentile Rate		273	758	572	261
Daily Breathing Rate (L/kg-day) 95th Percentile Rate		361	1,090	745	335
8-hour Breathing Rate (L/kg-8 hours) 95th 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*

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

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: CalEEMod Modeling Inputs and Outputs

Air Quality/Noise Construction Information Data Request

Project Name: Crosswinds Half Road and Mission View

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size 269 Dwelling Units 30.5 total project acres disturbed

512,363 s.f. residential

0 s.f. retail

0 s.f. office/commercial

0 s.f. other, specify:

0 s.f. parking garage NA spaces

s.f. parking lot 809 spaces

Construction Hours am to pm

Pile Driving? Y/N? N

Project include OPERATIONAL GENERATOR OR FIRE PUMP on-site? N

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower:

Fuel Type:

Location in project (Plans Desired if Available):

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	Annual Hours	Comments
Entire Site	**Demolition**	**Start Date:**	**5/13/2022**	**Total phase:**	**4**			**Overall Import/Export Volumes**
		End Date:	**5/17/2022**					
0	Concrete/Industrial Saws	81	0.73	0	0	0.00	0	**Demolition Volume**
1	Excavators	158	0.38	8	4	8.00	32	Square footage of buildings to be demolished
0	Rubber-Tired Dozers	247	0.4	0	0	0.00	0	(or total tons to be hauled)
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	1,900 square feet or
								2 Hauling volume (tons)
Entire Site	**Site Preparation**	**Start Date:**	**5/18/2022**	**Total phase:**	**5**			
		End Date:	**5/23/2022**					
1	Graders	187	0.41	8	4	6.40	32	
0	Rubber Tired Dozers	247	0.4	0	0	0.00	0	
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	
3	Scrapers	361	0.48	8	4	6.40	96	
Entire Site	**Grading / Excavation**	**Start Date:**	**5/24/2022**	**Total phase:**	**15**			
		End Date:	**6/8/2022**					**Soil Hauling Volume**
0	Excavators	158	0.38	0	0	0.00	0	Export volume = 0 cubic yards
1	Graders	187	0.41	8	13	6.93	104	Import volume = 0 cubic yards
0	Rubber Tired Dozers	247	0.4	0	0	0.00	0	
3	Scrapers	361	0.48	8	8	4.27	192	
1	Tractors/Loaders/Backhoes	97	0.37	8	9	4.80	72	
1	Compactor	171	0.42	8	9	4.80	72	
Phase 1	**Trenching - Underground**	**Start Date:**	**6/13/2022**	**Total phase:**	**35**			
		End Date:	**7/18/2022**					
1	Tractor/Loader/Backhoe	97	0.37	8	35	8.00	280	
1.5	Excavators	158	0.38	8	35	8.00	420	
	Other Equipment?							
Phase 2	**Trenching - Underground**	**Start Date:**	**10/14/2023**	**Total phase:**	**35**			
		End Date:	**11/18/2023**					
1	Tractor/Loader/Backhoe	97	0.37	8	35	8.00	280	
1.5	Excavators	158	0.38	8	35	8.00	420	
	Other Equipment?							
Phase 3	**Trenching - Underground**	**Start Date:**	**4/13/2025**	**Total phase:**	**25**			
		End Date:	**5/8/2025**					
1	Tractor/Loader/Backhoe	97	0.37	4	10	1.14	40	
1.5	Excavators	158	0.38	4	10	1.14	60	**Cement Trucks 403 Total Round-Trips**
	Other Equipment?							**Phase 1: Aprx.145**
								Phase 2: Aprx. 178
Phase 1	**Building - Exterior**	**Start Date:**	**7/13/2022**	**Total phase:**	**175**			**Phase 3: Aprx. 80**
		End Date:	**5/8/2023**					
0	Cranes	231	0.29			0.00	0	Electric? (Y/N) N Otherwise assumed diesel
1	Forklifts	89	0.2	6	144	4.94	864	Liquid Propane (LPG)? (Y/N) N Otherwise Assumed diesel
0	Generator Sets	84	0.74			0.00	0	Or temporary line power? (Y/N) Y
1	Tractors/Loaders/Backhoes	97	0.37	6	24	0.82	144	
0	Welders	46	0.45			0.00	0	
	Other Equipment?					0.00		
Phase 2	**Building - Exterior**	**Start Date:**	**12/18/2023**	**Total phase:**	**175**			
		End Date:	**10/13/2024**					
0	Cranes	231	0.29			0.00	0	
1	Forklifts	89	0.2	6	144	4.94	864	
0	Generator Sets	84	0.74			0.00	0	
1	Tractors/Loaders/Backhoes	97	0.37	6	24	0.82	144	
0	Welders	46	0.45			0.00	0	
	Other Equipment?					0.00		
Phase 3	**Building - Exterior**	**Start Date:**	**6/7/2025**	**Total phase:**	**75**			
		End Date:	**1/8/2026**					
0	Cranes	231	0.29			0.00	0	
1	Forklifts	89	0.2	6	72	2.47	432	
0	Generator Sets	84	0.74			0.00	0	
1	Tractors/Loaders/Backhoes	97	0.37	6	12	0.41	72	
0	Welders	46	0.45			0.00	0	
	Other Equipment?					0.00		
Phase 1	**Building - Interior**	**Start Date:**	**10/11/2022**	**Total phase:**	**40**			
		End Date:	**10/6/2023**					
5	Air Compressors	78	0.48	4	40	4.00	800	
0	Aerial Lift	62	0.31			0.00	0	
	Other Equipment?							
1	Paving Equipment	132	0.36	8	12	2.00	96	
1	Rollers	80	0.38	8	12	2.00	96	
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	
1	Graders	187	0.41	8	14	2.33	112	
Phase 2	**Building - Interior**	**Start Date:**	**3/17/2024**	**Total phase:**	**40**			
		End Date:	**3/12/2025**					
5	Air Compressors	78	0.48	4	40	4.00	800	
0	Aerial Lift	62	0.31			0.00	0	
	Other Equipment?							
1	Paving Equipment	132	0.36	8	12	2.00	96	
1	Rollers	80	0.38	8	12	2.00	96	
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	
1	Graders	187	0.41	8	14	2.33	112	
Phase 3	**Building - Interior**	**Start Date:**	**9/5/2025**	**Total phase:**	**40**			
		End Date:	**6/7/2026**					
5	Air Compressors	78	0.48	4	40	4.00	800	
0	Aerial Lift	62	0.31			0.00	0	
	Other Equipment?							
1	Paving Equipment	132	0.36	8	6	1.00	48	
1	Rollers	80	0.38	8	6	1.00	48	
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	
1	Graders	187	0.41	8	7	1.17	56	
Phase 1	**Paving**	**Start Date:**	**10/11/2022**	**Total phase:**	**16**			
		Start Date:	**11/1/2022**					
2	Cement and Mortar Mixers	9	0.56	8	4	0.67	64	
1	Pavers	130	0.42	8	2	0.33	16	**Asphalt: 562 cubic yards**
1	Paving Equipment	132	0.36	8	2	0.33	16	
1	Rollers	80	0.38	8	2	0.33	16	
2	Tractors/Loaders/Backhoes	97	0.37	8	4	0.67	64	
1	Graders	187	.	8	2	0.33	16	
Phase 2	**Paving**	**Start Date:**	**3/17/2024**	**Total phase:**	**16**			
		Start Date:	**4/7/2024**					
2	Cement and Mortar Mixers	9	0.56	8	4	0.67	64	
1	Pavers	130	0.42	8	2	0.33	16	**Asphalt: 700 cubic yards**
1	Paving Equipment	132	0.36	8	2	0.33	16	
1	Rollers	80	0.38	8	2	0.33	16	
2	Tractors/Loaders/Backhoes	97	0.37	8	4	0.67	64	
1	Graders	187	.	8	2	0.33	16	
Phase 3	**Paving**	**Start Date:**	**9/5/2025**	**Total phase:**	**12**			
		Start Date:	**9/19/2025**					
2	Cement and Mortar Mixers	9	0.56	8	3	0.50	48	
1	Pavers	130	0.42	8	1.5	0.25	12	**Asphalt: 300 cubic yards**
1	Paving Equipment	132	0.36	8	1.5	0.25	12	
1	Rollers	80	0.38	8	1.5	0.25	12	
2	Tractors/Loaders/Backhoes	97	0.37	8	3	0.50	48	
1	Graders	187	.	8	1.5	0.25	12	
De Paul	**Grading / Excavation**	**Start Date:**	**10/4/2023**	**Total phase:**	**15**			
		End Date:	**10/19/2023**					**Soil Hauling Volume**
0	Excavators	158	0.38	0	0	0.00	0	Export volume = 0 cubic yards
1	Graders	187	0.41	8	1	0.53	8	Import volume = 0 cubic yards
0	Rubber Tired Dozers	247	0.4	0	0	0.00	0	
1	Scrapers	361	0.48	8	1.5	0.80	12	
1	Tractors/Loaders/Backhoes	97	0.37	8	1.5	0.80	12	
1	Compactor	171	0.42	8	1.5	0.80	12	
De Paul	**Trenching - Underground**	**Start Date:**	**10/24/2023**	**Total phase:**	**35**			
		End Date:	**11/28/2023**					
1	Tractor/Loader/Backhoe	97	0.37	8	2	0.46	16	
1.5	Excavators	158	0.38	8	2	0.46	24	
De Paul	**Paving**	**Start Date:**	**12/19/2023**	**Total phase:**	**16**			
		Start Date:	**1/4/2024**					
2	Cement and Mortar Mixers	9	0.56	8	4	0.67	64	
1	Pavers	130	0.42	8	2	0.33	16	**Asphalt: 612 cubic yards**
1	Paving Equipment	132	0.36	8	2	0.33	16	
1	Rollers	80	0.38	8	2	0.33	16	
2	Tractors/Loaders/Backhoes	97	0.37	8	4	0.67	64	
1	Graders	187	.	8	2	0.33	16	
	Additional Phases	**Start Date:**	**All Phases**	**Total phase:**				
		Start Date:	**Accounted for Above**					

Equipment types listed in "Equipment Types" worksheet tab.

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

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horsepower or load factor, as appropriate

Complete one sheet for each project component

Table 1: Construction Phasing			
Construction	Number of Units	Construction Duration	Acreage
All Phases	N/A	1 month – May 2022 May 2022 (demolition and site preparation - entire site) May 2022 to June 2022 (grading/excavation of proposed residential area)	
Phase 1	40 condominium units (Buildings A and B, G - J) 32 single-family attached units (Building units 89 - 120) 22 single-family detached units (Building units 1-22) Clubhouse/pool area	16 months: June 2022 – October 2023 June 2022 – July 2022 (Trenching) July 2022 to May 2023 (Exterior building construction) October 2022 to November 2022 (Paving) October 2022 to October 2023 (Interior Building Construction)	12.2 Acres +/-
Phase 2	34 single-family detached units (Building units 23 through 56) 32 single-family detached units (Building units 57-88) 45 condominium units (Buildings Q through W)	17 months: October 2023 – March 2025 October 2023 – November 2023 (Trenching) December 2023 to October 2024 (Exterior building construction) March 2024 to April 2024 (paving) March 2024 to March 2025 (interior building construction)	12.88 Acres +/-
De Paul Extension	DePaul Drive Extension	3 months: October 2023 – January 2024 October 2023 to November 2023 (Grading / Excavation & Trenching) December 2023 to January 2024 (Paving)	1.36 Acres +/- in Crosswinds property (3.74 +/- Acres for Full Extension)
Phase 3	64 condominium units Buildings C through F and K through P	14 months: April 2025 – June 2026 April 2025 – May 2025 (Trenching) June 2025 to January 2026 (Exterior building construction) September 2025 to September 2025 (Paving) September 2025 to June 2026 (Interior Building Construction)	2.85 +/- Acres

The Crosswinds Trip Generation Estimates

Proposed Land Use	Size		Daily		AM Peak Hour						PM Peak Hour					
						Split		Trip				Split		Trip		
			Rate	Trip	Rate	In	Out	In	Out	Total	Rate	In	Out	In	Out	Total
Single-Family Detached Housing (ITE LU # 210)[1]	269	Dwelling Units	9.44	2,539	0.74	25%	75%	50	149	199	0.99	63%	37%	168	98	266

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

thresholds recommended in the Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018.

Per OPR's technical advisory, VMT per resident (capita) is the recommended metric to evaluate CEQA-related transportation impacts for residential land uses. As stated in the technical advisory, OPR recommends an impact threshold of 15% below the existing VMT levels for residential land uses. OPR allows the existing VMT to be measured as regional or citywide VMT per capita. Therefore, 15% below the city-wide residential VMT per capita is established as the impact threshold for the residential uses of the project.

The VTA's VMT Evaluation Tool indicates that the citywide average VMT per capita is currently 24.64. Therefore, the OPR recommends an impact threshold of 15% below the citywide average VMT per capita equates to 20.94 VMT per capita.

VMT Evaluation

The results of the VMT analysis using the VTA's VMT Evaluation Tool indicate that the existing VMT for residential uses in the project vicinity is 30.46 VMT per capita.

The results also indicate that the project is projected to generate VMT per capita (27.41), which would exceed the OPR's recommended impact threshold of 20.94 VMT per capita. Therefore, the project would result in an impact on the transportation system based on OPR's VMT impact criteria.

The VTA VMT Evaluation Tool output sheets are shown in Figure 5 and also included in Appendix A.

VMT Impacts and Mitigation

Using OPR's impact thresholds, the project would need to implement VMT reduction measures to achieve a 24% reduction (27.41 to 20.94) in its VMT per capita for the proposed residential uses to reduce its impact to less than significant levels. However, per the VMT tool, the maximum reduction possible is 24.37. Further reductions in VMT are not likely feasible for residential projects due to the limited alternative modes of transportation and supporting employment land uses within the City.

The project's VMT per capita could be reduced to 24.37 with the implementation of the following Travel Demand Management (TDM) strategies, however, the reduced VMT per capita would still be greater than the OPR's recommended impact threshold of 20.94 VMT per capita.

- TP01 – School Pool Programs: Organize a program that matches families in carpools for school pick-up and drop-off of all households from the project. Organizing a school pool program helps match parents who transport students to schools without a busing program, including private schools, charter schools, and neighborhood schools where students cannot walk or bike. The school pool program would be open to all families in the development. School pools reduce the total number of vehicle trips traveling to and from schools, thereby reducing VMT. **and**
- TP03 – Car Share Programs: Provide subsidies and promotions, as well as dedicated parking spaces, for car-sharing services such as GetAround for 100% of residents from the project. Supporting a car-sharing program allows for people to have on-demand access to a shared fleet of vehicles on an as-needed basis. Car sharing helps support the use of walking, biking, carpooling, and transit by providing other means for business/day trips or a guaranteed ride home option, allowing for overall reductions in auto use, which results in reduced VMT. **and**

Figure 5
VMT Analysis

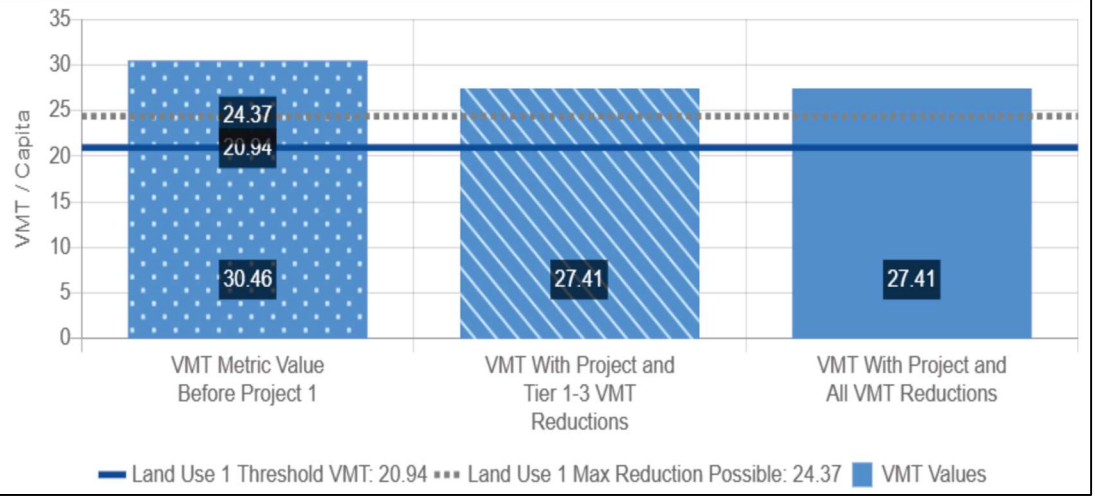
Santa Clara Countywide VMT Evaluation Tool Report

Valley Transportation Authority
Page 2

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project:	Home-based VMT per Capita
VMT Baseline Description 1:	City Average
VMT Baseline Value 1:	24.64
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	30.46	27.41	27.41
Low VMT Screening Analysis	No (Fail)	No (Fail)	No (Fail)



- TP07 – Subsidized of Discounted Transit Programs: Provide fully (100%) subsidized transit passes for all project residents. Providing subsidies for transit use encourages people to use transit rather than driving, thereby reducing VMT. **and**
- TP14 – Transit Service Expansion: Project subsidizes transit service through fees and contributions to the transit provider, thereby improving transit service to the project, resulting in increased use of transit and reduced VMT. VTA Local Route 87 is currently serving the project site, and its service frequency should be increased by 100%. **and**
- TP18 – Voluntary Travel Behavior Change Programs: Provide a program that targets individual attitudes towards travel and providing tools for individuals to analyze and alter their travel behavior with 100% expected resident participation. These programs include mass communication campaigns and travel feedback programs, such as travel diaries or feedback on

calories burned from activities and travel. This strategy encourages the use of shared ride modes, transit, walking, and biking, thereby reducing VMT.

OPR's recommended 15% below existing VMT impact threshold encourages developments in transit-rich, highly mixed-use areas to implement design features and trip reduction measures to take advantage of existing multi-model infrastructure and land use mixes in reducing trip making and/or trip lengths. However, many communities such as Morgan Hill have very limited multi-modal transportation infrastructure and lack a mix of complementary land uses. The lack of employment in these communities along with minimal transit options results in a greater number and longer commute trips. Therefore, it is highly unlikely that developments like the proposed project in these cities can achieve OPR's recommended 15% reduction in VMT. Therefore, absent of the City adopting its own City-specific VMT policies and impact thresholds, the proposed project's VMT impact must be deemed significant and unavoidable.

Vehcile Trip Length Calcualtions

Hexagon Report

Total Trips Generated	2,539	For 269 dwelling units
VMT per capita	27.41	Project unmitigated VMT/capita
Service Population	837	Based on 3.11 persons per household
Total VMT	22,942	
Miles Per Trip:	9.04	

CalEEMod Default Trip Information

Annual VMT	5,833,860	Trip Generation		**Computed** Annual Trips	921,886
Weekday VMT	16,067	Weekday Trip Gen.	2,539	Weekday	661,954
Saturday VMT	16,871	Saturday Trip Gen.	2,666	Saturday	139,013
Sunday VMT	14,675	Sunday Trip Gen.	2,319	Sunday	120,919
VMT/Trip	6.33				

Computed CalEEMod VMT Rate with Hexagon VMT

Hexagon Rate (weekday)	27.41	Project unmitigated VMT/capita
CalEEMod Rate	19.20	CalEEMod unmitigated VMT/capita
Correction Factor	0.70	
CalEEMod Trip Length:	9.04	

Uncontrolled Half Rd Construction Criteria Air Pollutants								
	Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	PM2.5 Fugitive	**CO2e**	
Phase	Year	Tons					MT	
	Construction Equipment - CalEEMod							
Grading	2022	0.02	0.26	0.01	0.0080	0.0036	42	
Phase 1	2022	1.02	0.29	0.02	0.0146	0.0000	52	
	2023	0.00	0.02	0.00	0.0011	0.0000	3	
De Paul Extention	2023	0.00	0.03	0.00	0.0012	0.0002	6	
Phase 2	2023	0.01	0.09	0.00	0.0038	0.0000	22	
	2024	1.19	0.20	0.01	0.0092	0.0000	37	
Phase 3	2025	0.48	0.17	0.01	0.0074	0.0000	42	
	EMFAC							
Grading	2022	0.00	0.02	0.00	0.0009	0.0004	9	
Phase 1	2022	0.01	0.09	0.01	0.0086	0.0062	59	
	2023	0.00	0.04	0.00	0.0032	0.0023	22	
De Paul Extention	2023	0.00	0.01	0.00	0.0008	0.0005	7	
Phase 2	2023	0.01	0.10	0.01	0.0085	0.0059	60	
	2024	0.01	0.07	0.01	0.0055	0.0039	39	
Phase 3	2025	0.01	0.10	0.01	0.0070	0.0046	52	
	Total Construction Emissions by Year							
	2022	1.05	0.67	0.03	0.0321	0.0102	162	
	2023	0.03	0.29	0.02	0.0187	0.0089	119	
	2024	1.20	0.27	0.02	0.0148	0.0039	76	
	2025	0.49	0.27	0.01	0.0144	0.0046	94	
		Total Construction Emissions						
	Tons	2.8	1.5	0.1	0.1		451	
	Pounds/Workdays	*Average Daily Emissions*					Workdays	
	2022	13.68	8.64	0.44	0.42			154
	2023	0.30	2.60	0.18	0.17			220
	2024	11.39	2.53	0.15	0.14			210
	2025	6.95	3.85	0.21	0.21			140
								724

Half Rd Operational Criteria Air Pollutants				
Unmitigated	ROG	NOX	Total PM10	Total PM2.5
Year	Tons Per Year			
Total	3.35	1.68	3.12	0.86
	Existing Use Emissions			
Total				
	Net Annual Operational Emissions			
Tons/year	3.35	1.68	3.12	0.86
	Average Daily Emissions			
Pounds Per Day	18.36	9.21	17.10	4.71

Category	**Half Rd CO2e**			
	2026 Project	Existing	2030 Project	Existing
Area	3		3	
Energy	23		23	
Mobile	2,577		2341	
Waste	171		171	
Water	10		10	
TOTAL	2,784	0	2,549	0
Net GHG Emissions		2,784		2549
Service Population	837			
Per Capita Emissions		3.33		3.05
Threshold		3.52		2.80
Emission Over Threshold		0.00		206
	269 units			
CA DOF 2020 =	3.11 pphh			

	Uncontrolled Half Rd Construction HRA Pollutants						
	Unmitigated			PM10 Exhaust	Mitigated	PM2.5 Fugitive	**Mitigated**
Phase	Year	Tons					
	Construction Equipment - CalEEMod						
Grading	2022			0.0087	0.0007	0.0036	0.0021
Phase 1	2022			0.0154	0.0009	0.0000	0.0000
	2023			0.0012	0.0001	0.0000	0.0000
De Paul Extention	2023			0.0014	0.0001	0.0002	0.0001
Phase 2	2023			0.0042	0.0004	0.0000	0.0000
	2024			0.0097	0.0007	0.0000	0.0000
Phase 3	2025			0.0077	0.0007	0.0000	0.0000
	EMFAC						
Grading	2022			0.0009	0.0009	0.0004	0.0004
Phase 1	2022			0.0086	0.0086	0.0062	0.0062
	2023			0.0032	0.0032	0.0023	0.0023
De Paul Extention	2023			0.0008	0.0008	0.0005	0.0005
Phase 2	2023			0.0085	0.0085	0.0059	0.0059
	2024			0.0055	0.0055	0.0039	0.0039
Phase 3	2025			0.0070	0.0070	0.0046	0.0046
	Total Construction Emissions by Year						
	2022			0.03	0.0111	0.0102	0.0087
	2023			0.02	0.0131	0.0089	0.0088
	2024			0.02	0.0062	0.0039	0.0039
	2025			0.01	0.0077	0.0046	0.0046

Air Quality/Noise Construction Information Data Request

Project Name: Crosswinds Half Road and Mission View Option 2

See Equipment Type TAB for type, horsepower and load factor

Complete ALL Portions in Yellow

Project Size: 269 Dwelling Units; 30.5 total project acres disturbed
512,363 s.f. residential
0 s.f. retail
0 s.f. office/commercial
0 s.f. other, specify:
0 s.f. parking garage; NA spaces
s.f. parking lot; 809 spaces
Construction Hours: am to pm

Pile Driving? Y/N? N

Project include OPERATIONAL GENERATOR OR FIRE PUMP on-site? N
IF YES (if BOTH separate values) -->
Kilowatts/Horsepower:
Fuel Type:
Location in project (Plans Desired if Available):

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	Annual Hours	Comments
Entire Site	**Demolition**	**Start Date:**	**5/13/2022**	**Total phase:**	**4**			**Overall Import/Export Volumes**
		End Date:	**5/17/2022**					
0	Concrete/Industrial Saws	81	0.73	0	0	0.00	0	**Demolition Volume**
1	Excavators	158	0.38	8	4	8.00	32	Square footage of buildings to be demolished
0	Rubber-Tired Dozers	247	0.4	0	0	0.00	0	(or total tons to be hauled)
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	1,000 square feet or
								? Hauling volume (tons
Entire Site	**Site Preparation**	**Start Date:**	**5/18/2022**	**Total phase:**	**5**			
		End Date:	**5/23/2022**					
1	Graders	187	0.41	8	4	6.40	32	
0	Rubber Tired Dozers	247	0.4	0	0	0.00	0	
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	
3	Scrapers	361	0.48	8	4	6.40	96	
Entire Site	**Grading / Excavation**	**Start Date:**	**5/24/2022**	**Total phase:**	**18**			
		End Date:	**6/11/2022**					**Soil Hauling Volume**
1	Excavators	158	0.38	8	7	3.11	56	Export volume = 0 cubic yards
1	Graders	187	0.41	8	18	8.00	144	Import volume =0 cubic yards
0	Rubber Tired Dozers	247	0.4	0	0	0.00	0	
3	Scrapers	361	0.48	8	10	4.44	240	
1	Tractors/Loaders/Backhoes	97	0.37	8	11	4.89	88	
1	Compactor	171	0.42	8	9	4.00	72	
Phase 1	**Trenching - Underground**	**Start Date:**	**6/16/2022**	**Total phase:**	**35**			
		End Date:	**7/21/2022**					
1	Tractor/Loader/Backhoe	97	0.37	8	35	8.00	280	
1.5	Excavators	158	0.38	8	35	8.00	420	
	Other Equipment?							
Phase 2	**Trenching - Underground**	**Start Date:**	**10/14/2023**	**Total phase:**	**35**			
		End Date:	**11/19/2023**					
1	Tractor/Loader/Backhoe	97	0.37	8	35	8.00	280	
1.5	Excavators	158	0.38	8	35	8.00	420	
	Other Equipment?							
Phase 3	**Trenching - Underground**	**Start Date:**	**4/13/2025**	**Total phase:**	**25**			
		End Date:	**5/8/2025**					
1	Tractor/Loader/Backhoe	97	0.37	4	10	1.14	40	
1.5	Excavators	158	0.38	4	10	1.14	60	**Cement Trucks 403 Total Round-Trips**
	Other Equipment?							**Phase 1: Aprx. 145**
								Phase 2: Aprx. 178
Phase 1	**Building - Exterior**	**Start Date:**	**7/16/2022**	**Total phase:**	**178**			**Phase 3: Aprx. 80**
		End Date:	**5/12/2023**					
0	Cranes	231	0.29			0.00	0	Electric? (Y/N) N Otherwise assumed diesel
1	Forklifts	89	0.2	6	144	4.94	864	Liquid Propane (LPG)? (Y/N) N Otherwise Assumed diesel
0	Generator Sets	84	0.74			0.00	0	Or temporary line power? (Y/N) Y
1	Tractors/Loaders/Backhoes	97	0.37	6	24	0.82	144	
0	Welders	46	0.45			0.00	0	
	Other Equipment?					0.00		
Phase 2	**Building - Exterior**	**Start Date:**	**12/18/2023**	**Total phase:**	**178**			
		End Date:	**10/13/2024**					
0	Cranes	231	0.29			0.00	0	
1	Forklifts	89	0.2	6	144	4.94	864	
0	Generator Sets	84	0.74			0.00	0	
1	Tractors/Loaders/Backhoes	97	0.37	6	24	0.82	144	
0	Welders	46	0.45			0.00	0	
	Other Equipment?					0.00		
Phase 3	**Building - Exterior**	**Start Date:**	**6/7/2025**	**Total phase:**	**75**			
		End Date:	**1/8/2026**					
0	Cranes	231	0.29			0.00	0	
1	Forklifts	89	0.2	6	72	2.47	432	
0	Generator Sets	84	0.74			0.00	0	
1	Tractors/Loaders/Backhoes	97	0.37	6	12	0.41	72	
0	Welders	46	0.45			0.00	0	
	Other Equipment?					0.00		
Phase 1	**Building - Interior**	**Start Date:**	**10/14/2022**	**Total phase:**	**40**			
		End Date:	**10/9/2023**					
5	Air Compressors	78	0.48	4	40	4.00	800	
0	Aerial Lift	62	0.31			0.00	0	
	Other Equipment?							
1	Paving Equipment	132	0.36	8	12	2.00	96	
1	Rollers	80	0.38	8	12	2.00	96	
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	
1	Graders	187	0.41	8	14	2.33	112	
Phase 2	**Building - Interior**	**Start Date:**	**3/17/2024**	**Total phase:**	**40**			
		End Date:	**3/12/2025**					
5	Air Compressors	78	0.48	4	40	4.00	800	
0	Aerial Lift	62	0.31			0.00	0	
	Other Equipment?							
1	Paving Equipment	132	0.36	8	12	2.00	96	
1	Rollers	80	0.38	8	12	2.00	96	
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	
1	Graders	187	0.41	8	14	2.33	112	
Phase 3	**Building - Interior**	**Start Date:**	**9/5/2025**	**Total phase:**	**40**			
		End Date:	**6/7/2026**					
5	Air Compressors	78	0.48	4	40	4.00	800	
0	Aerial Lift	62	0.31			0.00	0	
	Other Equipment?							
1	Paving Equipment	132	0.36	8	6	1.00	48	
1	Rollers	80	0.38	8	6	1.00	48	
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0.00	0	
1	Graders	187	0.41	8	7	1.17	56	
Phase 1	**Paving**	**Start Date:**	**10/14/2022**	**Total phase:**	**16**			
		Start Date:	**11/4/2022**					
2	Cement and Mortar Mixers	9	0.56	8	4	0.67	64	
1	Pavers	130	0.42	8	2	0.33	16	**Asphalt: 562 cubic yards**
1	Paving Equipment	132	0.36	8	2	0.33	16	
1	Rollers	80	0.38	8	2	0.33	16	
2	Tractors/Loaders/Backhoes	97	0.37	8	4	0.67	64	
1	Graders	187	.	8	2	0.33	16	
Phase 2	**Paving**	**Start Date:**	**3/17/2024**	**Total phase:**	**16**			
		Start Date:	**4/7/2024**					
2	Cement and Mortar Mixers	9	0.56	8	4	0.67	64	
1	Pavers	130	0.42	8	2	0.33	16	**Asphalt: 700 cubic yards**
1	Paving Equipment	132	0.36	8	2	0.33	16	
1	Rollers	80	0.38	8	2	0.33	16	
2	Tractors/Loaders/Backhoes	97	0.37	8	4	0.67	64	
1	Graders	187	.	8	2	0.33	16	
Phase 3	**Paving**	**Start Date:**	**9/5/2025**	**Total phase:**	**12**			
		Start Date:	**9/19/2025**					
2	Cement and Mortar Mixers	9	0.56	8	3	0.50	48	
1	Pavers	130	0.42	8	1.5	0.25	12	**Asphalt: 300 cubic yards**
1	Paving Equipment	132	0.36	8	1.5	0.25	12	
1	Rollers	80	0.38	8	1.5	0.25	12	
2	Tractors/Loaders/Backhoes	97	0.37	8	3	0.50	48	
1	Graders	187	.	8	1.5	0.25	12	
De Paul	**Grading / Excavation**	**Start Date:**	**10/4/2023**	**Total phase:**	**18**			
		End Date:	**10/19/2023**					**Soil Hauling Volume**
0	Excavators	158	0.38	0	0	0.00	0	Export volume = 0 cubic yards
1	Graders	187	0.41	8	1	0.44	8	Import volume =0 cubic yards
0	Rubber Tired Dozers	247	0.4	0	0	0.00	0	
1	Scrapers	361	0.48	8	1.5	0.67	12	
1	Tractors/Loaders/Backhoes	97	0.37	8	1.5	0.67	12	
1	Compactor	171	0.42	8	1.5	0.67	12	
De Paul	**Trenching - Underground**	**Start Date:**	**10/24/2023**	**Total phase:**	**35**			
		End Date:	**11/28/2023**					
1	Tractor/Loader/Backhoe	97	0.37	8	2	0.46	16	
1.5	Excavators	158	0.38	8	2	0.46	24	
De Paul	**Paving**	**Start Date:**	**12/19/2023**	**Total phase:**	**16**			
		Start Date:	**1/4/2024**					
2	Cement and Mortar Mixers	9	0.56	8	4	0.67	64	
1	Pavers	130	0.42	8	2	0.33	16	**Asphalt: 612 cubic yards**
1	Paving Equipment	132	0.36	8	2	0.33	16	
1	Rollers	80	0.38	8	2	0.33	16	
2	Tractors/Loaders/Backhoes	97	0.37	8	4	0.67	64	
1	Graders	187	.	8	2	0.33	16	
	Additional Phases	**Start Date:**	**All Phases Accounted for Above**	**Total phase:**				
		Start Date:						

Equipment types listed in "Equipment Types" worksheet tab.

Equipment listed in this sheet is to provide an example of inputs
It is assumed that water trucks would be used during grading
Add or subtract phases and equipment, as appropriate
Modify horepower or load factor, as appropriate

Complete one sheet for each project component

	Option 2 Uncontrolled Half Rd Construction Criteria Air Pollutants							
	Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	PM2.5 Fugitive	**CO2e**	
Phase	Year	Tons					MT	
	Construction Equipment - CalEEMod							
Grading	2022	0.03	0.29	0.01	0.0103	0.0035	42	
Phase 1	2022	1.02	0.29	0.02	0.0146	0.0000	52	
	2023	0.00	0.02	0.00	0.0011	0.0000	3	
De Paul Extention	2023	0.00	0.03	0.00	0.0012	0.0002	6	
Phase 2	2023	0.01	0.09	0.00	0.0038	0.0000	22	
	2024	1.19	0.20	0.01	0.0092	0.0000	37	
Phase 3	2025	0.48	0.17	0.01	0.0074	0.0000	42	
	EMFAC							
Grading	2022	0.00	0.02	0.00	0.0005	0.0005	9	
Phase 1	2022	0.01	0.09	0.01	0.0086	0.0062	59	
	2023	0.00	0.04	0.00	0.0032	0.0023	22	
De Paul Extention	2023	0.00	0.01	0.00	0.0008	0.0005	7	
Phase 2	2023	0.01	0.10	0.01	0.0085	0.0059	60	
	2024	0.01	0.07	0.01	0.0055	0.0039	39	
Phase 3	2025	0.01	0.10	0.01	0.0070	0.0046	52	
	Total Construction Emissions by Year							
	2022	1.06	0.70	0.04	0.0340	0.0101	162	
	2023	0.03	0.29	0.02	0.0187	0.0089	119	
	2024	1.20	0.27	0.02	0.0148	0.0039	76	
	2025	0.49	0.27	0.01	0.0144	0.0046	94	
		Total Construction Emissions						
	Tons	2.8	1.5	0.1	0.1		451	
	Pounds/Workdays	*Average Daily Emissions*					Workdays	
	2022	13.74	9.10	0.47	0.44			154
	2023	0.30	2.60	0.18	0.17			220
	2024	11.39	2.53	0.15	0.14			210
	2025	6.95	3.85	0.21	0.21			140
								724

	Option 2 Uncontrolled Half Rd Construction Criteria Air Pollutants							
	Unmitigated			PM10 Exhaust	Mitigated	PM2.5 Fugitive	**Mitigated**	
Phase	Year	Tons						
	Construction Equipment - CalEEMod							
Grading	2022			0.0112	0.0008	0.0035	0.0016	
Phase 1	2022			0.0154	0.0009	0.0000	0.0000	
	2023			0.0012	0.0001	0.0000	0.0000	
De Paul Extention	2023			0.0014	0.0001	0.0002	0.0001	
Phase 2	2023			0.0042	0.0004	0.0000	0.0000	
	2024			0.0097	0.0007	0.0000	0.0000	
Phase 3	2025			0.0077	0.0007	0.0000	0.0000	
	EMFAC							
Grading	2022			0.0010	0.0010	0.0005	0.0005	
Phase 1	2022			0.0086	0.0086	0.0062	0.0062	
	2023			0.0032	0.0032	0.0023	0.0023	
De Paul Extention	2023			0.0008	0.0008	0.0005	0.0005	
Phase 2	2023			0.0085	0.0085	0.0059	0.0059	
	2024			0.0055	0.0055	0.0039	0.0039	
Phase 3	2025			0.0070	0.0070	0.0046	0.0046	
	Total Construction Emissions by Year							
	2022			0.04	0.0113	0.0101	0.0082	
	2023			0.02	0.0131	0.0089	0.0088	
	2024			0.02	0.0062	0.0039	0.0039	
	2025			0.01	0.0077	0.0046	0.0046	

Half Road Construction - Demo & Grading

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	269.00	Dwelling Unit	30.50	512,363.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2026
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	21	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SVCE w/som PG&E (10%)

Land Use - Whole site grading

Construction Phase - Based on provided construction information

Off-road Equipment - Based on provided construction information

Off-road Equipment - Based on provided construction information

Off-road Equipment - Based on provided construction information

Grading - Used 1,000cy for misc import/export

Demolition - Based on provided construction information

Construction Off-road Equipment Mitigation - Tier 4i and BMPs

Trips and VMT - computed in EMFAC2017 using Demo 3/0/9 SitePrep 8/0/0 Grading 15/0/250

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
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
tblConstructionPhase	NumDays	30.00	4.00
tblConstructionPhase	NumDays	45.00	15.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	6/10/2022	5/18/2022
tblConstructionPhase	PhaseEndDate	9/9/2022	6/13/2022
tblConstructionPhase	PhaseEndDate	7/8/2022	5/24/2022
tblConstructionPhase	PhaseStartDate	5/1/2022	5/13/2022
tblConstructionPhase	PhaseStartDate	7/9/2022	5/24/2022
tblConstructionPhase	PhaseStartDate	6/11/2022	5/18/2022
tblGrading	MaterialExported	0.00	1,000.00
tblGrading	MaterialImported	0.00	1,000.00
tblLandUse	LandUseSquareFeet	484,200.00	512,363.00
tblLandUse	LotAcreage	87.34	30.50
tblLandUse	Population	769.00	0.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	LoadFactor	0.43	0.43

tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	UsageHours	8.00	6.93
tblOffRoadEquipment	UsageHours	8.00	4.80
tblOffRoadEquipment	UsageHours	8.00	4.27
tblProjectCharacteristics	CO2IntensityFactor	641.35	21

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0214	0.2581	0.1541	4.7000e-004	0.0282	8.7100e-003	0.0369	3.6300e-003	8.0200e-003	0.0117	0.0000	42.0434	42.0434	0.0107	0.0000	42.3098
Maximum	**0.0214**	**0.2581**	**0.1541**	**4.7000e-004**	**0.0282**	**8.7100e-003**	**0.0369**	**3.6300e-003**	**8.0200e-003**	**0.0117**	**0.0000**	**42.0434**	**42.0434**	**0.0107**	**0.0000**	**42.3098**

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	7.2800e-003	0.1311	0.2068	4.7000e-004	0.0145	6.9000e-004	0.0152	2.1300e-003	6.8000e-004	2.8100e-003	0.0000	42.0434	42.0434	0.0107	0.0000	42.3097
Maximum	**7.2800e-003**	**0.1311**	**0.2068**	**4.7000e-004**	**0.0145**	**6.9000e-004**	**0.0152**	**2.1300e-003**	**6.8000e-004**	**2.8100e-003**	**0.0000**	**42.0434**	**42.0434**	**0.0107**	**0.0000**	**42.3097**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**65.92**	**49.22**	**-34.18**	**0.00**	**48.56**	**92.08**	**58.83**	**41.32**	**91.52**	**75.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-1-2022	7-31-2022	0.2792	0.1382
		Highest	0.2792	0.1382

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/13/2022	5/18/2022	5	4	
2	Site Preparation	Site Preparation	5/18/2022	5/24/2022	5	5	
3	Grading	Grading	5/24/2022	6/13/2022	5	15	

Acres of Grading (Site Preparation Phase): 10

Acres of Grading (Grading Phase): 35.02

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	6.40	187	0.41
Demolition	Excavators	1	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Site Preparation	Scrapers	2	6.40	367	0.48
Grading	Crawler Tractors	1	4.80	212	0.43
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Graders	1	6.93	187	0.41
Grading	Tractors/Loaders/Backhoes	1	4.80	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	3	4.27	367	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	1	3.00	0.00	9.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

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					9.4000e-004	0.0000	9.4000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-004	3.5500e-003	6.5100e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.6000e-004	1.6000e-004	0.0000	0.9072	0.9072	2.9000e-004	0.0000	0.9146
Total	**4.0000e-004**	**3.5500e-003**	**6.5100e-003**	**1.0000e-005**	**9.4000e-004**	**1.7000e-004**	**1.1100e-003**	**1.4000e-004**	**1.6000e-004**	**3.0000e-004**	**0.0000**	**0.9072**	**0.9072**	**2.9000e-004**	**0.0000**	**0.9146**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	1.1100e-003	2.6000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3343	0.3343	2.0000e-005	0.0000	0.3347
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.3000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0380	0.0380	0.0000	0.0000	0.0380
Total	**5.0000e-005**	**1.1200e-003**	**3.9000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.3723**	**0.3723**	**2.0000e-005**	**0.0000**	**0.3727**

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					4.2000e-004	0.0000	4.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3000e-004	4.5500e-003	7.8400e-003	1.0000e-005		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.9072	0.9072	2.9000e-004	0.0000	0.9146
Total	**1.3000e-004**	**4.5500e-003**	**7.8400e-003**	**1.0000e-005**	**4.2000e-004**	**2.0000e-005**	**4.4000e-004**	**6.0000e-005**	**2.0000e-005**	**8.0000e-005**	**0.0000**	**0.9072**	**0.9072**	**2.9000e-004**	**0.0000**	**0.9146**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	1.1100e-003	2.6000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3343	0.3343	2.0000e-005	0.0000	0.3347
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.3000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0380	0.0380	0.0000	0.0000	0.0380
Total	**5.0000e-005**	**1.1200e-003**	**3.9000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.3723**	**0.3723**	**2.0000e-005**	**0.0000**	**0.3727**

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					5.3000e-003	0.0000	5.3000e-003	5.7000e-004	0.0000	5.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	4.1200e-003	0.0464	0.0291	7.0000e-005		1.7400e-003	1.7400e-003		1.6000e-003	1.6000e-003	0.0000	6.5218	6.5218	2.1100e-003	0.0000	6.5746
Total	**4.1200e-003**	**0.0464**	**0.0291**	**7.0000e-005**	**5.3000e-003**	**1.7400e-003**	**7.0400e-003**	**5.7000e-004**	**1.6000e-003**	**2.1700e-003**	**0.0000**	**6.5218**	**6.5218**	**2.1100e-003**	**0.0000**	**6.5746**

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	6.0000e-005	4.0000e-005	4.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1265	0.1265	0.0000	0.0000	0.1266
Total	**6.0000e-005**	**4.0000e-005**	**4.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1265**	**0.1265**	**0.0000**	**0.0000**	**0.1266**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2100e-003	0.0196	0.0395	7.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.5218	6.5218	2.1100e-003	0.0000	6.5745
Total	**1.2100e-003**	**0.0196**	**0.0395**	**7.0000e-005**	**2.3900e-003**	**1.2000e-004**	**2.5100e-003**	**2.6000e-004**	**1.2000e-004**	**3.8000e-004**	**0.0000**	**6.5218**	**6.5218**	**2.1100e-003**	**0.0000**	**6.5745**

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	6.0000e-005	4.0000e-005	4.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1265	0.1265	0.0000	0.0000	0.1266
Total	**6.0000e-005**	**4.0000e-005**	**4.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1265**	**0.1265**	**0.0000**	**0.0000**	**0.1266**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0187	0.0000	0.0187	2.0200e-003	0.0000	2.0200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0155	0.1761	0.1082	2.7000e-004		6.7000e-003	6.7000e-003		6.1700e-003	6.1700e-003	0.0000	24.1178	24.1178	7.8000e-003	0.0000	24.3128
Total	**0.0155**	**0.1761**	**0.1082**	**2.7000e-004**	**0.0187**	**6.7000e-003**	**0.0254**	**2.0200e-003**	**6.1700e-003**	**8.1900e-003**	**0.0000**	**24.1178**	**24.1178**	**7.8000e-003**	**0.0000**	**24.3128**

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	9.2000e-004	0.0307	7.1600e-003	1.0000e-004	2.1200e-003	9.0000e-005	2.2100e-003	5.8000e-004	9.0000e-005	6.7000e-004	0.0000	9.2860	9.2860	4.2000e-004	0.0000	9.2965
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.2000e-004	2.3700e-003	1.0000e-005	8.9000e-004	1.0000e-005	9.0000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7118	0.7118	2.0000e-005	0.0000	0.7122
Total	**1.2400e-003**	**0.0309**	**9.5300e-003**	**1.1000e-004**	**3.0100e-003**	**1.0000e-004**	**3.1100e-003**	**8.2000e-004**	**1.0000e-004**	**9.1000e-004**	**0.0000**	**9.9978**	**9.9978**	**4.4000e-004**	**0.0000**	**10.0086**

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					8.4100e-003	0.0000	8.4100e-003	9.1000e-004	0.0000	9.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5800e-003	0.0749	0.1492	2.7000e-004		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	24.1178	24.1178	7.8000e-003	0.0000	24.3128
Total	**4.5800e-003**	**0.0749**	**0.1492**	**2.7000e-004**	**8.4100e-003**	**4.5000e-004**	**8.8600e-003**	**9.1000e-004**	**4.5000e-004**	**1.3600e-003**	**0.0000**	**24.1178**	**24.1178**	**7.8000e-003**	**0.0000**	**24.3128**

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	9.2000e-004	0.0307	7.1600e-003	1.0000e-004	2.1200e-003	9.0000e-005	2.2100e-003	5.8000e-004	9.0000e-005	6.7000e-004	0.0000	9.2860	9.2860	4.2000e-004	0.0000	9.2965
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Worker	3.2000e-004	2.2000e-004	2.3700e-003	1.0000e-005	8.9000e-004	1.0000e-005	9.0000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7118	0.7118	2.0000e-005	0.0000	0.7122
Total	**1.2400e-003**	**0.0309**	**9.5300e-003**	**1.1000e-004**	**3.0100e-003**	**1.0000e-004**	**3.1100e-003**	**8.2000e-004**	**1.0000e-004**	**9.1000e-004**	**0.0000**	**9.9978**	**9.9978**	**4.4000e-004**	**0.0000**	**10.0086**

Half Rd Constr Phase 1

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.20	Acre	0.00	52,272.00	0
Recreational Swimming Pool	3.00	1000sqft	0.00	3,000.00	0
Condo/Townhouse	40.00	Dwelling Unit	12.20	40,000.00	114
Single Family Housing	54.00	Dwelling Unit	0.00	97,200.00	154

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	5			**Operational Year**	2026
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	21	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCVE w/some PG&E

Land Use - Added recreational pool area. Assume 10% of 12.2 acres paved

Construction Phase - Based on provided construction information

Off-road Equipment - construction plans

Off-road Equipment - construction plans

Off-road Equipment - construction plans

Off-road Equipment - construction plans

Trips and VMT - added cement and asphalt trips (see EMFAC2017)

Demolition -

Grading -

Construction Off-road Equipment Mitigation - Tier 4i and BMPs

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	300.00	175.00
tblConstructionPhase	NumDays	20.00	16.00
tblConstructionPhase	NumDays	10.00	35.00
tblLandUse	LotAcreage	1.20	0.00
tblLandUse	LotAcreage	0.07	0.00

tblLandUse	LotAcreage	2.50	12.20
tblLandUse	LotAcreage	17.53	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.90
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	21
tblTripsAndVMT	VendorTripNumber	19.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	71.00	0.00
tblTripsAndVMT	WorkerTripNumber	14.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	1.0192	0.2902	0.3675	5.9000e-004	0.0000	0.0154	0.0154	0.0000	0.0146	0.0146	0.0000	51.6038	51.6038	0.0123	0.0000	51.9107
2023	2.1200e-003	0.0203	0.0255	3.0000e-005	0.0000	1.1900e-003	1.1900e-003	0.0000	1.1000e-003	1.1000e-003	0.0000	3.0277	3.0277	9.8000e-004	0.0000	3.0522
Maximum	**1.0192**	**0.2902**	**0.3675**	**5.9000e-004**	**0.0000**	**0.0154**	**0.0154**	**0.0000**	**0.0146**	**0.0146**	**0.0000**	**51.6038**	**51.6038**	**0.0123**	**0.0000**	**51.9107**

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	0.9958	0.2360	0.4101	5.9000e-004	0.0000	9.4000e-004	9.4000e-004	0.0000	9.4000e-004	9.4000e-004	0.0000	51.6038	51.6038	0.0123	0.0000	51.9106
2023	7.8000e-004	0.0151	0.0261	3.0000e-005	0.0000	6.0000e-005	6.0000e-005	0.0000	6.0000e-005	6.0000e-005	0.0000	3.0277	3.0277	9.8000e-004	0.0000	3.0522
Maximum	**0.9958**	**0.2360**	**0.4101**	**5.9000e-004**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**51.6038**	**51.6038**	**0.0123**	**0.0000**	**51.9106**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.42**	**19.11**	**-11.01**	**0.00**	**0.00**	**93.95**	**93.95**	**0.00**	**93.61**	**93.61**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-13-2022	9-12-2022	0.1183	0.1160
2	9-13-2022	12-12-2022	1.1757	1.1042
3	12-13-2022	3-12-2023	0.0328	0.0225
4	3-13-2023	6-12-2023	0.0006	0.0004

		Highest	1.1757	1.1042

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Trenching	Site Preparation	6/13/2022	7/29/2022	5	35	
2	Building Construction	Building Construction	7/13/2022	3/14/2023	5	175	
3	Building Interior	Architectural Coating	10/11/2022	12/5/2022	5	40	
4	Paving	Paving	11/28/2022	12/19/2022	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 277,830; Residential Outdoor: 92,610; Non-Residential Indoor: 2,550; Non-Residential Outdoor: 850; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Dozers	0	8.00	247	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	1	4.90	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	1.00	9	0.56
Paving	Graders	1	1.00	187	0.41
Paving	Pavers	1	1.00	130	0.42
Paving	Paving Equipment	1	1.00	132	0.36

Paving	Rollers	1	1.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Building Interior	Air Compressors	5	4.00	78	0.48
Building Interior	Graders	1	2.30	187	0.41
Building Interior	Paving Equipment	1	1.00	132	0.36
Building Interior	Rollers	1	1.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Interior	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.9700e-003	0.0915	0.1531	2.4000e-004		4.5800e-003	4.5800e-003		4.2200e-003	4.2200e-003	0.0000	20.6586	20.6586	6.6800e-003	0.0000	20.8256

Total	**9.9700e-003**	**0.0915**	**0.1531**	**2.4000e-004**	**0.0000**	**4.5800e-003**	**4.5800e-003**	**0.0000**	**4.2200e-003**	**4.2200e-003**	**0.0000**	**20.6586**	**20.6586**	**6.6800e-003**	**0.0000**	**20.8256**

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4400e-003	0.1034	0.1781	2.4000e-004		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	20.6586	20.6586	6.6800e-003	0.0000	20.8256
Total	**3.4400e-003**	**0.1034**	**0.1781**	**2.4000e-004**	**0.0000**	**3.9000e-004**	**3.9000e-004**	**0.0000**	**3.9000e-004**	**3.9000e-004**	**0.0000**	**20.6586**	**20.6586**	**6.6800e-003**	**0.0000**	**20.8256**

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 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	5.5500e-003	0.0526	0.0607	8.0000e-005		3.3300e-003	3.3300e-003		3.0600e-003	3.0600e-003	0.0000	7.1594	7.1594	2.3200e-003	0.0000	7.2173
Total	**5.5500e-003**	**0.0526**	**0.0607**	**8.0000e-005**		**3.3300e-003**	**3.3300e-003**		**3.0600e-003**	**3.0600e-003**	**0.0000**	**7.1594**	**7.1594**	**2.3200e-003**	**0.0000**	**7.2173**

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	1.8400e-003	0.0357	0.0618	8.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	7.1594	7.1594	2.3200e-003	0.0000	7.2173
Total	**1.8400e-003**	**0.0357**	**0.0618**	**8.0000e-005**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**7.1594**	**7.1594**	**2.3200e-003**	**0.0000**	**7.2173**

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 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	2.1200e-003	0.0203	0.0255	3.0000e-005		1.1900e-003	1.1900e-003		1.1000e-003	1.1000e-003	0.0000	3.0277	3.0277	9.8000e-004	0.0000	3.0522
Total	**2.1200e-003**	**0.0203**	**0.0255**	**3.0000e-005**		**1.1900e-003**	**1.1900e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**3.0277**	**3.0277**	**9.8000e-004**	**0.0000**	**3.0522**

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	7.8000e-004	0.0151	0.0261	3.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.0277	3.0277	9.8000e-004	0.0000	3.0522
Total	**7.8000e-004**	**0.0151**	**0.0261**	**3.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.0277**	**3.0277**	**9.8000e-004**	**0.0000**	**3.0522**

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 Building Interior - 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	0.9856					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0169	0.1328	0.1418	2.5000e-004		6.8700e-003	6.8700e-003		6.7600e-003	6.7600e-003	0.0000	21.8377	21.8377	2.6700e-003	0.0000	21.9044
Total	**1.0025**	**0.1328**	**0.1418**	**2.5000e-004**		**6.8700e-003**	**6.8700e-003**		**6.7600e-003**	**6.7600e-003**	**0.0000**	**21.8377**	**21.8377**	**2.6700e-003**	**0.0000**	**21.9044**

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	0.9856					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5300e-003	0.0881	0.1551	2.5000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	21.8377	21.8377	2.6700e-003	0.0000	21.9044
Total	**0.9901**	**0.0881**	**0.1551**	**2.5000e-004**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**21.8377**	**21.8377**	**2.6700e-003**	**0.0000**	**21.9044**

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 Paving - 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	1.2500e-003	0.0132	0.0119	2.0000e-005		5.7000e-004	5.7000e-004		5.3000e-004	5.3000e-004	0.0000	1.9481	1.9481	6.1000e-004	0.0000	1.9633
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.2500e-003**	**0.0132**	**0.0119**	**2.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**1.9481**	**1.9481**	**6.1000e-004**	**0.0000**	**1.9633**

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	4.6000e-004	8.8600e-003	0.0151	2.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	1.9481	1.9481	6.1000e-004	0.0000	1.9633
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.6000e-004**	**8.8600e-003**	**0.0151**	**2.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**1.9481**	**1.9481**	**6.1000e-004**	**0.0000**	**1.9633**

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**

Half Rd Constr. - De Paul Extension

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.40	Acre	1.40	60,984.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2026
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	21	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SVCE with some PG&E

Land Use - Roadway Construction

Construction Phase - Based on provided schedule - all fit into 2023 (60 days)

Off-road Equipment - Based on provided construction information

Off-road Equipment - Based on provided construction information

Off-road Equipment - Based on provided construction information

Grading -

Trips and VMT - 612 cy asphalt and equipment. Modeled using EMFAC2017

Construction Off-road Equipment Mitigation - Tier 4i and BMPs

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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
tblConstructionPhase	NumDays	4.00	15.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	PhaseEndDate	10/9/2023	12/12/2023
tblConstructionPhase	PhaseEndDate	10/9/2023	10/24/2023
tblConstructionPhase	PhaseEndDate	10/23/2023	12/22/2023
tblConstructionPhase	PhaseStartDate	10/10/2023	10/25/2023
tblConstructionPhase	PhaseStartDate	10/10/2023	12/19/2023
tblOffRoadEquipment	LoadFactor	0.48	0.48

tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	21
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

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

Year	tons/yr										MT/yr					
2023	3.6100e-003	0.0320	0.0343	7.0000e-005	1.9900e-003	1.3500e-003	3.3400e-003	2.1000e-004	1.2400e-003	1.4600e-003	0.0000	5.8494	5.8494	1.8900e-003	0.0000	5.8966
Maximum	**3.6100e-003**	**0.0320**	**0.0343**	**7.0000e-005**	**1.9900e-003**	**1.3500e-003**	**3.3400e-003**	**2.1000e-004**	**1.2400e-003**	**1.4600e-003**	**0.0000**	**5.8494**	**5.8494**	**1.8900e-003**	**0.0000**	**5.8966**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	1.5100e-003	0.0240	0.0436	7.0000e-005	8.9000e-004	1.1000e-004	1.0000e-003	1.0000e-004	1.1000e-004	2.1000e-004	0.0000	5.8494	5.8494	1.8900e-003	0.0000	5.8966
Maximum	**1.5100e-003**	**0.0240**	**0.0436**	**7.0000e-005**	**8.9000e-004**	**1.1000e-004**	**1.0000e-003**	**1.0000e-004**	**1.1000e-004**	**2.1000e-004**	**0.0000**	**5.8494**	**5.8494**	**1.8900e-003**	**0.0000**	**5.8966**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**58.17**	**25.01**	**-27.10**	**0.00**	**55.28**	**91.85**	**70.06**	**52.38**	**91.13**	**85.62**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	10/4/2023	10/24/2023	5	15	
2	Trenching	Trenching	10/25/2023	12/12/2023	5	35	

3	Paving	Paving	12/19/2023	12/22/2023	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.75

Acres of Paving: 1.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	1.00	187	0.41
Paving	Cement and Mortar Mixers	2	1.00	9	0.56
Grading	Rubber Tired Dozers	0	6.00	247	0.40
Trenching	Generator Sets	0	8.00	84	0.74
Trenching	Cranes	0	6.00	231	0.29
Trenching	Forklifts	0	6.00	89	0.20
Grading	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Paving	Pavers	1	1.00	130	0.42
Paving	Rollers	1	1.00	80	0.38
Grading	Scrapers	1	1.00	367	0.48
	Rubber Tired Dozers	1	6.00	247	0.40
Trenching	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Grading	Crawler Tractors	1	1.00	212	0.43
	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	2	1.00	97	0.37
Trenching	Excavators	2	1.00	158	0.38
	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	1.00	132	0.36
Paving	Graders	1	1.00	187	0.41
Trenching	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9900e-003	0.0000	1.9900e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6600e-003	0.0184	0.0116	3.0000e-005		7.0000e-004	7.0000e-004		6.5000e-004	6.5000e-004	0.0000	2.7012	2.7012	8.7000e-004	0.0000	2.7230
Total	**1.6600e-003**	**0.0184**	**0.0116**	**3.0000e-005**	**1.9900e-003**	**7.0000e-004**	**2.6900e-003**	**2.1000e-004**	**6.5000e-004**	**8.6000e-004**	**0.0000**	**2.7012**	**2.7012**	**8.7000e-004**	**0.0000**	**2.7230**

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					8.9000e-004	0.0000	8.9000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2000e-004	8.6200e-003	0.0170	3.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	2.7012	2.7012	8.7000e-004	0.0000	2.7230
Total	**5.2000e-004**	**8.6200e-003**	**0.0170**	**3.0000e-005**	**8.9000e-004**	**5.0000e-005**	**9.4000e-004**	**1.0000e-004**	**5.0000e-005**	**1.5000e-004**	**0.0000**	**2.7012**	**2.7012**	**8.7000e-004**	**0.0000**	**2.7230**

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 Trenching - 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	1.1600e-003	0.0102	0.0192	3.0000e-005		5.0000e-004	5.0000e-004		4.6000e-004	4.6000e-004	0.0000	2.5933	2.5933	8.4000e-004	0.0000	2.6143
Total	**1.1600e-003**	**0.0102**	**0.0192**	**3.0000e-005**		**5.0000e-004**	**5.0000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**2.5933**	**2.5933**	**8.4000e-004**	**0.0000**	**2.6143**

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	4.3000e-004	0.0130	0.0224	3.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	2.5933	2.5933	8.4000e-004	0.0000	2.6142
Total	**4.3000e-004**	**0.0130**	**0.0224**	**3.0000e-005**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**2.5933**	**2.5933**	**8.4000e-004**	**0.0000**	**2.6142**

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 Paving - 2023

Unmitigated Construction On-Site

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

Category	tons/yr										MT/yr					
Off-Road	3.3000e-004	3.3900e-003	3.5100e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.5549	0.5549	1.7000e-004	0.0000	0.5593
Paving	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9000e-004**	**3.3900e-003**	**3.5100e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**0.5549**	**0.5549**	**1.7000e-004**	**0.0000**	**0.5593**

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	1.0000e-004	2.3700e-003	4.2100e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.5549	0.5549	1.7000e-004	0.0000	0.5593
Paving	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	**5.6000e-004**	**2.3700e-003**	**4.2100e-003**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.5549**	**0.5549**	**1.7000e-004**	**0.0000**	**0.5593**

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**

Half Rd Constr. Phase 2

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	66.00	Dwelling Unit	12.88	118,800.00	189
Condo/Townhouse	45.00	Dwelling Unit	0.00	45,000.00	129
Other Asphalt Surfaces	1.30	Acre	0.00	56,628.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2026
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	21	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SVCE with some PG&E

Land Use - Assume roughly 10% of site is asphalt

Construction Phase - Based on provided construciton information

Off-road Equipment - Based on provided construciton information

Off-road Equipment - Based on provided construciton information

Off-road Equipment - Based on provided construciton information

Off-road Equipment - Based on provided construciton information

Trips and VMT - Concrete = 178 roundtrips, asphalt 700cy Modeled in EMFAC w/CalEEMod trips

Construction Off-road Equipment Mitigation - Tier4i and BMPs

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	300.00	175.00
tblConstructionPhase	NumDays	20.00	16.00
tblConstructionPhase	PhaseEndDate	4/25/2025	5/10/2024
tblConstructionPhase	PhaseEndDate	2/28/2025	8/16/2024
tblConstructionPhase	PhaseEndDate	3/28/2025	4/8/2024
tblConstructionPhase	PhaseStartDate	3/29/2025	3/17/2024
tblConstructionPhase	PhaseStartDate	1/6/2024	12/18/2023
tblConstructionPhase	PhaseStartDate	3/1/2025	3/17/2024

tblLandUse	LotAcreage	21.43	12.88
tblLandUse	LotAcreage	2.81	0.00
tblLandUse	LotAcreage	1.30	0.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00

tblProjectCharacteristics	CO2IntensityFactor	641.35	21
tblTripsAndVMT	VendorTripNumber	21.00	0.00
tblTripsAndVMT	WorkerTripNumber	16.00	0.00
tblTripsAndVMT	WorkerTripNumber	80.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	9.6900e-003	0.0852	0.1585	2.4000e-004	0.0000	4.2200e-003	4.2200e-003	0.0000	3.8800e-003	3.8800e-003	0.0000	21.3175	21.3175	6.8900e-003	0.0000	21.4898
2024	1.1887	0.2005	0.2510	4.2000e-004	0.0000	9.6800e-003	9.6800e-003	0.0000	9.2300e-003	9.2300e-003	0.0000	36.2867	36.2867	7.1700e-003	0.0000	36.4659
Maximum	**1.1887**	**0.2005**	**0.2510**	**4.2000e-004**	**0.0000**	**9.6800e-003**	**9.6800e-003**	**0.0000**	**9.2300e-003**	**9.2300e-003**	**0.0000**	**36.2867**	**36.2867**	**7.1700e-003**	**0.0000**	**36.4659**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	3.6000e-003	0.1066	0.1837	2.4000e-004	0.0000	4.0000e-004	4.0000e-004	0.0000	4.0000e-004	4.0000e-004	0.0000	21.3175	21.3175	6.8900e-003	0.0000	21.4898
2024	1.1729	0.1573	0.2754	4.2000e-004	0.0000	6.5000e-004	6.5000e-004	0.0000	6.5000e-004	6.5000e-004	0.0000	36.2867	36.2867	7.1700e-003	0.0000	36.4659

Maximum	**1.1729**	**0.1573**	**0.2754**	**4.2000e-004**	**0.0000**	**6.5000e-004**	**6.5000e-004**	**0.0000**	**6.5000e-004**	**6.5000e-004**	**0.0000**	**36.2867**	**36.2867**	**7.1700e-003**	**0.0000**	**36.4659**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.83**	**7.63**	**-12.13**	**0.00**	**0.00**	**92.45**	**92.45**	**0.00**	**91.99**	**91.99**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-14-2023**	**1-13-2024**	0.0986	0.1131
2	**1-14-2024**	**4-13-2024**	0.6948	0.6653
3	**4-14-2024**	**7-13-2024**	0.6573	0.6317
4	**7-14-2024**	**9-30-2024**	0.0098	0.0075
		Highest	0.6948	0.6653

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	12/18/2023	8/16/2024	5	175	
2	Paving	Paving	3/17/2024	4/8/2024	5	16	
3	Building Interior	Architectural Coating	3/17/2024	5/10/2024	5	40	
4	Utilities	Trenching	10/14/2023	12/1/2023	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 331,695; Residential Outdoor: 110,565; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Interior	Air Compressors	5	4.00	78	0.48
Utilities	Excavators	2	8.00	158	0.38

Utilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Interior	Paving Equipment	1	2.00	132	0.36
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	1	5.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Paving	Pavers	1	1.00	130	0.42
Paving	Rollers	1	1.00	80	0.38
Building Interior	Rollers	1	2.00	80	0.38
Building Interior	Graders	1	3.00	187	0.41
Building Construction	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Paving	Cement and Mortar Mixers	2	1.00	9	0.56
Paving	Tractors/Loaders/Backhoes	2	1.00	97	0.37
Paving	Paving Equipment	1	1.00	132	0.36
Paving	Graders	1	1.00	187	0.41
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Interior	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Utilities	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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	4.2000e-004	3.9600e-003	4.9700e-003	1.0000e-005		2.3000e-004	2.3000e-004		2.1000e-004	2.1000e-004	0.0000	0.5907	0.5907	1.9000e-004	0.0000	0.5954
Total	**4.2000e-004**	**3.9600e-003**	**4.9700e-003**	**1.0000e-005**		**2.3000e-004**	**2.3000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**0.5907**	**0.5907**	**1.9000e-004**	**0.0000**	**0.5954**

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	1.5000e-004	2.9500e-003	5.0900e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.5907	0.5907	1.9000e-004	0.0000	0.5954
Total	**1.5000e-004**	**2.9500e-003**	**5.0900e-003**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.5907**	**0.5907**	**1.9000e-004**	**0.0000**	**0.5954**

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**

3.2 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3400e-003	0.0605	0.0818	1.1000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	9.7475	9.7475	3.1500e-003	0.0000	9.8263
Total	**6.3400e-003**	**0.0605**	**0.0818**	**1.1000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**9.7475**	**9.7475**	**3.1500e-003**	**0.0000**	**9.8263**

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	2.5000e-003	0.0486	0.0841	1.1000e-004		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	9.7475	9.7475	3.1500e-003	0.0000	9.8263
Total	**2.5000e-003**	**0.0486**	**0.0841**	**1.1000e-004**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**9.7475**	**9.7475**	**3.1500e-003**	**0.0000**	**9.8263**

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 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.2500e-003	0.0125	0.0140	3.0000e-005		5.3000e-004	5.3000e-004		4.9000e-004	4.9000e-004	0.0000	2.2175	2.2175	7.0000e-004	0.0000	2.2349
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.2500e-003**	**0.0125**	**0.0140**	**3.0000e-005**		**5.3000e-004**	**5.3000e-004**		**4.9000e-004**	**4.9000e-004**	**0.0000**	**2.2175**	**2.2175**	**7.0000e-004**	**0.0000**	**2.2349**

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	5.3000e-004	0.0102	0.0174	3.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	2.2175	2.2175	7.0000e-004	0.0000	2.2349
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3000e-004**	**0.0102**	**0.0174**	**3.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**2.2175**	**2.2175**	**7.0000e-004**	**0.0000**	**2.2349**

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 Building Interior - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1649					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0163	0.1275	0.1552	2.8000e-004		5.8400e-003	5.8400e-003		5.6900e-003	5.6900e-003	0.0000	24.3217	24.3217	3.3200e-003	0.0000	24.4047
Total	**1.1811**	**0.1275**	**0.1552**	**2.8000e-004**		**5.8400e-003**	**5.8400e-003**		**5.6900e-003**	**5.6900e-003**	**0.0000**	**24.3217**	**24.3217**	**3.3200e-003**	**0.0000**	**24.4047**

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	1.1649					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9900e-003	0.0985	0.1740	2.8000e-004		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	24.3217	24.3217	3.3200e-003	0.0000	24.4046
Total	**1.1699**	**0.0985**	**0.1740**	**2.8000e-004**		**4.0000e-004**	**4.0000e-004**		**4.0000e-004**	**4.0000e-004**	**0.0000**	**24.3217**	**24.3217**	**3.3200e-003**	**0.0000**	**24.4046**

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 Utilities - 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	9.2700e-003	0.0812	0.1535	2.4000e-004		3.9900e-003	3.9900e-003		3.6700e-003	3.6700e-003	0.0000	20.7268	20.7268	6.7000e-003	0.0000	20.8944
Total	**9.2700e-003**	**0.0812**	**0.1535**	**2.4000e-004**		**3.9900e-003**	**3.9900e-003**		**3.6700e-003**	**3.6700e-003**	**0.0000**	**20.7268**	**20.7268**	**6.7000e-003**	**0.0000**	**20.8944**

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	3.4500e-003	0.1037	0.1786	2.4000e-004		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	20.7268	20.7268	6.7000e-003	0.0000	20.8944
Total	**3.4500e-003**	**0.1037**	**0.1786**	**2.4000e-004**		**3.9000e-004**	**3.9000e-004**		**3.9000e-004**	**3.9000e-004**	**0.0000**	**20.7268**	**20.7268**	**6.7000e-003**	**0.0000**	**20.8944**

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**

Half Rd Constr. Phase 3 - Santa Clara County, Annual

Half Rd Constr. Phase 3

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.50	Acre	0.00	21,780.00	0
Condo/Townhouse	64.00	Dwelling Unit	2.85	64,000.00	183

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2026
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	21	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SVCE with some PG&E

Land Use - Assume roughly 10-20% of site is asphalt

Construction Phase - Based on provided construciton information

Off-road Equipment - Based on provided construciton information

Off-road Equipment - Based on provided construciton information

Off-road Equipment - Based on provided construciton information

Off-road Equipment - Based on provided construciton information

Trips and VMT - Concrete = 80 roundtrips, asphalt 300cy Modeled in EMFAC w/CalEEMod trips

Construction Off-road Equipment Mitigation - Tier4i and BMPs

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
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
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	220.00	75.00
tblConstructionPhase	NumDays	10.00	12.00
tblLandUse	LotAcreage	0.50	0.00
tblLandUse	LotAcreage	4.00	2.85
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	3.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	21
tblTripsAndVMT	VendorTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	55.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	11.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.4773	0.1738	0.2858	4.7000e-004	0.0000	7.7100e-003	7.7100e-003	0.0000	7.3700e-003	7.3700e-003	0.0000	41.0081	41.0081	8.6700e-003	0.0000	41.2248

Maximum	**0.4773**	**0.1738**	**0.2858**	**4.7000e-004**	**0.0000**	**7.7100e-003**	**7.7100e-003**	**0.0000**	**7.3700e-003**	**7.3700e-003**	**0.0000**	**41.0081**	**41.0081**	**8.6700e-003**	**0.0000**	**41.2248**

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					
2025	0.4631	0.1835	0.3196	4.7000e-004	0.0000	7.1000e-004	7.1000e-004	0.0000	7.1000e-004	7.1000e-004	0.0000	41.0080	41.0080	8.6700e-003	0.0000	41.2248
Maximum	**0.4631**	**0.1835**	**0.3196**	**4.7000e-004**	**0.0000**	**7.1000e-004**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**7.1000e-004**	**0.0000**	**41.0080**	**41.0080**	**8.6700e-003**	**0.0000**	**41.2248**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.97**	**-5.59**	**-11.84**	**0.00**	**0.00**	**90.79**	**90.79**	**0.00**	**90.37**	**90.37**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**4-13-2025**	**7-12-2025**	0.0583	0.0798
2	**7-13-2025**	**9-30-2025**	0.2870	0.2725
		Highest	0.2870	0.2725

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Utilities	Trenching	4/13/2025	5/16/2025	5	25	
2	Building Construction	Building Construction	6/7/2025	9/19/2025	5	75	
3	Paving	Paving	9/5/2025	9/22/2025	5	12	

4	Building Interior	Architectural Coating	9/5/2025	10/30/2025	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 129,600; Residential Outdoor: 43,200; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	0	8.00	231	0.29
Building Construction	Forklifts	1	3.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	1.00	9	0.56
Paving	Graders	1	1.00	187	0.41
Paving	Pavers	1	1.00	130	0.42
Paving	Paving Equipment	1	1.00	132	0.36
Paving	Rollers	1	1.00	80	0.38
Paving	Tractors/Loaders/Backhoes	2	1.00	97	0.37
Building Interior	Air Compressors	5	4.00	78	0.48
Building Interior	Graders	1	2.00	187	0.41
Building Interior	Paving Equipment	1	1.00	132	0.36
Building Interior	Rollers	1	1.00	80	0.38
Utilities	Excavators	2	8.00	158	0.38
Utilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class

Building Construction	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Interior	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Utilities	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Utilities - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.8300e-003	0.0472	0.1094	1.7000e-004		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	14.7727	14.7727	4.7800e-003	0.0000	14.8922
Total	**5.8300e-003**	**0.0472**	**0.1094**	**1.7000e-004**		**2.1700e-003**	**2.1700e-003**		**2.0000e-003**	**2.0000e-003**	**0.0000**	**14.7727**	**14.7727**	**4.7800e-003**	**0.0000**	**14.8922**

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	2.4600e-003	0.0739	0.1272	1.7000e-004		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	14.7727	14.7727	4.7800e-003	0.0000	14.8922
Total	**2.4600e-003**	**0.0739**	**0.1272**	**1.7000e-004**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**	**0.0000**	**14.7727**	**14.7727**	**4.7800e-003**	**0.0000**	**14.8922**

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 Building Construction - 2025

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	1.8400e-003	0.0178	0.0264	4.0000e-005		8.7000e-004	8.7000e-004		8.0000e-004	8.0000e-004	0.0000	3.1729	3.1729	1.0300e-003	0.0000	3.1986
Total	**1.8400e-003**	**0.0178**	**0.0264**	**4.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**3.1729**	**3.1729**	**1.0300e-003**	**0.0000**	**3.1986**

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	8.1000e-004	0.0158	0.0273	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.1729	3.1729	1.0300e-003	0.0000	3.1986
Total	**8.1000e-004**	**0.0158**	**0.0273**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.1729**	**3.1729**	**1.0300e-003**	**0.0000**	**3.1986**

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 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.6000e-004	8.3700e-003	0.0105	2.0000e-005		3.4000e-004	3.4000e-004		3.2000e-004	3.2000e-004	0.0000	1.6661	1.6661	5.2000e-004	0.0000	1.6792

Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.6000e-004**	**8.3700e-003**	**0.0105**	**2.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**1.6661**	**1.6661**	**5.2000e-004**	**0.0000**	**1.6792**

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	3.1000e-004	7.1000e-003	0.0126	2.0000e-005		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	1.6661	1.6661	5.2000e-004	0.0000	1.6792
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.1000e-004**	**7.1000e-003**	**0.0126**	**2.0000e-005**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**1.6661**	**1.6661**	**5.2000e-004**	**0.0000**	**1.6792**

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 Building Interior - 2025

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	0.4551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0137	0.1004	0.1396	2.5000e-004		4.3300e-003	4.3300e-003		4.2600e-003	4.2600e-003	0.0000	21.3963	21.3963	2.3400e-003	0.0000	21.4549
Total	**0.4687**	**0.1004**	**0.1396**	**2.5000e-004**		**4.3300e-003**	**4.3300e-003**		**4.2600e-003**	**4.2600e-003**	**0.0000**	**21.3963**	**21.3963**	**2.3400e-003**	**0.0000**	**21.4549**

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	0.4551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4500e-003	0.0868	0.1525	2.5000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	21.3962	21.3962	2.3400e-003	0.0000	21.4548
Total	**0.4595**	**0.0868**	**0.1525**	**2.5000e-004**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**21.3962**	**21.3962**	**2.3400e-003**	**0.0000**	**21.4548**

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**

Half Rd - Operational

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3.00	Acre	0.00	130,680.00	0
Recreational Swimming Pool	3.00	1000sqft	0.00	3,000.00	0
Single Family Housing	269.00	Dwelling Unit	30.50	512,363.00	769

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2026
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	21	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SVCE with some PG&E

Land Use - Added club House. Assume about 10% asphalt surfaces

Construction Phase - Operational run

Off-road Equipment - Operational run

Trips and VMT - Operational run

Vehicle Trips - Crosswinds Trip Rate with VMT rate

Woodstoves - No Hearth

Water And Wastewater - Wastewater Treatment

Water Mitigation -

Energy Use - Reach code = no natural gas

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	T24NG	25,910.09	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	67.25	0.00
tblFireplaces	NumberWood	115.67	0.00
tblFleetMix	HHD	0.02	0.02
tblFleetMix	LDA	0.62	0.59
tblFleetMix	LDT1	0.03	0.05
tblFleetMix	LDT2	0.18	0.17
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD2	5.0300e-003	5.4009e-003
tblFleetMix	MCY	5.2040e-003	4.9788e-003
tblFleetMix	MDV	0.10	0.11
tblFleetMix	MH	6.8100e-004	7.4215e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	2.1950e-003	1.5279e-003
tblFleetMix	SBUS	6.3800e-004	9.1499e-004
tblFleetMix	UBUS	1.5020e-003	1.2248e-003
tblLandUse	LandUseSquareFeet	484,200.00	512,363.00
tblLandUse	LotAcreage	3.00	0.00
tblLandUse	LotAcreage	0.07	0.00
tblLandUse	LotAcreage	87.34	30.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	21

tblVehicleEF	HHD	0.31	0.02
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	0.07	4.4196e-007
tblVehicleEF	HHD	1.52	6.31
tblVehicleEF	HHD	0.93	0.41
tblVehicleEF	HHD	3.74	5.9100e-003
tblVehicleEF	HHD	4,207.12	1,010.86
tblVehicleEF	HHD	1,529.11	1,358.12
tblVehicleEF	HHD	11.80	0.05
tblVehicleEF	HHD	13.04	5.31
tblVehicleEF	HHD	1.80	2.65
tblVehicleEF	HHD	19.31	2.32
tblVehicleEF	HHD	5.9270e-003	2.4220e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	6.0050e-003	0.02
tblVehicleEF	HHD	1.1600e-004	6.0767e-007
tblVehicleEF	HHD	5.6710e-003	2.3172e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8440e-003	8.8913e-003
tblVehicleEF	HHD	5.7450e-003	0.02
tblVehicleEF	HHD	1.0700e-004	5.5873e-007
tblVehicleEF	HHD	9.5000e-005	1.7395e-006
tblVehicleEF	HHD	4.6590e-003	7.8713e-005
tblVehicleEF	HHD	0.39	0.43
tblVehicleEF	HHD	6.0000e-005	9.8718e-007
tblVehicleEF	HHD	0.09	0.03
tblVehicleEF	HHD	4.0300e-004	3.9667e-004
tblVehicleEF	HHD	0.08	2.3101e-006
tblVehicleEF	HHD	0.04	9.4046e-003

tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.7900e-004	4.7299e-007
tblVehicleEF	HHD	9.5000e-005	1.7395e-006
tblVehicleEF	HHD	4.6590e-003	7.8713e-005
tblVehicleEF	HHD	0.46	0.49
tblVehicleEF	HHD	6.0000e-005	9.8718e-007
tblVehicleEF	HHD	0.15	0.08
tblVehicleEF	HHD	4.0300e-004	3.9667e-004
tblVehicleEF	HHD	0.09	2.5293e-006
tblVehicleEF	LDA	2.5670e-003	1.3656e-003
tblVehicleEF	LDA	3.2680e-003	0.04
tblVehicleEF	LDA	0.41	0.47
tblVehicleEF	LDA	0.84	1.94
tblVehicleEF	LDA	206.01	220.20
tblVehicleEF	LDA	48.83	46.75
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.04	0.15
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5230e-003	1.1907e-003
tblVehicleEF	LDA	2.1880e-003	1.5672e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.4020e-003	1.0962e-003
tblVehicleEF	LDA	2.0120e-003	1.4410e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	6.4390e-003	4.9190e-003
tblVehicleEF	LDA	0.03	0.19

tblVehicleEF	LDA	0.04	0.16
tblVehicleEF	LDA	2.0620e-003	9.2798e-005
tblVehicleEF	LDA	5.0200e-004	0.00
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	9.3640e-003	7.1492e-003
tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.05	0.18
tblVehicleEF	LDT1	5.5980e-003	2.7305e-003
tblVehicleEF	LDT1	7.5190e-003	0.05
tblVehicleEF	LDT1	0.76	0.71
tblVehicleEF	LDT1	1.67	2.09
tblVehicleEF	LDT1	262.03	264.87
tblVehicleEF	LDT1	61.70	56.84
tblVehicleEF	LDT1	0.07	0.05
tblVehicleEF	LDT1	0.09	0.19
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.9540e-003	1.4441e-003
tblVehicleEF	LDT1	2.6790e-003	1.8819e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.7980e-003	1.3285e-003
tblVehicleEF	LDT1	2.4630e-003	1.7304e-003
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.16	0.12
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.01	0.01
tblVehicleEF	LDT1	0.13	0.47

tblVehicleEF	LDT1	0.10	0.22
tblVehicleEF	LDT1	2.6280e-003	2.6149e-003
tblVehicleEF	LDT1	6.4500e-004	0.00
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.16	0.12
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.13	0.47
tblVehicleEF	LDT1	0.11	0.24
tblVehicleEF	LDT2	3.9270e-003	2.4213e-003
tblVehicleEF	LDT2	4.6800e-003	0.05
tblVehicleEF	LDT2	0.58	0.66
tblVehicleEF	LDT2	1.13	2.54
tblVehicleEF	LDT2	296.40	280.92
tblVehicleEF	LDT2	69.39	60.84
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.08	0.21
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6390e-003	1.2677e-003
tblVehicleEF	LDT2	2.3480e-003	1.6141e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5070e-003	1.1670e-003
tblVehicleEF	LDT2	2.1590e-003	1.4841e-003
tblVehicleEF	LDT2	0.03	0.06
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	9.7420e-003	9.5471e-003
tblVehicleEF	LDT2	0.06	0.39

tblVehicleEF	LDT2	0.06	0.24
tblVehicleEF	LDT2	2.9680e-003	0.01
tblVehicleEF	LDT2	7.1300e-004	8.7599e-005
tblVehicleEF	LDT2	0.03	0.06
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.39
tblVehicleEF	LDT2	0.07	0.27
tblVehicleEF	LHD1	4.6790e-003	4.6672e-003
tblVehicleEF	LHD1	0.01	6.7655e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	0.81	0.61
tblVehicleEF	LHD1	2.14	0.99
tblVehicleEF	LHD1	8.97	8.66
tblVehicleEF	LHD1	665.14	749.59
tblVehicleEF	LHD1	29.84	11.02
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.82	0.50
tblVehicleEF	LHD1	0.85	0.27
tblVehicleEF	LHD1	8.4500e-004	8.7170e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	9.8314e-003
tblVehicleEF	LHD1	0.01	8.5973e-003
tblVehicleEF	LHD1	8.1100e-004	2.3163e-004
tblVehicleEF	LHD1	8.0900e-004	8.3399e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5630e-003	2.4578e-003
tblVehicleEF	LHD1	0.01	8.1792e-003

tblVehicleEF	LHD1	7.4600e-004	2.1298e-004
tblVehicleEF	LHD1	2.3230e-003	1.7167e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.2230e-003	9.0428e-004
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.30	0.46
tblVehicleEF	LHD1	0.21	0.06
tblVehicleEF	LHD1	9.0000e-005	8.3993e-005
tblVehicleEF	LHD1	6.5140e-003	7.3147e-003
tblVehicleEF	LHD1	3.3800e-004	1.0905e-004
tblVehicleEF	LHD1	2.3230e-003	1.7167e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.2230e-003	9.0428e-004
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.30	0.46
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD2	2.9160e-003	2.8272e-003
tblVehicleEF	LHD2	6.1790e-003	6.0419e-003
tblVehicleEF	LHD2	4.7100e-003	6.5336e-003
tblVehicleEF	LHD2	0.12	0.14
tblVehicleEF	LHD2	0.49	0.54
tblVehicleEF	LHD2	0.99	0.55
tblVehicleEF	LHD2	13.82	13.60
tblVehicleEF	LHD2	689.53	727.00
tblVehicleEF	LHD2	22.84	7.15
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.42	0.60
tblVehicleEF	LHD2	0.35	0.15

tblVehicleEF	LHD2	1.1530e-003	1.4658e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8100e-004	1.1718e-004
tblVehicleEF	LHD2	1.1040e-003	1.4024e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7010e-003	2.7003e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5100e-004	1.0775e-004
tblVehicleEF	LHD2	6.3900e-004	8.4288e-004
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.6200e-004	4.5659e-004
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	0.05	0.20
tblVehicleEF	LHD2	0.06	0.03
tblVehicleEF	LHD2	1.3500e-004	1.2990e-004
tblVehicleEF	LHD2	6.7010e-003	7.0164e-003
tblVehicleEF	LHD2	2.4600e-004	7.0732e-005
tblVehicleEF	LHD2	6.3900e-004	8.4288e-004
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.6200e-004	4.5659e-004
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.05	0.20
tblVehicleEF	LHD2	0.07	0.04
tblVehicleEF	MCY	0.45	0.32
tblVehicleEF	MCY	0.16	0.25
tblVehicleEF	MCY	18.05	18.17

tblVehicleEF	MCY	10.25	9.11
tblVehicleEF	MCY	170.65	209.94
tblVehicleEF	MCY	44.05	60.17
tblVehicleEF	MCY	1.14	1.14
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	2.0890e-003	2.0606e-003
tblVehicleEF	MCY	3.4880e-003	2.9293e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.9500e-003	1.9235e-003
tblVehicleEF	MCY	3.2730e-003	2.7475e-003
tblVehicleEF	MCY	0.89	1.80
tblVehicleEF	MCY	0.66	0.66
tblVehicleEF	MCY	0.48	0.96
tblVehicleEF	MCY	2.16	2.16
tblVehicleEF	MCY	0.54	1.75
tblVehicleEF	MCY	2.16	1.91
tblVehicleEF	MCY	2.0660e-003	2.0775e-003
tblVehicleEF	MCY	6.7200e-004	5.9540e-004
tblVehicleEF	MCY	0.89	1.80
tblVehicleEF	MCY	0.66	0.66
tblVehicleEF	MCY	0.48	0.96
tblVehicleEF	MCY	2.69	2.70
tblVehicleEF	MCY	0.54	1.75
tblVehicleEF	MCY	2.35	2.08
tblVehicleEF	MDV	7.0480e-003	2.6580e-003
tblVehicleEF	MDV	0.01	0.06
tblVehicleEF	MDV	0.85	0.68

tblVehicleEF	MDV	2.04	2.69
tblVehicleEF	MDV	400.76	339.08
tblVehicleEF	MDV	92.41	72.17
tblVehicleEF	MDV	0.10	0.05
tblVehicleEF	MDV	0.17	0.24
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.7210e-003	1.3173e-003
tblVehicleEF	MDV	2.4070e-003	1.6618e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5860e-003	1.2148e-003
tblVehicleEF	MDV	2.2130e-003	1.5279e-003
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.15	0.12
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.02	0.01
tblVehicleEF	MDV	0.10	0.40
tblVehicleEF	MDV	0.15	0.28
tblVehicleEF	MDV	4.0100e-003	3.3511e-003
tblVehicleEF	MDV	9.5900e-004	7.1421e-004
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.15	0.12
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.10	0.40
tblVehicleEF	MDV	0.16	0.31
tblVehicleEF	MH	0.02	7.6665e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.24	0.68

tblVehicleEF	MH	4.69	1.87
tblVehicleEF	MH	1,198.30	1,445.75
tblVehicleEF	MH	57.81	17.15
tblVehicleEF	MH	1.06	1.21
tblVehicleEF	MH	0.72	0.24
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.0090e-003	2.4040e-004
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	3.2869e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	9.2700e-004	2.2104e-004
tblVehicleEF	MH	0.64	0.52
tblVehicleEF	MH	0.05	0.04
tblVehicleEF	MH	0.23	0.19
tblVehicleEF	MH	0.07	0.05
tblVehicleEF	MH	0.02	1.01
tblVehicleEF	MH	0.27	0.08
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.6000e-004	1.6975e-004
tblVehicleEF	MH	0.64	0.52
tblVehicleEF	MH	0.05	0.04
tblVehicleEF	MH	0.23	0.19
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.02	1.01
tblVehicleEF	MH	0.30	0.09
tblVehicleEF	MHD	0.02	3.6597e-003
tblVehicleEF	MHD	3.4340e-003	1.3684e-003
tblVehicleEF	MHD	0.04	8.6826e-003

tblVehicleEF	MHD	0.37	0.40
tblVehicleEF	MHD	0.29	0.19
tblVehicleEF	MHD	4.65	0.97
tblVehicleEF	MHD	133.69	69.63
tblVehicleEF	MHD	1,178.99	1,051.19
tblVehicleEF	MHD	59.87	8.85
tblVehicleEF	MHD	0.35	0.38
tblVehicleEF	MHD	1.08	1.45
tblVehicleEF	MHD	10.16	1.70
tblVehicleEF	MHD	8.3000e-005	2.7717e-004
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	3.0880e-003	7.0645e-003
tblVehicleEF	MHD	8.3800e-004	1.1167e-004
tblVehicleEF	MHD	8.0000e-005	2.6518e-004
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	2.9480e-003	6.7521e-003
tblVehicleEF	MHD	7.7100e-004	1.0268e-004
tblVehicleEF	MHD	7.3900e-004	3.3434e-004
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	4.0900e-004	1.8037e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.09
tblVehicleEF	MHD	0.28	0.04
tblVehicleEF	MHD	1.2880e-003	6.6060e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.8000e-004	8.7599e-005
tblVehicleEF	MHD	7.3900e-004	3.3434e-004

tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	4.0900e-004	1.8037e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.02	0.09
tblVehicleEF	MHD	0.31	0.05
tblVehicleEF	OBUS	0.01	7.0724e-003
tblVehicleEF	OBUS	5.0380e-003	2.9936e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.61
tblVehicleEF	OBUS	0.37	0.35
tblVehicleEF	OBUS	4.49	1.73
tblVehicleEF	OBUS	104.04	95.34
tblVehicleEF	OBUS	1,285.07	1,283.24
tblVehicleEF	OBUS	65.96	14.49
tblVehicleEF	OBUS	0.22	0.40
tblVehicleEF	OBUS	0.92	1.45
tblVehicleEF	OBUS	2.69	1.11
tblVehicleEF	OBUS	2.0000e-005	1.3134e-004
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.8820e-003	7.5496e-003
tblVehicleEF	OBUS	8.7800e-004	1.4869e-004
tblVehicleEF	OBUS	2.0000e-005	1.2566e-004
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	2.7360e-003	7.2095e-003
tblVehicleEF	OBUS	8.0800e-004	1.3672e-004
tblVehicleEF	OBUS	1.1600e-003	1.0723e-003
tblVehicleEF	OBUS	0.01	0.02

tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.1900e-004	4.8324e-004
tblVehicleEF	OBUS	0.04	0.02
tblVehicleEF	OBUS	0.03	0.18
tblVehicleEF	OBUS	0.28	0.08
tblVehicleEF	OBUS	1.0040e-003	9.0545e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.3800e-004	1.4342e-004
tblVehicleEF	OBUS	1.1600e-003	1.0723e-003
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	5.1900e-004	4.8324e-004
tblVehicleEF	OBUS	0.05	0.03
tblVehicleEF	OBUS	0.03	0.18
tblVehicleEF	OBUS	0.31	0.09
tblVehicleEF	SBUS	0.81	0.06
tblVehicleEF	SBUS	0.01	5.4707e-003
tblVehicleEF	SBUS	0.07	5.3640e-003
tblVehicleEF	SBUS	8.46	2.48
tblVehicleEF	SBUS	0.78	0.45
tblVehicleEF	SBUS	8.66	0.76
tblVehicleEF	SBUS	1,071.32	344.98
tblVehicleEF	SBUS	1,032.09	1,025.26
tblVehicleEF	SBUS	58.82	4.41
tblVehicleEF	SBUS	6.58	3.24
tblVehicleEF	SBUS	2.75	4.17
tblVehicleEF	SBUS	11.46	0.95
tblVehicleEF	SBUS	5.0460e-003	3.0574e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	9.7600e-004	5.4262e-005
tblVehicleEF	SBUS	4.8280e-003	2.9252e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.6090e-003	2.7030e-003
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	8.9800e-004	4.9892e-005
tblVehicleEF	SBUS	3.3660e-003	6.4114e-004
tblVehicleEF	SBUS	0.03	6.2048e-003
tblVehicleEF	SBUS	1.00	0.27
tblVehicleEF	SBUS	1.5600e-003	2.9202e-004
tblVehicleEF	SBUS	0.09	0.08
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.44	0.03
tblVehicleEF	SBUS	0.01	3.2858e-003
tblVehicleEF	SBUS	9.9690e-003	9.7972e-003
tblVehicleEF	SBUS	7.3700e-004	4.3684e-005
tblVehicleEF	SBUS	3.3660e-003	6.4114e-004
tblVehicleEF	SBUS	0.03	6.2048e-003
tblVehicleEF	SBUS	1.45	0.39
tblVehicleEF	SBUS	1.5600e-003	2.9202e-004
tblVehicleEF	SBUS	0.11	0.09
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.48	0.03
tblVehicleEF	UBUS	0.23	1.74
tblVehicleEF	UBUS	0.04	1.7571e-003
tblVehicleEF	UBUS	3.77	13.20
tblVehicleEF	UBUS	7.31	0.14
tblVehicleEF	UBUS	2,007.57	1,654.13
tblVehicleEF	UBUS	114.33	1.40

tblVehicleEF	UBUS	7.17	0.71
tblVehicleEF	UBUS	13.83	0.01
tblVehicleEF	UBUS	0.57	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.15	5.1699e-003
tblVehicleEF	UBUS	1.2080e-003	1.5176e-005
tblVehicleEF	UBUS	0.24	0.03
tblVehicleEF	UBUS	3.0000e-003	8.3315e-003
tblVehicleEF	UBUS	0.15	4.9447e-003
tblVehicleEF	UBUS	1.1100e-003	1.3953e-005
tblVehicleEF	UBUS	2.0830e-003	2.7092e-005
tblVehicleEF	UBUS	0.03	2.5832e-004
tblVehicleEF	UBUS	1.1550e-003	1.3037e-005
tblVehicleEF	UBUS	0.36	0.03
tblVehicleEF	UBUS	7.3900e-003	1.4524e-003
tblVehicleEF	UBUS	0.58	7.3619e-003
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.2750e-003	1.3812e-005
tblVehicleEF	UBUS	2.0830e-003	2.7092e-005
tblVehicleEF	UBUS	0.03	2.5832e-004
tblVehicleEF	UBUS	1.1550e-003	1.3037e-005
tblVehicleEF	UBUS	0.62	1.78
tblVehicleEF	UBUS	7.3900e-003	1.4524e-003
tblVehicleEF	UBUS	0.64	8.0603e-003
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	5.70	9.04
tblVehicleTrips	HS_TL	4.80	9.04
tblVehicleTrips	HW_TL	10.80	9.04
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00

tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	33.82	0.00
tblVehicleTrips	WD_TR	9.52	9.44
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	956.80	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.5125	0.0230	1.9955	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1200e-003	0.0000	3.3409
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	20.7308	20.7308	0.0286	5.9200e-003	23.2116
Mobile	0.8400	1.6527	8.1255	0.0275	3.0891	0.0211	3.1102	0.8265	0.0198	0.8463	0.0000	2,574.1903	2,574.1903	0.0953	0.0000	2,576.5721
Waste						0.0000	0.0000		0.0000	0.0000	69.0332	0.0000	69.0332	4.0797	0.0000	171.0268

Water						0.0000	0.0000		0.0000	0.0000	6.2637	1.2845	7.5482	0.0233	0.0140	12.3000
Total	**3.3525**	**1.6757**	**10.1210**	**0.0276**	**3.0891**	**0.0322**	**3.1213**	**0.8265**	**0.0309**	**0.8573**	**75.2968**	**2,599.4684**	**2,674.7652**	**4.2301**	**0.0199**	**2,786.4513**

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	2.5125	0.0230	1.9955	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1200e-003	0.0000	3.3409
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	20.7308	20.7308	0.0286	5.9200e-003	23.2116
Mobile	0.8400	1.6527	8.1255	0.0275	3.0891	0.0211	3.1102	0.8265	0.0198	0.8463	0.0000	2,574.1903	2,574.1903	0.0953	0.0000	2,576.5721
Waste						0.0000	0.0000		0.0000	0.0000	69.0332	0.0000	69.0332	4.0797	0.0000	171.0268
Water						0.0000	0.0000		0.0000	0.0000	5.0109	1.0793	6.0902	0.0187	0.0112	9.8979
Total	**3.3525**	**1.6757**	**10.1210**	**0.0276**	**3.0891**	**0.0322**	**3.1213**	**0.8265**	**0.0309**	**0.8573**	**74.0441**	**2,599.2632**	**2,673.3073**	**4.2255**	**0.0171**	**2,784.0492**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.66**	**0.01**	**0.05**	**0.11**	**13.96**	**0.09**

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	0.8400	1.6527	8.1255	0.0275	3.0891	0.0211	3.1102	0.8265	0.0198	0.8463	0.0000	2,574.1903	2,574.1903	0.0953	0.0000	2,576.5721
Unmitigated	0.8400	1.6527	8.1255	0.0275	3.0891	0.0211	3.1102	0.8265	0.0198	0.8463	0.0000	2,574.1903	2,574.1903	0.0953	0.0000	2,576.5721

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Single Family Housing	2,539.36	2,665.79	2318.78	8,311,658	8,311,658
Total	2,539.36	2,665.79	2,318.78	8,311,658	8,311,658

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Single Family Housing	9.04	9.04	9.04	31.00	15.00	54.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.618126	0.034987	0.181060	0.102744	0.012808	0.005030	0.012887	0.022139	0.002195	0.001502	0.005204	0.000638	0.000681
Recreational Swimming Pool	0.618126	0.034987	0.181060	0.102744	0.012808	0.005030	0.012887	0.022139	0.002195	0.001502	0.005204	0.000638	0.000681
Single Family Housing	0.593877	0.053382	0.174267	0.106373	0.020945	0.005401	0.013559	0.022807	0.001528	0.001225	0.004979	0.000915	0.000742

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	20.7308	20.7308	0.0286	5.9200e-003	23.2116
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.7308	20.7308	0.0286	5.9200e-003	23.2116
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
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
Recreational Swimming Pool	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
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
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
Recreational Swimming Pool	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
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.17636e+006	20.7308	0.0286	5.9200e-003	23.2116
Total		**20.7308**	**0.0286**	**5.9200e-003**	**23.2116**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.17636e+006	20.7308	0.0286	5.9200e-003	23.2116
Total		**20.7308**	**0.0286**	**5.9200e-003**	**23.2116**

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	2.5125	0.0230	1.9955	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1200e-003	0.0000	3.3409
Unmitigated	2.5125	0.0230	1.9955	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1200e-003	0.0000	3.3409

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	0.3728					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0599	0.0230	1.9955	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1200e-003	0.0000	3.3409
Total	**2.5125**	**0.0230**	**1.9955**	**1.1000e-004**		**0.0111**	**0.0111**		**0.0111**	**0.0111**	**0.0000**	**3.2628**	**3.2628**	**3.1200e-003**	**0.0000**	**3.3409**

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	0.3728					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0599	0.0230	1.9955	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1200e-003	0.0000	3.3409
Total	**2.5125**	**0.0230**	**1.9955**	**1.1000e-004**		**0.0111**	**0.0111**		**0.0111**	**0.0111**	**0.0000**	**3.2628**	**3.2628**	**3.1200e-003**	**0.0000**	**3.3409**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.0902	0.0187	0.0112	9.8979
Unmitigated	7.5482	0.0233	0.0140	12.3000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.177429 / 0.108747	0.0756	2.3000e-004	1.4000e-004	0.1232
Single Family Housing	17.5264 / 11.0493	7.4726	0.0231	0.0139	12.1769
Total		**7.5482**	**0.0233**	**0.0140**	**12.3000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.141944 / 0.102113	0.0609	1.9000e-004	1.1000e-004	0.0991
Single Family Housing	14.0211 / 10.3753	6.0293	0.0186	0.0111	9.7988
Total		**6.0902**	**0.0187**	**0.0112**	**9.8979**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	69.0332	4.0797	0.0000	171.0268
Unmitigated	69.0332	4.0797	0.0000	171.0268

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	17.1	3.4712	0.2051	0.0000	8.5996
Single Family Housing	322.98	65.5620	3.8746	0.0000	162.4271
Total		**69.0332**	**4.0797**	**0.0000**	**171.0268**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	17.1	3.4712	0.2051	0.0000	8.5996
Single Family Housing	322.98	65.5620	3.8746	0.0000	162.4271
Total		**69.0332**	**4.0797**	**0.0000**	**171.0268**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Half Rd - Operational - Santa Clara County, Annual

Half Rd - Operational

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3.00	Acre	0.00	130,680.00	0
Recreational Swimming Pool	3.00	1000sqft	0.00	3,000.00	0
Single Family Housing	269.00	Dwelling Unit	30.50	512,363.00	769

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	21	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SVCE with some PG&E

Land Use - Added club House. Assume about 10% asphalt surfaces

Construction Phase - Operational run

Off-road Equipment - Operational run

Trips and VMT - Operational run

Vehicle Trips - Crosswinds Trip Rate. Traffic VMT all Primary trips

Woodstoves - No Hearth

Water And Wastewater - Wastewater Treatment

Water Mitigation -

Energy Use - Reach Code - no natural gas

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	T24NG	25,910.09	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	67.25	0.00
tblFireplaces	NumberWood	115.67	0.00
tblFleetMix	HHD	0.02	0.02
tblFleetMix	LDA	0.62	0.60
tblFleetMix	LDT1	0.03	0.05
tblFleetMix	LDT2	0.18	0.17
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD2	5.0600e-003	5.5563e-003
tblFleetMix	MCY	5.1220e-003	4.7803e-003
tblFleetMix	MDV	0.10	0.11
tblFleetMix	MH	6.5100e-004	7.2763e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	2.2210e-003	1.4429e-003
tblFleetMix	SBUS	6.4600e-004	9.0041e-004
tblFleetMix	UBUS	1.4700e-003	1.1782e-003
tblLandUse	LandUseSquareFeet	484,200.00	512,363.00
tblLandUse	LotAcreage	3.00	0.00
tblLandUse	LotAcreage	0.07	0.00
tblLandUse	LotAcreage	87.34	30.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	21

tblVehicleEF	HHD	0.27	0.02
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	0.06	4.3467e-007
tblVehicleEF	HHD	1.43	6.28
tblVehicleEF	HHD	0.94	0.41
tblVehicleEF	HHD	4.01	6.6853e-003
tblVehicleEF	HHD	4,037.05	930.05
tblVehicleEF	HHD	1,498.85	1,226.35
tblVehicleEF	HHD	12.27	0.05
tblVehicleEF	HHD	12.16	5.20
tblVehicleEF	HHD	1.59	2.52
tblVehicleEF	HHD	19.20	2.31
tblVehicleEF	HHD	3.6830e-003	2.1459e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.6600e-003	0.02
tblVehicleEF	HHD	1.3500e-004	5.8009e-007
tblVehicleEF	HHD	3.5230e-003	2.0531e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8550e-003	8.9053e-003
tblVehicleEF	HHD	5.4140e-003	0.02
tblVehicleEF	HHD	1.2400e-004	5.3337e-007
tblVehicleEF	HHD	1.0100e-004	1.3299e-006
tblVehicleEF	HHD	4.6010e-003	5.7808e-005
tblVehicleEF	HHD	0.37	0.42
tblVehicleEF	HHD	6.4000e-005	7.9763e-007
tblVehicleEF	HHD	0.08	0.02
tblVehicleEF	HHD	4.1900e-004	2.8448e-004
tblVehicleEF	HHD	0.07	2.2699e-006
tblVehicleEF	HHD	0.04	8.6527e-003

tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.8800e-004	5.1111e-007
tblVehicleEF	HHD	1.0100e-004	1.3299e-006
tblVehicleEF	HHD	4.6010e-003	5.7808e-005
tblVehicleEF	HHD	0.43	0.49
tblVehicleEF	HHD	6.4000e-005	7.9763e-007
tblVehicleEF	HHD	0.15	0.07
tblVehicleEF	HHD	4.1900e-004	2.8448e-004
tblVehicleEF	HHD	0.08	2.4853e-006
tblVehicleEF	LDA	1.8990e-003	9.5948e-004
tblVehicleEF	LDA	2.1050e-003	0.03
tblVehicleEF	LDA	0.33	0.41
tblVehicleEF	LDA	0.63	1.72
tblVehicleEF	LDA	181.37	199.86
tblVehicleEF	LDA	42.51	42.17
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.1470e-003	9.2883e-004
tblVehicleEF	LDA	1.8260e-003	1.2750e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.0560e-003	8.5482e-004
tblVehicleEF	LDA	1.6790e-003	1.1723e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	4.7560e-003	3.2466e-003
tblVehicleEF	LDA	0.03	0.17

tblVehicleEF	LDA	0.03	0.12
tblVehicleEF	LDA	1.8150e-003	8.9986e-005
tblVehicleEF	LDA	4.3500e-004	0.00
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	6.9190e-003	4.7163e-003
tblVehicleEF	LDA	0.03	0.17
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDT1	3.6800e-003	1.6710e-003
tblVehicleEF	LDT1	4.5270e-003	0.04
tblVehicleEF	LDT1	0.55	0.54
tblVehicleEF	LDT1	1.12	1.85
tblVehicleEF	LDT1	233.07	241.46
tblVehicleEF	LDT1	54.62	51.55
tblVehicleEF	LDT1	0.05	0.03
tblVehicleEF	LDT1	0.06	0.15
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	1.4520e-003	1.0704e-003
tblVehicleEF	LDT1	2.1870e-003	1.4615e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.3350e-003	9.8426e-004
tblVehicleEF	LDT1	2.0110e-003	1.3438e-003
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.12	0.09
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	9.1170e-003	6.4999e-003
tblVehicleEF	LDT1	0.09	0.36

tblVehicleEF	LDT1	0.06	0.15
tblVehicleEF	LDT1	2.3350e-003	2.5672e-003
tblVehicleEF	LDT1	5.6500e-004	0.00
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.12	0.09
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.01	9.4833e-003
tblVehicleEF	LDT1	0.09	0.36
tblVehicleEF	LDT1	0.07	0.17
tblVehicleEF	LDT2	2.9960e-003	1.7258e-003
tblVehicleEF	LDT2	3.1970e-003	0.04
tblVehicleEF	LDT2	0.49	0.56
tblVehicleEF	LDT2	0.89	2.29
tblVehicleEF	LDT2	264.16	249.80
tblVehicleEF	LDT2	61.38	53.79
tblVehicleEF	LDT2	0.04	0.03
tblVehicleEF	LDT2	0.05	0.17
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.3060e-003	1.0247e-003
tblVehicleEF	LDT2	2.0190e-003	1.3399e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.2010e-003	9.4361e-004
tblVehicleEF	LDT2	1.8570e-003	1.2320e-003
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	7.4390e-003	6.5534e-003
tblVehicleEF	LDT2	0.06	0.34

tblVehicleEF	LDT2	0.04	0.18
tblVehicleEF	LDT2	2.6450e-003	9.4796e-003
tblVehicleEF	LDT2	6.2800e-004	8.4616e-005
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.01	9.5243e-003
tblVehicleEF	LDT2	0.06	0.34
tblVehicleEF	LDT2	0.05	0.20
tblVehicleEF	LHD1	3.9820e-003	4.1476e-003
tblVehicleEF	LHD1	8.6490e-003	5.1953e-003
tblVehicleEF	LHD1	0.01	9.0227e-003
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	0.61	0.47
tblVehicleEF	LHD1	1.67	0.89
tblVehicleEF	LHD1	8.93	8.25
tblVehicleEF	LHD1	641.43	698.55
tblVehicleEF	LHD1	26.94	10.09
tblVehicleEF	LHD1	0.06	0.05
tblVehicleEF	LHD1	0.53	0.30
tblVehicleEF	LHD1	0.67	0.23
tblVehicleEF	LHD1	7.8900e-004	9.1482e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	9.9012e-003
tblVehicleEF	LHD1	0.01	7.0191e-003
tblVehicleEF	LHD1	6.6500e-004	2.1020e-004
tblVehicleEF	LHD1	7.5500e-004	8.7524e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.6030e-003	2.4753e-003
tblVehicleEF	LHD1	9.7020e-003	6.6712e-003

tblVehicleEF	LHD1	6.1100e-004	1.9327e-004
tblVehicleEF	LHD1	1.8620e-003	1.4028e-003
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	1.0210e-003	7.7246e-004
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.26	0.43
tblVehicleEF	LHD1	0.15	0.04
tblVehicleEF	LHD1	8.9000e-005	7.9916e-005
tblVehicleEF	LHD1	6.2670e-003	6.8120e-003
tblVehicleEF	LHD1	3.0000e-004	9.9885e-005
tblVehicleEF	LHD1	1.8620e-003	1.4028e-003
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.0210e-003	7.7246e-004
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.26	0.43
tblVehicleEF	LHD1	0.16	0.05
tblVehicleEF	LHD2	2.5430e-003	2.5046e-003
tblVehicleEF	LHD2	5.3180e-003	5.3393e-003
tblVehicleEF	LHD2	3.2330e-003	4.8112e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.45	0.49
tblVehicleEF	LHD2	0.88	0.48
tblVehicleEF	LHD2	13.62	13.00
tblVehicleEF	LHD2	675.95	679.81
tblVehicleEF	LHD2	21.83	6.44
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.22	0.38
tblVehicleEF	LHD2	0.26	0.12

tblVehicleEF	LHD2	1.0460e-003	1.5018e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.3120e-003	0.01
tblVehicleEF	LHD2	3.7400e-004	1.0610e-004
tblVehicleEF	LHD2	1.0000e-003	1.4368e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7080e-003	2.7109e-003
tblVehicleEF	LHD2	8.8860e-003	0.01
tblVehicleEF	LHD2	3.4400e-004	9.7559e-005
tblVehicleEF	LHD2	5.1500e-004	6.4205e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.0800e-004	3.7383e-004
tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.04	0.14
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	1.3300e-004	1.2413e-004
tblVehicleEF	LHD2	6.5670e-003	6.5573e-003
tblVehicleEF	LHD2	2.3300e-004	6.3710e-005
tblVehicleEF	LHD2	5.1500e-004	6.4205e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.0800e-004	3.7383e-004
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	0.04	0.14
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	MCY	0.46	0.32
tblVehicleEF	MCY	0.16	0.25
tblVehicleEF	MCY	17.52	17.61

tblVehicleEF	MCY	10.34	9.20
tblVehicleEF	MCY	171.38	209.76
tblVehicleEF	MCY	42.85	59.23
tblVehicleEF	MCY	1.14	1.14
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	2.1570e-003	2.1383e-003
tblVehicleEF	MCY	3.3210e-003	2.8616e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	2.0120e-003	1.9944e-003
tblVehicleEF	MCY	3.1070e-003	2.6764e-003
tblVehicleEF	MCY	0.88	1.79
tblVehicleEF	MCY	0.61	0.63
tblVehicleEF	MCY	0.46	0.95
tblVehicleEF	MCY	2.12	2.13
tblVehicleEF	MCY	0.46	1.49
tblVehicleEF	MCY	2.11	1.88
tblVehicleEF	MCY	2.0640e-003	2.0757e-003
tblVehicleEF	MCY	6.5900e-004	5.8609e-004
tblVehicleEF	MCY	0.88	1.79
tblVehicleEF	MCY	0.61	0.63
tblVehicleEF	MCY	0.46	0.95
tblVehicleEF	MCY	2.66	2.67
tblVehicleEF	MCY	0.46	1.49
tblVehicleEF	MCY	2.30	2.04
tblVehicleEF	MDV	5.1180e-003	1.7719e-003
tblVehicleEF	MDV	7.2260e-003	0.04
tblVehicleEF	MDV	0.68	0.55

tblVehicleEF	MDV	1.51	2.32
tblVehicleEF	MDV	358.67	301.13
tblVehicleEF	MDV	82.28	63.46
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.11	0.18
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.3880e-003	1.0344e-003
tblVehicleEF	MDV	2.0820e-003	1.3439e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.2780e-003	9.5360e-004
tblVehicleEF	MDV	1.9150e-003	1.2356e-003
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.13	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.01	6.8870e-003
tblVehicleEF	MDV	0.09	0.34
tblVehicleEF	MDV	0.10	0.20
tblVehicleEF	MDV	3.5870e-003	2.9757e-003
tblVehicleEF	MDV	8.4800e-004	6.2800e-004
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.13	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.02	9.9832e-003
tblVehicleEF	MDV	0.09	0.34
tblVehicleEF	MDV	0.11	0.22
tblVehicleEF	MH	8.2310e-003	5.0270e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.45	0.31

tblVehicleEF	MH	3.72	1.64
tblVehicleEF	MH	1,184.19	1,350.27
tblVehicleEF	MH	56.79	15.54
tblVehicleEF	MH	0.84	1.06
tblVehicleEF	MH	0.62	0.24
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	8.8300e-004	2.1213e-004
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	3.2971e-003
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	8.1200e-004	1.9505e-004
tblVehicleEF	MH	0.46	0.35
tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.18	0.14
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	0.01	0.54
tblVehicleEF	MH	0.22	0.07
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.3200e-004	1.5379e-004
tblVehicleEF	MH	0.46	0.35
tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.18	0.14
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.01	0.54
tblVehicleEF	MH	0.24	0.08
tblVehicleEF	MHD	0.02	3.8322e-003
tblVehicleEF	MHD	2.7470e-003	1.0338e-003
tblVehicleEF	MHD	0.03	8.3828e-003

tblVehicleEF	MHD	0.37	0.41
tblVehicleEF	MHD	0.25	0.15
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tblVehicleEF	MHD	1,167.79	993.45
tblVehicleEF	MHD	59.45	8.55
tblVehicleEF	MHD	0.34	0.34
tblVehicleEF	MHD	1.04	1.43
tblVehicleEF	MHD	9.99	1.69
tblVehicleEF	MHD	5.2000e-005	1.6197e-004
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	3.0080e-003	7.0059e-003
tblVehicleEF	MHD	8.2100e-004	1.1182e-004
tblVehicleEF	MHD	5.0000e-005	1.5497e-004
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	2.8710e-003	6.6957e-003
tblVehicleEF	MHD	7.5400e-004	1.0282e-004
tblVehicleEF	MHD	6.4300e-004	2.8933e-004
tblVehicleEF	MHD	0.03	0.01
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.8200e-004	1.6833e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.07
tblVehicleEF	MHD	0.23	0.04
tblVehicleEF	MHD	1.2710e-003	6.1778e-004
tblVehicleEF	MHD	0.01	9.4796e-003
tblVehicleEF	MHD	6.6000e-004	8.4616e-005
tblVehicleEF	MHD	6.4300e-004	2.8933e-004

tblVehicleEF	MHD	0.03	0.01
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	3.8200e-004	1.6833e-004
tblVehicleEF	MHD	0.05	0.01
tblVehicleEF	MHD	0.02	0.07
tblVehicleEF	MHD	0.25	0.05
tblVehicleEF	OBUS	0.01	7.0977e-003
tblVehicleEF	OBUS	4.0840e-003	2.1965e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.64
tblVehicleEF	OBUS	0.30	0.26
tblVehicleEF	OBUS	4.08	1.58
tblVehicleEF	OBUS	110.55	97.36
tblVehicleEF	OBUS	1,272.30	1,210.85
tblVehicleEF	OBUS	64.94	13.46
tblVehicleEF	OBUS	0.24	0.43
tblVehicleEF	OBUS	0.85	1.45
tblVehicleEF	OBUS	2.74	1.13
tblVehicleEF	OBUS	2.2000e-005	1.4242e-004
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.8340e-003	7.8816e-003
tblVehicleEF	OBUS	9.3800e-004	1.5608e-004
tblVehicleEF	OBUS	2.1000e-005	1.3626e-004
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	2.6900e-003	7.5260e-003
tblVehicleEF	OBUS	8.6200e-004	1.4351e-004
tblVehicleEF	OBUS	1.1660e-003	1.0619e-003
tblVehicleEF	OBUS	0.01	0.02

tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.3200e-004	4.8664e-004
tblVehicleEF	OBUS	0.04	0.02
tblVehicleEF	OBUS	0.03	0.18
tblVehicleEF	OBUS	0.26	0.08
tblVehicleEF	OBUS	1.0660e-003	9.2423e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.2100e-004	1.3322e-004
tblVehicleEF	OBUS	1.1660e-003	1.0619e-003
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	5.3200e-004	4.8664e-004
tblVehicleEF	OBUS	0.05	0.02
tblVehicleEF	OBUS	0.03	0.18
tblVehicleEF	OBUS	0.28	0.08
tblVehicleEF	SBUS	0.81	0.07
tblVehicleEF	SBUS	7.6490e-003	4.4039e-003
tblVehicleEF	SBUS	0.06	6.3377e-003
tblVehicleEF	SBUS	8.87	2.93
tblVehicleEF	SBUS	0.48	0.37
tblVehicleEF	SBUS	7.57	0.86
tblVehicleEF	SBUS	1,023.58	337.48
tblVehicleEF	SBUS	1,008.60	970.50
tblVehicleEF	SBUS	61.81	5.06
tblVehicleEF	SBUS	4.35	2.71
tblVehicleEF	SBUS	1.72	3.09
tblVehicleEF	SBUS	10.76	1.18
tblVehicleEF	SBUS	2.1870e-003	2.0483e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	8.4940e-003	0.02
tblVehicleEF	SBUS	1.1020e-003	6.7596e-005
tblVehicleEF	SBUS	2.0920e-003	1.9597e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.5880e-003	2.6690e-003
tblVehicleEF	SBUS	8.1060e-003	0.02
tblVehicleEF	SBUS	1.0130e-003	6.2152e-005
tblVehicleEF	SBUS	3.7080e-003	8.6957e-004
tblVehicleEF	SBUS	0.03	8.3043e-003
tblVehicleEF	SBUS	1.05	0.32
tblVehicleEF	SBUS	1.7580e-003	4.1393e-004
tblVehicleEF	SBUS	0.07	0.06
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.40	0.04
tblVehicleEF	SBUS	0.01	3.2190e-003
tblVehicleEF	SBUS	9.7440e-003	9.2881e-003
tblVehicleEF	SBUS	7.4900e-004	5.0069e-005
tblVehicleEF	SBUS	3.7080e-003	8.6957e-004
tblVehicleEF	SBUS	0.03	8.3043e-003
tblVehicleEF	SBUS	1.53	0.46
tblVehicleEF	SBUS	1.7580e-003	4.1393e-004
tblVehicleEF	SBUS	0.08	0.07
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.43	0.04
tblVehicleEF	UBUS	0.23	1.86
tblVehicleEF	UBUS	0.05	2.1857e-003
tblVehicleEF	UBUS	3.04	14.11
tblVehicleEF	UBUS	7.59	0.14
tblVehicleEF	UBUS	1,937.16	1,668.67
tblVehicleEF	UBUS	126.43	1.40

tblVehicleEF	UBUS	4.75	0.71
tblVehicleEF	UBUS	13.02	0.02
tblVehicleEF	UBUS	0.54	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.10	5.1160e-003
tblVehicleEF	UBUS	1.3960e-003	1.5176e-005
tblVehicleEF	UBUS	0.23	0.03
tblVehicleEF	UBUS	3.0000e-003	8.3315e-003
tblVehicleEF	UBUS	0.10	4.8931e-003
tblVehicleEF	UBUS	1.2840e-003	1.3953e-005
tblVehicleEF	UBUS	2.5990e-003	6.1448e-005
tblVehicleEF	UBUS	0.04	8.1446e-004
tblVehicleEF	UBUS	1.5170e-003	3.5792e-005
tblVehicleEF	UBUS	0.23	0.03
tblVehicleEF	UBUS	9.4350e-003	4.9280e-003
tblVehicleEF	UBUS	0.65	9.2613e-003
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.4020e-003	1.3873e-005
tblVehicleEF	UBUS	2.5990e-003	6.1448e-005
tblVehicleEF	UBUS	0.04	8.1446e-004
tblVehicleEF	UBUS	1.5170e-003	3.5792e-005
tblVehicleEF	UBUS	0.48	1.90
tblVehicleEF	UBUS	9.4350e-003	4.9280e-003
tblVehicleEF	UBUS	0.71	0.01
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	5.70	9.04
tblVehicleTrips	HS_TL	4.80	9.04
tblVehicleTrips	HW_TL	10.80	9.04
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00

tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	33.82	0.00
tblVehicleTrips	WD_TR	9.52	9.44
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	956.80	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.5122	0.0230	1.9921	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1100e-003	0.0000	3.3405
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	20.7308	20.7308	0.0286	5.9200e-003	23.2116
Mobile	0.7000	1.4676	7.1032	0.0256	3.0895	0.0181	3.1076	0.8266	0.0170	0.8436	0.0000	2,339.1128	2,339.1128	0.0811	0.0000	2,341.1408
Waste						0.0000	0.0000		0.0000	0.0000	69.0332	0.0000	69.0332	4.0797	0.0000	171.0268

Water						0.0000	0.0000		0.0000	0.0000	6.2637	1.2845	7.5482	0.0233	0.0140	12.3000
Total	**3.2121**	**1.4906**	**9.0954**	**0.0257**	**3.0895**	**0.0292**	**3.1186**	**0.8266**	**0.0280**	**0.8547**	**75.2968**	**2,364.3909**	**2,439.6877**	**4.2159**	**0.0199**	**2,551.0197**

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	2.5122	0.0230	1.9921	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1100e-003	0.0000	3.3405
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	20.7308	20.7308	0.0286	5.9200e-003	23.2116
Mobile	0.7000	1.4676	7.1032	0.0256	3.0895	0.0181	3.1076	0.8266	0.0170	0.8436	0.0000	2,339.1128	2,339.1128	0.0811	0.0000	2,341.1408
Waste						0.0000	0.0000		0.0000	0.0000	69.0332	0.0000	69.0332	4.0797	0.0000	171.0268
Water						0.0000	0.0000		0.0000	0.0000	5.0109	1.0793	6.0902	0.0187	0.0112	9.8979
Total	**3.2121**	**1.4906**	**9.0954**	**0.0257**	**3.0895**	**0.0292**	**3.1186**	**0.8266**	**0.0280**	**0.8547**	**74.0441**	**2,364.1857**	**2,438.2298**	**4.2113**	**0.0171**	**2,548.6176**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.66**	**0.01**	**0.06**	**0.11**	**13.96**	**0.09**

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	0.7000	1.4676	7.1032	0.0256	3.0895	0.0181	3.1076	0.8266	0.0170	0.8436	0.0000	2,339.1128	2,339.1128	0.0811	0.0000	2,341.1408
Unmitigated	0.7000	1.4676	7.1032	0.0256	3.0895	0.0181	3.1076	0.8266	0.0170	0.8436	0.0000	2,339.1128	2,339.1128	0.0811	0.0000	2,341.1408

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Single Family Housing	2,539.36	2,665.79	2318.78	8,311,658	8,311,658
Total	2,539.36	2,665.79	2,318.78	8,311,658	8,311,658

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Single Family Housing	9.04	9.04	9.04	31.00	15.00	54.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.621541	0.034056	0.180136	0.101248	0.011859	0.005060	0.013110	0.022881	0.002221	0.001470	0.005122	0.000646	0.000651
Recreational Swimming Pool	0.621541	0.034056	0.180136	0.101248	0.011859	0.005060	0.013110	0.022881	0.002221	0.001470	0.005122	0.000646	0.000651
Single Family Housing	0.595423	0.053963	0.171400	0.106522	0.021043	0.005556	0.013639	0.023425	0.001443	0.001178	0.004780	0.000900	0.000728

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	20.7308	20.7308	0.0286	5.9200e-003	23.2116
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.7308	20.7308	0.0286	5.9200e-003	23.2116
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
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
Recreational Swimming Pool	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
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
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
Recreational Swimming Pool	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
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.17636e+006	20.7308	0.0286	5.9200e-003	23.2116
Total		**20.7308**	**0.0286**	**5.9200e-003**	**23.2116**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.17636e+006	20.7308	0.0286	5.9200e-003	23.2116
Total		**20.7308**	**0.0286**	**5.9200e-003**	**23.2116**

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	2.5122	0.0230	1.9921	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1100e-003	0.0000	3.3405
Unmitigated	2.5122	0.0230	1.9921	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1100e-003	0.0000	3.3405

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	0.3728					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0596	0.0230	1.9921	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1100e-003	0.0000	3.3405
Total	**2.5122**	**0.0230**	**1.9921**	**1.1000e-004**		**0.0111**	**0.0111**		**0.0111**	**0.0111**	**0.0000**	**3.2628**	**3.2628**	**3.1100e-003**	**0.0000**	**3.3405**

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	0.3728					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0596	0.0230	1.9921	1.1000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	3.2628	3.2628	3.1100e-003	0.0000	3.3405
Total	**2.5122**	**0.0230**	**1.9921**	**1.1000e-004**		**0.0111**	**0.0111**		**0.0111**	**0.0111**	**0.0000**	**3.2628**	**3.2628**	**3.1100e-003**	**0.0000**	**3.3405**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.0902	0.0187	0.0112	9.8979
Unmitigated	7.5482	0.0233	0.0140	12.3000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.177429 / 0.108747	0.0756	2.3000e-004	1.4000e-004	0.1232
Single Family Housing	17.5264 / 11.0493	7.4726	0.0231	0.0139	12.1769
Total		**7.5482**	**0.0233**	**0.0140**	**12.3000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.141944 / 0.102113	0.0609	1.9000e-004	1.1000e-004	0.0991
Single Family Housing	14.0211 / 10.3753	6.0293	0.0186	0.0111	9.7988
Total		**6.0902**	**0.0187**	**0.0112**	**9.8979**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	69.0332	4.0797	0.0000	171.0268
Unmitigated	69.0332	4.0797	0.0000	171.0268

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	17.1	3.4712	0.2051	0.0000	8.5996
Single Family Housing	322.98	65.5620	3.8746	0.0000	162.4271
Total		**69.0332**	**4.0797**	**0.0000**	**171.0268**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	17.1	3.4712	0.2051	0.0000	8.5996
Single Family Housing	322.98	65.5620	3.8746	0.0000	162.4271
Total		**69.0332**	**4.0797**	**0.0000**	**171.0268**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Half Road Construction - Demo & Grading - Op 2

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	269.00	Dwelling Unit	30.50	512,363.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2026
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	21	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SVCE w/som PG&E (10%)

Land Use - Whole site grading

Construction Phase - Based on provided construction information

Off-road Equipment - Based on provided construction information

Off-road Equipment - Based on provided construction information

Off-road Equipment - Based on provided construction information

Trips and VMT - computed in EMFAC2017 using Demo 3/0/9 SitePrep 10/0/0 Grading 18/0/250

Demolition - Based on provided construction information

Grading - Used 1,000cy for misc import/export

Construction Off-road Equipment Mitigation - Tier 4i and BMPs

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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
tblConstructionPhase	NumDays	30.00	4.00
tblConstructionPhase	NumDays	45.00	18.00
tblConstructionPhase	NumDays	20.00	5.00
tblGrading	MaterialExported	0.00	1,000.00
tblGrading	MaterialImported	0.00	1,000.00
tblLandUse	LandUseSquareFeet	484,200.00	512,363.00
tblLandUse	LotAcreage	87.34	30.50
tblLandUse	Population	769.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

tblOffRoadEquipment	UsageHours	8.00	3.10
tblOffRoadEquipment	UsageHours	8.00	4.30
tblOffRoadEquipment	UsageHours	8.00	4.80
tblProjectCharacteristics	CO2IntensityFactor	641.35	21
tblTripsAndVMT	HaulingTripNumber	9.00	0.00
tblTripsAndVMT	HaulingTripNumber	250.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0260	0.2925	0.1922	4.7000e-004	0.0315	0.0112	0.0427	3.4500e-003	0.0103	0.0137	0.0000	41.4427	41.4427	0.0134	0.0000	41.7778
Maximum	**0.0260**	**0.2925**	**0.1922**	**4.7000e-004**	**0.0315**	**0.0112**	**0.0427**	**3.4500e-003**	**0.0103**	**0.0137**	**0.0000**	**41.4427**	**41.4427**	**0.0134**	**0.0000**	**41.7778**

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	7.7100e-003	0.1324	0.2611	4.7000e-004	0.0142	7.7000e-004	0.0149	1.5500e-003	7.7000e-004	2.3200e-003	0.0000	41.4427	41.4427	0.0134	0.0000	41.7778
Maximum	**7.7100e-003**	**0.1324**	**0.2611**	**4.7000e-004**	**0.0142**	**7.7000e-004**	**0.0149**	**1.5500e-003**	**7.7000e-004**	**2.3200e-003**	**0.0000**	**41.4427**	**41.4427**	**0.0134**	**0.0000**	**41.7778**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**70.38**	**54.74**	**-35.86**	**0.00**	**55.02**	**93.11**	**65.00**	**55.07**	**92.52**	**83.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-1-2022**	**7-31-2022**	0.3072	0.1354
		Highest	0.3072	0.1354

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/13/2022	5/18/2022	5	4	
2	Site Preparation	Site Preparation	5/18/2022	5/24/2022	5	5	
3	Grading	Grading	5/24/2022	6/16/2022	5	18	

Acres of Grading (Site Preparation Phase): 14

Acres of Grading (Grading Phase): 43.42

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73

Demolition	Excavators	1	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Graders	1	6.40	187	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Scrapers	3	6.40	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	1	4.80	212	0.43
Grading	Excavators	1	3.10	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	3	4.30	367	0.48
Grading	Tractors/Loaders/Backhoes	1	4.80	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	1	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
Grading	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

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					9.4000e-004	0.0000	9.4000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-004	3.5500e-003	6.5100e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.6000e-004	1.6000e-004	0.0000	0.9072	0.9072	2.9000e-004	0.0000	0.9146
Total	**4.0000e-004**	**3.5500e-003**	**6.5100e-003**	**1.0000e-005**	**9.4000e-004**	**1.7000e-004**	**1.1100e-003**	**1.4000e-004**	**1.6000e-004**	**3.0000e-004**	**0.0000**	**0.9072**	**0.9072**	**2.9000e-004**	**0.0000**	**0.9146**

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					4.2000e-004	0.0000	4.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	1.3000e-004	4.5500e-003	7.8400e-003	1.0000e-005		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.9072	0.9072	2.9000e-004	0.0000	0.9146
Total	**1.3000e-004**	**4.5500e-003**	**7.8400e-003**	**1.0000e-005**	**4.2000e-004**	**2.0000e-005**	**4.4000e-004**	**6.0000e-005**	**2.0000e-005**	**8.0000e-005**	**0.0000**	**0.9072**	**0.9072**	**2.9000e-004**	**0.0000**	**0.9146**

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					7.4200e-003	0.0000	7.4200e-003	8.0000e-004	0.0000	8.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7500e-003	0.0642	0.0417	1.0000e-004		2.4300e-003	2.4300e-003		2.2300e-003	2.2300e-003	0.0000	9.1665	9.1665	2.9600e-003	0.0000	9.2406
Total	**5.7500e-003**	**0.0642**	**0.0417**	**1.0000e-004**	**7.4200e-003**	**2.4300e-003**	**9.8500e-003**	**8.0000e-004**	**2.2300e-003**	**3.0300e-003**	**0.0000**	**9.1665**	**9.1665**	**2.9600e-003**	**0.0000**	**9.2406**

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					3.3400e-003	0.0000	3.3400e-003	3.6000e-004	0.0000	3.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0275	0.0555	1.0000e-004		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	9.1665	9.1665	2.9600e-003	0.0000	9.2406
Total	**1.7100e-003**	**0.0275**	**0.0555**	**1.0000e-004**	**3.3400e-003**	**1.7000e-004**	**3.5100e-003**	**3.6000e-004**	**1.7000e-004**	**5.3000e-004**	**0.0000**	**9.1665**	**9.1665**	**2.9600e-003**	**0.0000**	**9.2406**

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 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					0.0231	0.0000	0.0231	2.5000e-003	0.0000	2.5000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0199	0.2248	0.1440	3.6000e-004		8.5800e-003	8.5800e-003		7.9000e-003	7.9000e-003	0.0000	31.3690	31.3690	0.0102	0.0000	31.6227
Total	**0.0199**	**0.2248**	**0.1440**	**3.6000e-004**	**0.0231**	**8.5800e-003**	**0.0317**	**2.5000e-003**	**7.9000e-003**	**0.0104**	**0.0000**	**31.3690**	**31.3690**	**0.0102**	**0.0000**	**31.6227**

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					0.0104	0.0000	0.0104	1.1300e-003	0.0000	1.1300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8700e-003	0.1003	0.1978	3.6000e-004		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	31.3690	31.3690	0.0102	0.0000	31.6226
Total	**5.8700e-003**	**0.1003**	**0.1978**	**3.6000e-004**	**0.0104**	**5.8000e-004**	**0.0110**	**1.1300e-003**	**5.8000e-004**	**1.7100e-003**	**0.0000**	**31.3690**	**31.3690**	**0.0102**	**0.0000**	**31.6226**

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**

Attachment 3: EMFAC2017 Calculations

Grading 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	3	0	12	0	9	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	129.6	0	180
Site Preparation	8	0	40	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	432	0	0
Grading	15	0	250	0	250	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2700	0	5000
Trenching	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Building Construction	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Paving	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Architectural Coating	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
												0		
						10.8	7.3	20				0		
												0		
												0		

Number of Days Per Year					
2022	5/13/22	6/13/22	24		
2023			0		
2024					
			24	**18**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays	
Demolition	2022/05/13	2022/05/18	5	4	
Site Preparation	2022/05/18	2022/05/24	5	5	
Grading	2022/05/24	2022/06/13	5	15	
Trenching	2022/11/10	2023/02/01	0	0	Overlap
Building Construction	2022/11/10	2023/09/27	0	0	
Paving	2023/09/28	2023/10/25	0	0	
Architectural Coating	2023/10/26	2023/11/22	0	0	

Phase 1 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*
Trenching	8	0	280	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3024	0	0
Building Construction	71	16	12425	2800	290	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	134190	20440	5800
Paving	18	0	250	0	112	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2700	0	2240
Building Interior	14	0	224	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2419.2	0	0
Building Construction	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Paving	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Architectural Coating	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
												0		
						10.8	7.3	20				0		
												0		
												0		

Number of Days Per Year			
2022	6/13/22	12/31/22	144
2023	1/1/23	3/14/23	54
2024			
			198

198 ***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays	
Trenching	2022/06/13	2022/07/29	5	35	
Building Construction	2022/07/13	2023/03/14	5	175	
Building Interior	2022/10/11	2022/12/05	5	40	
Paving	2022/11/28	2022/12/19	5	16	Overlap
x	2022/11/10	2023/09/27	0	0	
x	2023/09/28	2023/10/25	0	0	
x	2023/10/26	2023/11/22	0	0	

DePaul 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*
Grading	10	0	150	0	8	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1620	0	160
Trenching	8	0	280	0	4	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3024	0	80
Paving	20	0	250	0	140	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2700	0	2800
Building Interior	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Building Construction	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Paving	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Architectural Coating	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
												0		
						10.8	7.3	20				0		
												0		
Number of Days Per Year												0		
			0											
2025	2023/10/04	12/31/23	60											
			60		**140**	***Total Workdays***								

Phase	Start Date	End Date	Days/Week	Workdays
Grading	2023/10/04	2023/10/24	5	15
Trenching	2023/10/25	2023/12/12	5	35
Paving	2023/12/19	2023/12/22	5	16
	2025/09/05	2025/09/22	0	0
x	2022/11/10	2023/09/27	0	0
x	2023/09/28	2023/10/25	0	0
x	2023/10/26	2023/11/22	0	0

Phase 2 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*
Trenching	8	0	280	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3024	0	0
Building Construction	80	21	14000	3675	356	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	151200	26827.5	7120
Paving	20	0	250	0	140	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2700	0	2800
Building Interior	16	0	256	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2764.8	0	0
Building Construction	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Paving	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Architectural Coating	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
												0		
						10.8	7.3	20				0		
												0		
												0		

Number of Days Per Year			
2022			0
2023	2023/10/14	12/31/23	260
2024	1/1/24	8/15/2024	170
			430

236 ***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Trenching	2023/10/14	2023/12/01	5	35
Building Construction	2023/12/18	2024/08/16	5	175
Building Interior	2024/03/17	2024/05/10	5	40
Paving	2024/03/17	2024/04/08	5	16
x	2022/11/10	2023/09/27	0	0
x	2023/09/28	2023/10/25	0	0
x	2023/10/26	2023/11/22	0	0

Phase 3 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*
Trenching	8	0	200	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2160	0	0
Building Construction	80	21	6000	1575	356	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	64800	11497.5	7120
Paving	20	0	250	0	140	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2700	0	2800
Building Interior	16	0	192	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2073.6	0	0
Building Construction	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Paving	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Architectural Coating	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
												0		
						10.8	7.3	20				0		
												0		
Number of Days Per Year												0		
			0											
2025	2025/04/13	12/31/23	140											
			140	**140**	***Total Workdays***									

Phase	Start Date	End Date	Days/Week	Workdays
Trenching	2025/04/13	2025/05/16	5	25
Building Construction	2025/06/07	2025/09/19	5	75
Building Interior	2025/09/05	2025/10/30	5	40
Paving	2025/09/05	2025/09/22	5	12
x	2022/11/10	2023/09/27	0	0
x	2023/09/28	2023/10/25	0	0
x	2023/10/26	2023/11/22	0	0

Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles					
Year	NOx Exhaust	TOG Evaporative	TOG Exhaust	PM Exhaust	CO Exhaust
NA	1	1	1	1	1
2021	1.0002	1.0001	1.0002	1.0009	1.0005
2022	1.0004	1.0003	1.0004	1.0018	1.0014
2023	1.0007	1.0006	1.0007	1.0032	1.0027
2024	1.0012	1.0010	1.0011	1.0051	1.0044
2025	1.0018	1.0016	1.0016	1.0074	1.0065
2026	1.0023	1.0022	1.0020	1.0091	1.0083
2027	1.0028	1.0028	1.0024	1.0105	1.0102
2028	1.0034	1.0035	1.0028	1.0117	1.0120
2029	1.0040	1.0042	1.0032	1.0129	1.0138
2030	1.0047	1.0051	1.0037	1.0142	1.0156
2031	1.0054	1.0061	1.0042	1.0155	1.0173
2032	1.0061	1.0072	1.0047	1.0169	1.0189
2033	1.0068	1.0083	1.0052	1.0182	1.0204
2034	1.0075	1.0095	1.0058	1.0196	1.0218
2035	1.0081	1.0108	1.0063	1.0210	1.0232
2036	1.0088	1.0121	1.0069	1.0223	1.0244
2037	1.0094	1.0134	1.0074	1.0236	1.0255
2038	1.0099	1.0148	1.0079	1.0248	1.0265
2039	1.0104	1.0161	1.0085	1.0259	1.0274
2040	1.0109	1.0174	1.0090	1.0270	1.0281
2041	1.0113	1.0186	1.0095	1.0279	1.0288
2042	1.0116	1.0198	1.0099	1.0286	1.0294
2043	1.0119	1.0207	1.0103	1.0293	1.0299
2044	1.0122	1.0216	1.0106	1.0299	1.0303
2045	1.0124	1.0225	1.0109	1.0303	1.0306
2046	1.0125	1.0233	1.0111	1.0308	1.0309
2047	1.0127	1.0240	1.0113	1.0311	1.0311
2048	1.0128	1.0246	1.0115	1.0314	1.0313
2049	1.0128	1.0252	1.0116	1.0316	1.0315
2050	1.0129	1.0257	1.0117	1.0318	1.0316
Enter Year: 2022	**1.0004**	**1.0003**	**1.0004**	**1.0018**	**1.0014**

*PM Exhaust off model factor is only applied to the PM Exhaust emissions not start/idle

The off-model adjustment factors need to be applied only to emissions from gasoline light duty vehicles (LDA, LDT1, LDT2 and MDV). Please note that the adjustment factors are by calendar year and includes all model years.

Enter NA in the date field if adjustments do not apply

2026 CalEEMod EMFAC2017 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	0.004667	0.002827	0.00366	0.024581591	0.007072	0	0	0.059089	0
A	CH4_RUNEX	0.001366	0.002731	0.002421	0.002658	0.006766	0.006042	0.001368	0.048196739	0.002994	1.740623	0.322636	0.005471	0.007666
A	CH4_STREX	0.037668	0.048087	0.053787	0.059284	0.01193	0.006534	0.008683	4.41955E-07	0.016313	0.001757	0.251748	0.005364	0.021211
A	CO_IDLEX	0	0	0	0	0.181133	0.135072	0.395395	6.312916051	0.608593	0	0	2.477558	0
A	CO_RUNEX	0.470702	0.713398	0.660069	0.67636	0.614851	0.539388	0.193142	0.407888609	0.35403	13.20374	18.16544	0.449129	0.676059
A	CO_STREX	1.942342	2.094896	2.537292	2.688431	0.986313	0.549762	0.974119	0.005910001	1.731489	0.139137	9.112103	0.757026	1.865376
A	CO2_NBIO_IDLEX	0	0	0	0	8.664375	13.59577	69.62637	1010.863198	95.34232	0	0	344.9774	0
A	CO2_NBIO_RUNEX	220.2019	264.8733	280.9156	339.0796	749.5934	726.996	1051.185	1358.122651	1283.241	1654.125	209.9417	1025.262	1445.753
A	CO2_NBIO_STREX	46.74942	56.84445	60.83851	72.17283	11.01943	7.147686	8.852125	0.047796651	14.49277	1.395763	60.16678	4.41435	17.15363
A	NOX_IDLEX	0	0	0	0	0.052779	0.086502	0.384054	5.313842098	0.401134	0	0	3.237041	0
A	NOX_RUNEX	0.024319	0.052355	0.048719	0.054591	0.501705	0.60498	1.445388	2.645781643	1.452791	0.710904	1.142407	4.169337	1.212147
A	NOX_STREX	0.146785	0.185778	0.214688	0.241181	0.274	0.153209	1.698467	2.32114605	1.111138	0.012275	0.270461	0.952464	0.240339
A	PM10_IDLEX	0	0	0	0	0.000872	0.001466	0.000277	0.002421971	0.000131	0	0	0.003057	0
A	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061011269	0.13034	0.069383	0.01176	0.7448	0.13034
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009831	0.010801	0.012	0.035565238	0.012	0.033326	0.004	0.010812	0.013148
A	PM10_RUNEX	0.001191	0.001444	0.001268	0.001317	0.008597	0.014576	0.007064	0.024793091	0.00755	0.00517	0.002061	0.027088	0.020231
A	PM10_STREX	0.001567	0.001882	0.001614	0.001662	0.000232	0.000117	0.000112	6.07666E-07	0.000149	1.52E-05	0.002929	5.43E-05	0.00024
A	PM25_IDLEX	0	0	0	0	0.000834	0.001402	0.000265	0.002317197	0.000126	0	0	0.002925	0
A	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026147687	0.05586	0.029736	0.00504	0.3192	0.05586
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002458	0.0027	0.003	0.00889131	0.003	0.008332	0.001	0.002703	0.003287
A	PM25_RUNEX	0.001096	0.001328	0.001167	0.001215	0.008179	0.013921	0.006752	0.023720525	0.00721	0.004945	0.001924	0.025902	0.019315
A	PM25_STREX	0.001441	0.00173	0.001484	0.001528	0.000213	0.000108	0.000103	5.58726E-07	0.000137	1.4E-05	0.002748	4.99E-05	0.000221
A	ROG_DIURN	0.031026	0.063386	0.056043	0.063565	0.001717	0.000843	0.000334	1.73946E-06	0.001072	2.71E-05	1.796069	0.000641	0.521835
A	ROG_HTSK	0.07546	0.124908	0.10677	0.116658	0.064563	0.033077	0.016141	7.87131E-05	0.015877	0.000258	0.658739	0.006205	0.044593
A	ROG_IDLEX	0	0	0	0	0.019371	0.01467	0.018199	0.425464995	0.0479	0	0	0.274128	0
A	ROG_RESTL	0.028067	0.053388	0.054637	0.062343	0.000904	0.000457	0.00018	9.87177E-07	0.000483	1.3E-05	0.964052	0.000292	0.192731
A	ROG_RUNEX	0.004919	0.011315	0.009547	0.010801	0.082268	0.103701	0.013929	0.025230325	0.020648	0.025271	2.163162	0.076133	0.053216
A	ROG_RUNLS	0.185854	0.473603	0.387491	0.396121	0.458804	0.204792	0.087699	0.000396674	0.180023	0.001452	1.752085	0.040739	1.014315
A	ROG_STREX	0.160651	0.222735	0.243054	0.281273	0.059664	0.032087	0.044627	2.31009E-06	0.083133	0.007362	1.911911	0.030553	0.084521
A	SO2_IDLEX	0	0	0	0	8.4E-05	0.00013	0.000661	0.009404557	0.000905	0	0	0.003286	0
A	SO2_RUNEX	9.28E-05	0.002615	0.010025	0.003351	0.007315	0.007016	0.010025	0.012421666	0.012348	0.010671	0.002078	0.009797	0.014185
A	SO2_STREX	0	0	8.76E-05	0.000714	0.000109	7.07E-05	8.76E-05	4.72987E-07	0.000143	1.38E-05	0.000595	4.37E-05	0.00017
A	TOG_DIURN	0.031026	0.063386	0.056043	0.063565	0.001717	0.000843	0.000334	1.73946E-06	0.001072	2.71E-05	1.796069	0.000641	0.521835
A	TOG_HTSK	0.07546	0.124908	0.10677	0.116658	0.064563	0.033077	0.016141	7.87131E-05	0.015877	0.000258	0.658739	0.006205	0.044593
A	TOG_IDLEX	0	0	0	0	0.027158	0.019579	0.024791	0.489206564	0.061489	0	0	0.393293	0
A	TOG_RESTL	0.028067	0.053388	0.054637	0.062343	0.000904	0.000457	0.00018	9.87177E-07	0.000483	1.3E-05	0.964052	0.000292	0.192731
A	TOG_RUNEX	0.007149	0.016504	0.013895	0.015681	0.099279	0.120104	0.017205	0.076057465	0.027322	1.776895	2.697331	0.090583	0.068739
A	TOG_RUNLS	0.185854	0.473603	0.387491	0.396121	0.458804	0.204792	0.087699	0.000396674	0.180023	0.001452	1.752085	0.040739	1.014315
A	TOG_STREX	0.175893	0.243867	0.266113	0.307959	0.065324	0.035131	0.04886	2.52926E-06	0.09102	0.00806	2.081516	0.033451	0.09254

2026 CalEEMod EMFAC2017 Fleet Mix Input

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.593877	0.053382	0.174267	0.106373	0.020945	0.005401	0.013559	0.022807	0.001528	0.001225	0.004979	0.000915	0.000742

2030 CalEEMod EMFAC2017 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	0.004148	0.002505	0.003832	0.024231453	0.007098	0	0	0.070082	0
A	CH4_RUNEX	0.000959	0.001671	0.001726	0.001772	0.005195	0.005339	0.001034	0.04518098	0.002197	1.859484	0.319087	0.004404	0.005027
A	CH4_STREX	0.028931	0.035248	0.041821	0.043924	0.009023	0.004811	0.008383	4.34672E-07	0.015222	0.002186	0.24786	0.006338	0.019545
A	CO_IDLEX	0	0	0	0	0.17731	0.131894	0.405402	6.28489984	0.644155	0	0	2.927328	0
A	CO_RUNEX	0.411156	0.540474	0.559142	0.551517	0.468742	0.489111	0.152189	0.405949458	0.262856	14.11073	17.60732	0.374881	0.311691
A	CO_STREX	1.716961	1.849789	2.287973	2.324828	0.890393	0.484256	0.872515	0.006685308	1.577018	0.139137	9.199577	0.858725	1.635194
A	CO2_NBIO_IDLEX	0	0	0	0	8.251826	13.00041	65.09769	930.0496847	97.36242	0	0	337.4754	0
A	CO2_NBIO_RUNEX	199.8584	241.4555	249.7974	301.1272	698.5465	679.813	993.4479	1226.348086	1210.85	1668.671	209.7572	970.5049	1350.267
A	CO2_NBIO_STREX	42.16672	51.55301	53.79124	63.46105	10.09364	6.438033	8.550649	0.051649278	13.46187	1.401901	59.22586	5.059627	15.54123
A	NOX_IDLEX	0	0	0	0	0.045908	0.074209	0.341766	5.199426871	0.431935	0	0	2.710433	0
A	NOX_RUNEX	0.019319	0.033468	0.034489	0.035665	0.299902	0.384329	1.428316	2.517362076	1.448391	0.706433	1.137409	3.086533	1.063099
A	NOX_STREX	0.125333	0.151052	0.168209	0.179169	0.225227	0.124883	1.689216	2.314548745	1.129093	0.015157	0.270173	1.184451	0.23668
A	PM10_IDLEX	0	0	0	0	0.000915	0.001502	0.000162	0.002145897	0.000142	0	0	0.002048	0
A	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061109857	0.13034	0.069383	0.01176	0.7448	0.13034
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009901	0.010844	0.012	0.035621239	0.012	0.033326	0.004	0.010676	0.013189
A	PM10_RUNEX	0.000929	0.00107	0.001025	0.001034	0.007019	0.013839	0.007006	0.023790073	0.007882	0.005116	0.002138	0.021245	0.016043
A	PM10_STREX	0.001275	0.001461	0.00134	0.001344	0.00021	0.000106	0.000112	5.80093E-07	0.000156	1.52E-05	0.002862	6.76E-05	0.000212
A	PM25_IDLEX	0	0	0	0	0.000875	0.001437	0.000155	0.002053066	0.000136	0	0	0.00196	0
A	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026189939	0.05586	0.029736	0.00504	0.3192	0.05586
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002475	0.002711	0.003	0.00890531	0.003	0.008332	0.001	0.002669	0.003297
A	PM25_RUNEX	0.000855	0.000984	0.000944	0.000954	0.006671	0.013218	0.006696	0.022760894	0.007526	0.004893	0.001994	0.02031	0.015312
A	PM25_STREX	0.001172	0.001344	0.001232	0.001236	0.000193	9.76E-05	0.000103	5.33374E-07	0.000144	1.4E-05	0.002676	6.22E-05	0.000195
A	ROG_DIURN	0.024903	0.046388	0.048996	0.057349	0.001403	0.000642	0.000289	1.32994E-06	0.001062	6.14E-05	1.786807	0.00087	0.347564
A	ROG_HTSK	0.061657	0.093564	0.089096	0.0981	0.054855	0.024352	0.013852	5.78076E-05	0.015622	0.000814	0.631299	0.008304	0.028392
A	ROG_IDLEX	0	0	0	0	0.01734	0.013466	0.01847	0.422100311	0.050126	0	0	0.322319	0
A	ROG_RESTL	0.022934	0.041206	0.048532	0.056738	0.000772	0.000374	0.000168	7.97633E-07	0.000487	3.58E-05	0.946881	0.000414	0.1401
A	ROG_RUNEX	0.003247	0.0065	0.006553	0.006887	0.072661	0.0982	0.011844	0.024014489	0.016744	0.026969	2.128511	0.060159	0.038911
A	ROG_RUNLS	0.170512	0.364405	0.336782	0.340289	0.429696	0.143744	0.071507	0.000284481	0.181965	0.004928	1.487321	0.053902	0.535482
A	ROG_STREX	0.118715	0.154126	0.182707	0.199251	0.043726	0.022756	0.041407	2.2699E-06	0.076636	0.009261	1.877593	0.036024	0.074231
A	SO2_IDLEX	0	0	0	0	7.99E-05	0.000124	0.000618	0.00865265	0.000924	0	0	0.003219	0
A	SO2_RUNEX	9E-05	0.002567	0.00948	0.002976	0.006812	0.006557	0.00948	0.011212041	0.011649	0.010417	0.002076	0.009288	0.013242
A	SO2_STREX	0	0	8.46E-05	0.000628	9.99E-05	6.37E-05	8.46E-05	5.11111E-07	0.000133	1.39E-05	0.000586	5.01E-05	0.000154
A	TOG_DIURN	0.024903	0.046388	0.048996	0.057349	0.001403	0.000642	0.000289	1.32994E-06	0.001062	6.14E-05	1.786807	0.00087	0.347564
A	TOG_HTSK	0.061657	0.093564	0.089096	0.0981	0.054855	0.024352	0.013852	5.78076E-05	0.015622	0.000814	0.631299	0.008304	0.028392
A	TOG_IDLEX	0	0	0	0	0.02413	0.017772	0.025282	0.485180108	0.063906	0	0	0.463821	0
A	TOG_RESTL	0.022934	0.041206	0.048532	0.056738	0.000772	0.000374	0.000168	7.97633E-07	0.000487	3.58E-05	0.946881	0.000414	0.1401
A	TOG_RUNEX	0.004716	0.009483	0.009524	0.009983	0.08579	0.112949	0.014288	0.071682245	0.021563	1.898202	2.666273	0.071678	0.048331
A	TOG_RUNLS	0.170512	0.364405	0.336782	0.340289	0.429696	0.143744	0.071507	0.000284481	0.181965	0.004928	1.487321	0.053902	0.535482
A	TOG_STREX	0.129977	0.168749	0.200041	0.218155	0.047875	0.024915	0.045336	2.48526E-06	0.083906	0.01014	2.04481	0.039442	0.081274

2030 CalEEMod EMFAC2017 Fleet Mix Input

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.595423	0.053963	0.1714	0.106522	0.021043	0.005556	0.013639	0.023425	0.001443	0.001178	0.00478	0.0009	0.000728

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: SANTA CLARA
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMB	PM2.5_PMT	PM10_RUP	PM10_IDL	PM10_STR	PM10_PMB	PM10_PMT	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLE	N2O_STRE	ROG_RUNI	ROG_IDLE	ROG_STRE	ROG_HOTS	TOG_RUNI	TOG_IDLE	TOG_STRE	TOG_HOTS	TOG_RESTI	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
SANTA CLA	2022	HHDT	Aggregate	Aggregate	GAS	4.973172	516.9338	99.50323	3.654204	0	0.338391	0.001236	0	0.000744	0.005	0.02646	0.001344	0	0.00081	0.02	0.06174	1964.961	0	46.86739	0.097725	0	0.00044	0.140899	0	0.010576	0.494672	0	0.002301	0.136891	0.830556	0.033943	0.061166	0.721824	0	0.00252	0.136891	0.830556	0.033943	0.061166	30.00648	0	5.27737	0.019445	0	0.000464
SANTA CLA	2022	HHDT	Aggregate	Aggregate	DSL	8277.463	1011013	88031.26	3.535499	63.08378	2.080194	0.033949	0.03347	0	0.008873	0.026088	0.035484	0.034983	0	0.035494	0.060872	1486.606	11783.13	0	0.003901	0.215524	0	0.233674	1.852143	0	0.08399	4.640183	0	0	0	0.095616	5.282495	0	0	0	0	0	0.366847	63.30293	0	0.014045	0.111321	0
SANTA CLA	2022	HHDT	Aggregate	Aggregate	NG	348.7902	14223.14	1360.282	1.755776	21.14752	0	0.004789	0.030991	0	0.009	0.02646	0.005006	0.032392	0	0.036	0.06174	3203.692	4060.116	0	3.511574	1.248503	0	0.653093	0.827681	0	0.161697	0.045805	0	0	0	3.710887	1.306054	0	0	0	0	0	10.70122	21.55662	0	0	0	0
SANTA CLA	2022	LDA	Aggregate	Aggregate	GAS	733557.7	26453304	3456649	0.03872	0	0.197227	0.001299	0	0.001748	0.002	0.01575	0.001413	0	0.001902	0.008	0.03675	259.2126	0	55.39361	0.002345	0	0.054199	0.004449	0	0.026685	0.009015	0	0.243726	0.100881	0.22086	0.178182	0.20337	0.013151	0	0.266848	0.100881	0.22086	0.178182	0.20337	0.63218	0	2.325265	0.002565	0	0.000548
SANTA CLA	2022	LDA	Aggregate	Aggregate	DSL	7146.668	268335.1	33963.02	0.071556	0	0	0.006579	0	0	0.002	0.01575	0.006877	0	0	0.008	0.03675	200.3149	0	0	0.000626	0	0	0.031487	0	0	0.013485	0	0	0	0	0.015352	0	0	0	0	0	0.198488	0	0	0.001894	0	0
SANTA CLA	2022	LDA	Aggregate	Aggregate	ELEC	25894.61	943282.8	126428	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0
SANTA CLA	2022	LDT1	Aggregate	Aggregate	GAS	73556.92	2443329	340743.8	0.091156	0	0.251292	0.001724	0	0.002226	0.002	0.01575	0.001875	0	0.002421	0.008	0.03675	300.527	0	64.49485	0.004882	0	0.070027	0.007217	0	0.028775	0.021236	0	0.344801	0.173613	0.628849	0.332831	0.420667	0.030964	0	0.377511	0.173613	0.628849	0.332831	0.420667	1.068397	0	2.450832	0.002974	0	0.000638
SANTA CLA	2022	LDT1	Aggregate	Aggregate	DSL	36.8388	667.9121	121.0603	1.185315	0	0	0.157566	0	0	0.002	0.01575	0.164691	0	0	0.008	0.03675	408.3259	0	0	0.009501	0	0	0.064183	0	0	0.204561	0	0	0	0	0.232879	0	0	0	0	0	1.159574	0	0	0.00386	0	0
SANTA CLA	2022	LDT1	Aggregate	Aggregate	ELEC	624.8771	24059.07	3099.469	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0
SANTA CLA	2022	LDT2	Aggregate	Aggregate	GAS	250455.4	8295824	1167439	0.077278	0	0.299792	0.001307	0	0.001684	0.002	0.01575	0.001421	0	0.001831	0.008	0.03675	327.6413	0	71.42656	0.003665	0	0.072415	0.006473	0	0.033384	0.014906	0	0.339292	0.128171	0.436499	0.281495	0.299507	0.021744	0	0.371482	0.128171	0.436499	0.281495	0.299507	0.860463	0	2.923834	0.003242	0	0.000707
SANTA CLA	2022	LDT2	Aggregate	Aggregate	DSL	1663.513	62652.21	8136.947	0.039252	0	0	0.004754	0	0	0.002	0.01575	0.004969	0	0	0.008	0.03675	275.5741	0	0	0.000647	0	0	0.043316	0	0	0.013935	0	0	0	0	0.015864	0	0	0	0	0	0.123161	0	0	0.002605	0	0
SANTA CLA	2022	LDT2	Aggregate	Aggregate	ELEC	2695.96	82111.52	13502.44	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0
SANTA CLA	2022	LHDT1	Aggregate	Aggregate	GAS	16536.9	566343.8	246375.2	0.235238	0.038471	0.530556	0.002161	0	0.000388	0.002	0.03276	0.00235	0	0.000422	0.008	0.07644	1006.569	121.1222	18.98971	0.01086	0.121305	0.025473	0.014262	0.003125	0.041267	0.052874	0.440699	0.129054	0.125369	0.861898	0.025267	0.050121	0.077153	0.643067	0.141298	0.125369	0.861898	0.025267	0.050121	0.97349	3.751848	1.764958	0.009961	0.001199	0.000188
SANTA CLA	2022	LHDT1	Aggregate	Aggregate	DSL	11104.44	423266.4	139679.8	1.613919	2.033114	0	0.021273	0.026869	0	0.003	0.03276	0.022235	0.028084	0	0.012	0.07644	544.3042	133.047	0	0.007318	0.005098	0	0.085557	0.020913	0	0.157544	0.10976	0	0	0	0.179353	0.124954	0	0	0	0	0	0.661457	0.909745	0	0.005146	0.001258	0
SANTA CLA	2022	LHDT2	Aggregate	Aggregate	GAS	2253.3	77523.96	33570.81	0.240034	0.037891	0.516259	0.002078	0	0.000346	0.002	0.03822	0.00226	0	0.000377	0.008	0.08918	1147.291	139.0737	21.54397	0.008737	0.120275	0.024583	0.015135	0.003045	0.039911	0.039365	0.434196	0.123837	0.121118	0.819863	0.023133	0.046225	0.057441	0.633578	0.135586	0.121118	0.819863	0.023133	0.046225	0.722025	3.75488	1.776904	0.011353	0.001376	0.000213
SANTA CLA	2022	LHDT2	Aggregate	Aggregate	DSL	4438.985	166319.5	55836.85	1.346918	2.041795	0	0.021771	0.027131	0	0.003	0.03822	0.022756	0.028358	0	0.012	0.08918	612.5422	213.4891	0	0.007003	0.005098	0	0.096283	0.033558	0	0.150761	0.10976	0	0	0	0.171631	0.124954	0	0	0	0	0	0.634383	0.909745	0	0.005791	0.002018	0
SANTA CLA	2022	MCY	Aggregate	Aggregate	GAS	32925.36	241011	65850.71	1.151611	0	0.270649	0.001812	0	0.002978	0.001	0.00504	0.001937	0	0.003161	0.004	0.01176	210.2729	0	61.39967	0.328946	0	0.256691	0.06628	0	0.015352	2.228751	0	1.954835	0.704215	2.060677	0.995009	1.817765	2.753726	0	2.127328	0.704215	2.060677	0.995009	1.817765	19.18808	0	9.0045	0.002081	0	0.000608
SANTA CLA	2022	MDV	Aggregate	Aggregate	GAS	151961.1	4876240	702265.7	0.099589	0	0.371177	0.001397	0	0.001912	0.002	0.01575	0.001519	0	0.002079	0.008	0.03675	396.236	0	86.90417	0.004621	0	0.087878	0.007887	0	0.036541	0.019446	0	0.437645	0.147462	0.472734	0.331376	0.347901	0.028322	0	0.479161	0.147462	0.472734	0.331376	0.347901	0.980018	0	3.406111	0.003921	0	0.00086
SANTA CLA	2022	MDV	Aggregate	Aggregate	DSL	3721.225	135478.8	18101.22	0.038775	0	0	0.004203	0	0	0.002	0.01575	0.004393	0	0	0.008	0.03675	360.3121	0	0	0.000478	0	0	0.056636	0	0	0.010285	0	0	0	0	0.011709	0	0	0	0	0	0.184421	0	0	0.003406	0	0
SANTA CLA	2022	MDV	Aggregate	Aggregate	ELEC	1080.167	34834.41	5508.057	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0
SANTA CLA	2022	MH	Aggregate	Aggregate	GAS	2891.835	26265.33	289.2991	0.413359	0	0.334516	0.001633	0	0.000362	0.003	0.05586	0.001776	0	0.000394	0.012	0.13034	1756.095	0	25.97914	0.015124	0	0.032419	0.025426	0	0.034963	0.066433	0	0.137518	0.088945	2.156488	0.036513	0.106238	0.096939	0	0.150564	0.088945	2.156488	0.036513	0.106238	1.697423	0	3.037213	0.017378	0	0.000257
SANTA CLA	2022	MH	Aggregate	Aggregate	DSL	1019.353	9712.32	101.9353	4.184918	0	0	0.085576	0	0	0.004	0.05586	0.089445	0	0	0.016	0.13034	1018.587	0	0	0.005027	0	0	0.160108	0	0	0.108225	0	0	0	0	0.123206	0	0	0	0	0	0.382773	0	0	0.009629	0	0
SANTA CLA	2022	MHDT	Aggregate	Aggregate	GAS	1456.112	75284.48	29133.88	0.474932	0.088412	0.377896	0.001319	0	0.000449	0.003	0.05586	0.001435	0	0.00051	0.012	0.13034	1722.789	532.6547	39.05903	0.014881	0.262553	0.04023	0.023376	0.007484	0.029181	0.072945	1.011617	0.219187	0.087649	0.506692	0.018903	0.038182	0.166442	1.47615	0.239982	0.087649	0.506692	0.018903	0.038182	1.680953	15.10368	4.939745	0.017048	0.005271	0.000287
SANTA CLA	2022	MHDT	Aggregate	Aggregate	DSL	9430.024	551923.8	94917.85	2.277066	7.413096	1.687822	0.039812	0.015538	0	0.003	0.05586	0.041612	0.01624	0	0.012	0.13034	1050.628	914.98	0	0.004378	0.004667	0	0.165144	0.143822	0	0.094265	0.100481	0	0	0	0.107314	0.11439	0	0	0	0	0	0.32147	2.58681	0	0.009926	0.008644	0
SANTA CLA	2022	OBUS	Aggregate	Aggregate	GAS	501.9655	24150.25	10043.33	0.443255	0.065137	0.32561	0.000952	0	0.000213	0.003	0.05586	0.001035	0	0.000232	0.012	0.13034	1767.375	377.9272	26.38965	0.013022	0.200837	0.030332	0.022732	0.005646	0.026387	0.061436	0.747416	0.156088	0.026802	0.295531	0.015889	0.036065	0.089647	1.090627	0.170897	0.026802	0.295531	0.015889	0.036065	1.365657	5.781487	3.261978	0.01749	0.00374	0.000261
SANTA CLA	2022	OBUS	Aggregate	Aggregate	DSL	762.3964	53839.19	6991.348	2.314382	10.4182	2.005848	0.021086	0.015288	0	0.003	0.05586	0.02204	0.015979	0	0.012	0.13034	1185.916	1892.098	0	0.002538	0.027964	0	0.18641	0.297411	0	0.054653	0.602048	0	0	0	0.062218	0.685386	0	0	0	0	0	0.239321	8.657847	0	0.011204	0.017876	0
SANTA CLA	2022	SBUS	Aggregate	Aggregate	GAS	249.3134	11500.83	997.2534	0.430325	0.924415	0.566946	0.001196	0	0.000498	0.002	0.3192	0.001301	0	0.000541	0.008	0.7448	865.5448	2582.545	48.67377	0.011856	2.442701	0.058309	0.024366	0.088243	0.053528	0.058325	10.61061	0.332747	0.061157	0.415506	0.010413	0.025261	0.085108	15.48298	0.364316	0.061157	0.415506	0.010413	0.025261	1.259002	82.05319	8.624782	0.008565	0.025556	0.000482
SANTA CLA	2022	SBUS	Aggregate	Aggregate	DSL	1014.086	31965.96	11702.42	6.765334	45.00081	0.786274	0.042018	0.05033	0	0.003	0.3192	0.043917	0.052605	0	0.012	0.7448	1145.085	3716.49	0	0.004669	0.013069	0	0.179991	0.584181	0	0.100532	0.281366	0	0	0	0.114448	0.320314	0	0	0	0	0	0.27746	5.867721	0	0.010818	0.035112	0
SANTA CLA	2022	UBUS	Aggregate	Aggregate	GAS	8.419396	1059.849	33.67758	0.491737	0	1.236285	0.000328	0	9.7E-05	0.003	0.05586	0.000356	0	0.000105	0.012	0.13034	2351.817	0	104.599	0.006789	0	0.178596	0.036386	0	0.091633	0.022728	0	0.768536	0.190076	1.35875	0.031079	0.049249	0.033164	0	0.84145	0.190076	1.35875	0.031079	0.049249	0.527722	0	8.852622	0.023273	0	0.001035
SANTA CLA	2022	UBUS	Aggregate	Aggregate	DSL	423.2358	46482.16	1692.943	0.803453	0	0	0.005651	0	0	0.008415	0.029326	0.005907	0	0	0.033661	0.068427	1481.178	0	0	0.077358	0	0	0.232821	0	0	0.001105	0	0	0	0	0.078949	0	0	0	0	0	0.131304	0	0	0.014002	0	0
SANTA CLA	2022	UBUS	Aggregate	Aggregate	NG	104.0289	12325.91	416.1154	0.48934	0	0	0.003183	0	0	0.008475	0.029034	0.003327	0	0	0.033899	0.067746	2016.3	0	0	6.413607	0	0	0.411036	0	0	0.091638	0	0	0	0	6.545556	0	0	0	0	0	49.80397	0	0	0	0	0

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

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_TWP	PM2.5_PMP	PM2.5_RUP	PM10_IDLE	PM10_STR	PM10_TWP	PM10_PMP	PM10_PMI	CO2_RUNE	CO2_IDLEX	CO2_STREX	CH4_RUNE	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNI	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNI	ROG_RESTL	ROG_DIURN	TOG_RUNE	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNI	TOG_RESTL	TOG_DIURN	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
SANTA CLA	2026	HHDT	Aggregate	Aggregate	GAS	5.364051	687.2244	107.3239	2.901553	0	0.123525	0.001111	0	0.000507	0.005	0.02646	0.001208	0	0.000551	0.02	0.06174	1793.744	0	43.34586	0.071804	0	0.000401	0.125752	0	0.004225	0.328519	0	0.002095	0.071383	0.359736	0.017912	0.031562	0.479375	0	0.002294	0.071383	0.359736	0.017912	0.031562	27.34619	0	5.359666	0.017751	0	0.000429
SANTA CLA	2026	HHDT	Aggregate	Aggregate	DSL	8924.437	1100302	95711.65	2.666493	57.09144	2.360255	0.024019	0.024355	0	0.008892	0.026143	0.025105	0.025456	0	0.035569	0.061	1333.335	10856.43	0	0.001103	0.215452	0	0.209582	1.70648	0	0.02374	4.638633	0	0	0	0	0	0.027027	5.28073	0	0	0	0	0	0.240406	67.90439	0	0.012597	0.102566	0
SANTA CLA	2026	HHDT	Aggregate	Aggregate	NG	387.4411	15797.92	1511.02	1.192172	19.8411	0	0.00393	0.021114	0	0.009	0.02646	0.004107	0.022069	0	0.036	0.06174	3065.609	3870.947	0	3.327201	1.212401	0	0.624944	0.789118	0	0.11581	0.034377	0	0	0	0	0	3.473439	1.256776	0	0	0	0	0	10.90096	21.7521	0	0	0	0
SANTA CLA	2026	LDA	Aggregate	Aggregate	GAS	803316.6	27422437	3786948	0.025361	0	0.154822	0.001114	0	0.001523	0.002	0.01575	0.001211	0	0.001657	0.008	0.03675	231.4803	0	49.42279	0.001444	0	0.039822	0.003461	0	0.022774	0.005111	0	0.169499	0.079374	0.196051	0.139366	0.153495	0.493181	0	2.036512	0.002291	0	0.000489
SANTA CLA	2026	LDA	Aggregate	Aggregate	DSL	8761.921	309411.2	41704.47	0.032668	0	0	0.003405	0	0	0.002	0.01575	0.003558	0	0	0.008	0.03675	180.2059	0	0	0.00039	0	0	0.028326	0	0	0.008395	0	0	0	0	0	0	0.009557	0	0	0	0	0	0.1654	0	0	0.001704	0	0
SANTA CLA	2026	LDA	Aggregate	Aggregate	ELEC	36166.94	1348329	174853.1	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
SANTA CLA	2026	LDT1	Aggregate	Aggregate	GAS	81395.88	2557716	377984.9	0.053242	0	0.188746	0.001327	0	0.001762	0.002	0.01575	0.001443	0	0.001916	0.008	0.03675	270.6234	0	57.88564	0.002789	0	0.048967	0.004978	0	0.02436	0.011517	0	0.226362	0.126829	0.481219	0.251831	0.29879	0.016805	0	0.247838	0.126829	0.481219	0.251831	0.29879	0.722924	0	2.115706	0.002678	0	0.000573
SANTA CLA	2026	LDT1	Aggregate	Aggregate	DSL	24.30234	480.229	84.15979	0.751234	0	0	0.097028	0	0	0.002	0.01575	0.101415	0	0	0.008	0.03675	372.5093	0	0	0.005976	0	0	0.058553	0	0	0.128651	0	0	0	0	0	0	0.14646	0	0	0	0	0	0.792282	0	0	0.003522	0	0
SANTA CLA	2026	LDT1	Aggregate	Aggregate	ELEC	1379.343	55720.71	6839.142	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
SANTA CLA	2026	LDT2	Aggregate	Aggregate	GAS	265561.6	8306944	1235817	0.049643	0	0.220704	0.001151	0	0.001529	0.002	0.01575	0.001251	0	0.001663	0.008	0.03675	286.3694	0	62.68706	0.002482	0	0.055421	0.00474	0	0.027321	0.009671	0	0.249939	0.109665	0.398388	0.261316	0.267778	0.014111	0	0.273652	0.109665	0.398388	0.261316	0.267778	0.671341	0	2.592866	0.002834	0	0.00062
SANTA CLA	2026	LDT2	Aggregate	Aggregate	DSL	2179.627	73932.77	10496.07	0.032487	0	0	0.004202	0	0	0.002	0.01575	0.004392	0	0	0.008	0.03675	247.1738	0	0	0.000611	0	0	0.038852	0	0	0.013153	0	0	0	0	0	0	0.014974	0	0	0	0	0	0.127038	0	0	0.002337	0	0
SANTA CLA	2026	LDT2	Aggregate	Aggregate	ELEC	5458.528	152393.5	27053.7	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
SANTA CLA	2026	LHDT1	Aggregate	Aggregate	GAS	16770.98	556033.5	249862.6	0.151754	0.034252	0.4537	0.002099	0	0.000353	0.002	0.03276	0.002282	0	0.000384	0.008	0.07644	952.5009	116.2163	18.24638	0.006932	0.111178	0.019754	0.009676	0.002968	0.037044	0.032329	0.392624	0.098793	0.106906	0.759705	0.022308	0.042351	0.047175	0.572916	0.108166	0.106906	0.759705	0.022308	0.042351	0.625576	3.761779	1.633174	0.009426	0.00115	0.000181
SANTA CLA	2026	LHDT1	Aggregate	Aggregate	DSL	13027.47	469567.8	163869.1	0.916096	1.632082	0	0.01538	0.026486	0	0.003	0.03276	0.016075	0.027684	0	0.012	0.07644	509.3228	125.5551	0	0.006568	0.005098	0	0.080058	0.019736	0	0.141402	0.10976	0	0	0	0	0	0.160976	0.124954	0	0	0	0	0	0.602151	0.909745	0	0.004815	0.001187	0
SANTA CLA	2026	LHDT2	Aggregate	Aggregate	GAS	2384.455	79271.91	35524.83	0.145318	0.033553	0.440969	0.001987	0	0.00031	0.002	0.03822	0.002161	0	0.000337	0.008	0.08918	1083.731	133.0723	20.57258	0.005077	0.109892	0.018805	0.009942	0.002898	0.036006	0.021298	0.384876	0.092353	0.095204	0.589436	0.019579	0.036144	0.031078	0.56161	0.101115	0.095204	0.589436	0.019579	0.036144	0.403421	3.768218	1.582332	0.010724	0.001317	0.000204
SANTA CLA	2026	LHDT2	Aggregate	Aggregate	DSL	5304.447	185191.7	66723.26	0.80174	1.652316	0	0.01903	0.027033	0	0.003	0.03822	0.01989	0.028255	0	0.012	0.08918	574.2945	202.2523	0	0.006455	0.005098	0	0.090271	0.031791	0	0.138973	0.10976	0	0	0	0	0	0.158212	0.124954	0	0	0	0	0	0.59759	0.909745	0	0.005429	0.001912	0
SANTA CLA	2026	MCY	Aggregate	Aggregate	GAS	35953.12	246713	71906.25	1.142407	0	0.270461	0.001924	0	0.002748	0.001	0.00504	0.002061	0	0.002929	0.004	0.01176	209.9417	0	60.16678	0.322636	0	0.251748	0.06583	0	0.015364	2.163162	0	1.911911	0.658739	1.752085	0.964052	1.796069	2.697331	0	2.081516	0.658739	1.752085	0.964052	1.796069	18.16544	0	9.112103	0.002078	0	0.000595
SANTA CLA	2026	MDV	Aggregate	Aggregate	GAS	162018.4	4957363	750433	0.056427	0	0.253115	0.001168	0	0.001607	0.002	0.01575	0.001271	0	0.001748	0.008	0.03675	345.9595	0	75.91844	0.002781	0	0.062361	0.005221	0	0.028648	0.011068	0	0.29528	0.122339	0.415764	0.302987	0.308674	0.016149	0	0.323295	0.122339	0.415764	0.302987	0.308674	0.699315	0	2.804675	0.003424	0	0.000751
SANTA CLA	2026	MDV	Aggregate	Aggregate	DSL	4789.871	158691.3	22971.85	0.025016	0	0	0.003022	0	0	0.002	0.01575	0.003159	0	0	0.008	0.03675	322.1951	0	0	0.000375	0	0	0.050645	0	0	0.008076	0	0	0	0	0	0	0.009194	0	0	0	0	0	0.17154	0	0	0.003046	0	0
SANTA CLA	2026	MDV	Aggregate	Aggregate	ELEC	3176.215	92681.92	15973.91	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
SANTA CLA	2026	MH	Aggregate	Aggregate	GAS	2786.201	25915.09	278.7315	0.25296	0	0.339641	0.001408	0	0.000312	0.003	0.05586	0.001531	0	0.00034	0.012	0.13034	1639.481	0	24.24107	0.008941	0	0.029975	0.018592	0	0.037661	0.035657	0	0.119443	0.063018	1.433405	0.027247	0.073774	0.05203	0	0.130775	0.063018	1.433405	0.027247	0.073774	0.815894	0	2.636102	0.016224	0	0.00024
SANTA CLA	2026	MH	Aggregate	Aggregate	DSL	1151.648	10425.3	115.1648	3.596484	0	0	0.063829	0	0	0.004	0.05586	0.066715	0	0	0.016	0.13034	964.1862	0	0	0.004499	0	0	0.151557	0	0	0.096864	0	0	0	0	0	0	0.110273	0	0	0	0	0	0.328457	0	0	0.009115	0	0
SANTA CLA	2026	MHDT	Aggregate	Aggregate	GAS	1687.725	86801.44	33768.01	0.226062	0.089038	0.342531	0.00127	0	0.000413	0.003	0.05586	0.001382	0	0.000449	0.012	0.13034	1607.82	503.7098	35.57567	0.007011	0.273723	0.034894	0.013789	0.008178	0.029559	0.032131	1.02093	0.179349	0.064867	0.352453	0.014504	0.026884	0.046886	1.489739	0.196365	0.064867	0.352453	0.014504	0.026884	0.704545	15.21187	3.914871	0.015911	0.004985	0.000352
SANTA CLA	2026	MHDT	Aggregate	Aggregate	DSL	10254.12	577160.2	101941.7	1.628767	5.068172	2.147618	0.007577	0.00351	0	0.003	0.05586	0.007919	0.003668	0	0.012	0.13034	967.4707	838.5754	0	0.00052	0.003382	0	0.152073	0.131812	0	0.011192	0.072819	0	0	0	0	0	0.012741	0.082899	0	0	0	0	0	0.116231	2.729189	0	0.00914	0.007922	0
SANTA CLA	2026	OBUS	Aggregate	Aggregate	GAS	507.9074	22731.23	10162.21	0.292264	0.065184	0.313239	0.001097	0	0.000236	0.003	0.05586	0.001193	0	0.000256	0.012	0.13034	1652.302	361.5422	24.97816	0.008515	0.201911	0.028115	0.016502	0.005795	0.026094	0.039151	0.748116	0.143279	0.027364	0.310267	0.016664	0.036978	0.057129	1.09165	0.156872	0.027364	0.310267	0.016664	0.036978	0.834386	5.785715	2.984205	0.016351	0.003578	0.000247
SANTA CLA	2026	OBUS	Aggregate	Aggregate	DSL	796.7643	52087.07	7352.266	1.959254	8.776183	2.213983	0.009877	0.002762	0	0.003	0.05586	0.010324	0.002887	0	0.012	0.13034	1122.18	1865.346	0	0.000584	0.026755	0	0.176391	0.293206	0	0.012574	0.576038	0	0	0	0	0	0.014314	0.655776	0	0	0	0	0	0.144399	9.689916	0	0.010602	0.017623	0
SANTA CLA	2026	SBUS	Aggregate	Aggregate	GAS	305.0164	13306.38	1220.066	0.347767	0.925925	0.597767	0.00119	0	0.000524	0.002	0.3192	0.001294	0	0.00057	0.008	0.7448	833.8886	2496.465	46.34384	0.008421	2.440565	0.056313	0.021096	0.088976	0.055917	0.041057	10.63268	0.320756	0.065141	0.427694	0.012263	0.026924	0.059911	15.51518	0.351188	0.065141	0.427694	0.012263	0.026924	0.883814	82.1872	7.947598	0.008252	0.024705	0.000459
SANTA CLA	2026	SBUS	Aggregate	Aggregate	DSL	1004.235	31497.44	11588.73	5.783794	41.00653	0.989807	0.036341	0.03731	0	0.003	0.3192	0.037984	0.038997	0	0.012	0.7448	1106.109	3641.859	0	0.004224	0.012401	0	0.173865	0.57245	0	0.090951	0.266981	0	0	0	0	0	0.10354	0.303937	0	0	0	0	0	0.265493	6.63799	0	0.01045	0.034406	0
SANTA CLA	2026	UBUS	Aggregate	Aggregate	GAS	8.434703	1061.776	33.73881	0.23219	0	0.781025	0.002209	0	0.000888	0.003	0.05586	0.002402	0	0.000966	0.012	0.13034	1956.429	0	88.80542	0.006971	0	0.111797	0.02141	0	0.072132	0.022728	0	0.468399	0.016436	0.092409	0.003318	0.006895	0.033164	0	0.512838	0.016436	0.092409	0.003318	0.006895	0.322483	0	8.852622	0.01936	0	0.000879
SANTA CLA	2026	UBUS	Aggregate	Aggregate	DSL	404.8528	43393.97	1619.411	0.799803	0	0	0.005629	0	0	0.008352	0.029636	0.005884	0	0	0.033407	0.06915	1509.977	0	0	0.076902	0	0	0.237347	0	0	0.001099	0	0	0	0	0	0	0.078484	0	0	0	0	0	0.130458	0	0	0.014275	0	0
SANTA CLA	2026	UBUS	Aggregate	Aggregate	NG	123.3704	15521.01	493.4817	0.495108	0	0	0.003218	0	0	0.008639	0.028227	0.003363	0	0	0.034558	0.065863	2036.46	0	0	6.510688	0	0	0.415146	0	0	0.093025	0	0	0	0	0	0	6.644635	0	0	0	0	0	50.63551	0	0	0	0	0

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: SANTA CLARA
Calendar Year: 2030
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMP	PM2.5_PMP	PM10_RUP	PM10_IDLI	PM10_STR	PM10_PMI	PM10_PMI	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLEX	N2O_STRE	ROG_RUNI	ROG_IDLEX	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_RESTI	ROG_DIUR	TOG_RUNE	TOG_IDLEX	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_RESTI	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
SANTA CLA	2030	HHDT	Aggregate	Aggregate	GAS	6.644908	846.0095	132.9513	2.895279	0	0.044486	0.001084	0	0.000414	0.005	0.02646	0.001179	0	0.00045	0.02	0.06174	1677.599	0	40.07141	0.06849	0	0.000337	0.127319	0	0.001575	0.302922	0	0.001761	0.044849	0.220711	0.012382	0.020645	0.442024	0	0.001928	0.044849	0.220711	0.012382	0.020645	28.21474	0	5.186707	0.016601	0	0.000397
SANTA CLA	2030	HHDT	Aggregate	Aggregate	DSL	9431.66	1177485	1014553.9	2.539781	56.05241	2.353151	0.023044	0.021785	0	0.008907	0.026186	0.024086	0.02277	0	0.035627	0.061101	1202.821	10016.29	0	0.001063	0.214358	0	0.189067	1.574421	0	0.022896	4.615071	0	0	0	0.026066	5.253907	0	0	0	0	0	0	0.238872	67.80499	0	0.011364	0.094629	0
SANTA CLA	2030	HHDT	Aggregate	Aggregate	NG	400.4237	16329.01	1561.653	0.881174	19.09434	0	0.003462	0.015749	0	0.009	0.02646	0.003619	0.016461	0	0.036	0.06174	2899.524	3653.632	0	3.225286	1.19295	0	0.591087	0.744817	0	0.090199	0.028054	0	0	0	3.341906	1.230036	0	0	0	0	0	0	11.01311	21.88788	0	0	0	0
SANTA CLA	2030	LDA	Aggregate	Aggregate	GAS	869969.1	28403709	4092414	0.020358	0	0.132956	0.000879	0	0.001249	0.002	0.01575	0.000956	0	0.001359	0.008	0.03675	211.6944	0	44.94162	0.001023	0	0.030835	0.003085	0	0.020493	0.003388	0	0.12606	0.065117	0.180811	0.11416	0.123291	0.43107	0	0.13802	0.065117	0.180811	0.11416	0.123291	0.43107	0	1.801842	0.002095	0	0.000445
SANTA CLA	2030	LDA	Aggregate	Aggregate	DSL	10023.63	337674.2	47691.27	0.01676	0	0	0.001829	0	0	0.002	0.01575	0.001912	0	0	0.008	0.03675	166.1368	0	0	0.000273	0	0	0.026114	0	0	0.005885	0	0	0	0	0.006699	0	0	0	0	0	0	0	0.146966	0	0	0.001571	0	0
SANTA CLA	2030	LDA	Aggregate	Aggregate	ELEC	46172.96	1625146	221619.4	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
SANTA CLA	2030	LDT1	Aggregate	Aggregate	GAS	88972.38	2670256	412660.2	0.034308	0	0.154254	0.000998	0	0.001379	0.002	0.01575	0.001085	0	0.001499	0.008	0.03675	248.8135	0	52.89319	0.001722	0	0.036164	0.003879	0	0.021779	0.00667	0	0.15755	0.095382	0.371981	0.194977	0.219194	0.509733	0	0.172497	0.095382	0.371981	0.194977	0.219194	0.548445	0	1.868724	0.002462	0	0.000523
SANTA CLA	2030	LDT1	Aggregate	Aggregate	DSL	12.41764	352.1646	54.72798	0.189506	0	0	0.017188	0	0	0.002	0.01575	0.017965	0	0	0.008	0.03675	322.0531	0	0	0.001569	0	0	0.050622	0	0	0.033785	0	0	0	0	0.038462	0	0	0	0	0	0	0	0.286183	0	0	0.003045	0	0
SANTA CLA	2030	LDT1	Aggregate	Aggregate	ELEC	2180.044	81488.93	10672.84	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
SANTA CLA	2030	LDT2	Aggregate	Aggregate	GAS	281546.9	8446247	1307139	0.035247	0	0.174198	0.000925	0	0.001282	0.002	0.01575	0.001006	0	0.001394	0.008	0.03675	256.344	0	55.96845	0.00178	0	0.043514	0.003847	0	0.023481	0.006634	0	0.189401	0.09208	0.348635	0.233116	0.234964	0.00968	0	0.20737	0.09208	0.348635	0.233116	0.234964	0.568541	0	2.344012	0.002537	0	0.000554
SANTA CLA	2030	LDT2	Aggregate	Aggregate	DSL	2576.298	81354.46	12261.45	0.02908	0	0	0.003937	0	0	0.002	0.01575	0.004115	0	0	0.008	0.03675	226.4921	0	0	0.000595	0	0	0.035601	0	0	0.01282	0	0	0	0	0.014595	0	0	0	0	0	0	0	0.129762	0	0	0.002141	0	0
SANTA CLA	2030	LDT2	Aggregate	Aggregate	ELEC	8320.478	213767.2	40645.17	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
SANTA CLA	2030	LHDT1	Aggregate	Aggregate	GAS	17444.25	563109.1	259893.3	0.098098	0.030587	0.387515	0.002081	0	0.000333	0.002	0.03276	0.002264	0	0.000362	0.008	0.07644	897.5407	110.5325	17.36665	0.004317	0.101968	0.015524	0.006844	0.002802	0.033538	0.018245	0.350811	0.075233	0.094381	0.739315	0.019801	0.035959	0.026623	0.511903	0.082371	0.094381	0.739315	0.019801	0.035959	0.368714	3.768698	1.531971	0.008882	0.001094	0.000172
SANTA CLA	2030	LHDT1	Aggregate	Aggregate	DSL	14887.61	510107.2	187267.4	0.522674	1.343027	0	0.011738	0.026289	0	0.003	0.03276	0.012269	0.027477	0	0.012	0.07644	478.8761	118.3357	0	0.006165	0.005098	0	0.075273	0.018601	0	0.13273	0.10976	0	0	0	0.155104	0.124954	0	0	0	0	0	0	0.579164	0.909745	0	0.004527	0.001119	0
SANTA CLA	2030	LHDT2	Aggregate	Aggregate	GAS	2535.293	81915.35	37772.09	0.091162	0.030032	0.379653	0.001975	0	0.000297	0.002	0.03822	0.002148	0	0.000323	0.008	0.08918	1021.816	126.3902	19.57212	0.00327	0.10112	0.014626	0.00699	0.00275	0.032936	0.012455	0.344716	0.06918	0.074032	0.436992	0.016932	0.02908	0.018175	0.503009	0.075743	0.074032	0.436992	0.016932	0.02908	0.249204	3.775612	1.472175	0.010112	0.001251	0.000194
SANTA CLA	2030	LHDT2	Aggregate	Aggregate	DSL	6126.051	201454.9	77058.01	0.503536	1.378592	0	0.017789	0.026933	0	0.003	0.03822	0.018593	0.028151	0	0.012	0.08918	540.7481	191.3797	0	0.006181	0.005098	0	0.084998	0.030082	0	0.133066	0.10976	0	0	0	0.151486	0.124954	0	0	0	0	0	0	0.586662	0.909745	0	0.005112	0.001809	0
SANTA CLA	2030	MCY	Aggregate	Aggregate	GAS	38839.87	253703.2	77679.74	1.137409	0	0.270173	0.001994	0	0.002676	0.001	0.00504	0.002138	0	0.002862	0.004	0.01176	209.7572	0	59.22586	0.319087	0	0.24786	0.065566	0	0.015364	2.128511	0	1.877593	0.631299	1.487321	0.946881	1.786807	2.666273	0	2.04481	0.631299	1.487321	0.946881	1.786807	17.60732	0	9.199577	0.002076	0	0.000586
SANTA CLA	2030	MDV	Aggregate	Aggregate	GAS	173606	5113918	803848	0.03715	0	0.190209	0.00093	0	0.001318	0.002	0.01575	0.001012	0	0.001433	0.008	0.03675	309.7804	0	67.68816	0.001872	0	0.04685	0.004005	0	0.024192	0.007071	0	0.21174	0.103941	0.361114	0.278651	0.281249	0.010317	0	0.231829	0.103941	0.361114	0.278651	0.281249	0.571385	0	2.441594	0.003066	0	0.00067
SANTA CLA	2030	MDV	Aggregate	Aggregate	DSL	5652.323	175214.3	26820.46	0.016338	0	0	0.001999	0	0	0.002	0.01575	0.00209	0	0	0.008	0.03675	295.1303	0	0	0.000296	0	0	0.04639	0	0	0.006382	0	0	0	0	0.007265	0	0	0	0	0	0	0	0.160558	0	0	0.00279	0	0
SANTA CLA	2030	MDV	Aggregate	Aggregate	ELEC	5412.776	143464.5	26723.4	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
SANTA CLA	2030	MH	Aggregate	Aggregate	GAS	2781.183	26082.35	278.2296	0.161957	0	0.344848	0.001294	0	0.000284	0.003	0.05586	0.001408	0	0.000309	0.012	0.13034	1534.746	0	22.64387	0.005412	0	0.028477	0.014768	0	0.039513	0.01789	0	0.108156	0.041368	0.780207	0.020421	0.050661	0.026105	0	0.118417	0.041368	0.780207	0.020421	0.050661	0.321425	0	2.382509	0.015188	0	0.000224
SANTA CLA	2030	MH	Aggregate	Aggregate	DSL	1271.562	11026.54	127.1562	3.194675	0	0	0.048471	0	0	0.004	0.05586	0.050662	0	0	0.016	0.13034	913.8987	0	0	0.004117	0	0	0.143652	0	0	0.088635	0	0	0	0	0.100905	0	0	0	0	0	0	0	0.288665	0	0	0.00864	0	0
SANTA CLA	2030	MHDT	Aggregate	Aggregate	GAS	1942.274	96462.8	38861.02	0.137179	0.089333	0.328382	0.001276	0	0.000397	0.003	0.05586	0.001388	0	0.000432	0.012	0.13034	1512.526	477.0555	33.02741	0.004329	0.277482	0.032379	0.010371	0.008413	0.029895	0.018098	1.025296	0.159937	0.053505	0.276198	0.013009	0.02236	0.026409	1.49611	0.175111	0.053505	0.276198	0.013009	0.02236	0.365535	15.26266	3.370143	0.014968	0.004721	0.000327
SANTA CLA	2030	MHDT	Aggregate	Aggregate	DSL	11245.42	599136.6	111242.1	1.636194	4.546441	2.164606	0.007568	0.002068	0	0.003	0.05586	0.00791	0.002162	0	0.012	0.13034	909.8747	786.5238	0	0.000503	0.003226	0	0.14302	0.123631	0	0.010837	0.069445	0	0	0	0.012337	0.079058	0	0	0	0	0	0	0.11784	2.775159	0	0.008596	0.007431	0
SANTA CLA	2030	OBUS	Aggregate	Aggregate	GAS	521.2442	22324.56	10429.05	0.201397	0.065222	0.308429	0.001191	0	0.000252	0.003	0.05586	0.001295	0	0.000274	0.012	0.13034	1542.791	344.1269	23.61734	0.005871	0.202191	0.026706	0.012891	0.005853	0.026143	0.025703	0.748687	0.134449	0.027407	0.319238	0.017082	0.037276	0.037506	1.092483	0.147204	0.027407	0.319238	0.017082	0.037276	0.529537	5.789149	2.766701	0.015267	0.003405	0.000234
SANTA CLA	2030	OBUS	Aggregate	Aggregate	DSL	845.8557	51263.29	7867.551	1.991442	9.302951	2.216948	0.010285	0.002947	0	0.003	0.05586	0.01075	0.003081	0	0.012	0.13034	1066.293	1893.973	0	0.000596	0.028932	0	0.167606	0.297706	0	0.012842	0.6229	0	0	0	0.01462	0.709124	0	0	0	0	0	0	0.14672	10.36618	0	0.010074	0.017893	0
SANTA CLA	2030	SBUS	Aggregate	Aggregate	GAS	362.3014	15198.78	1449.205	0.285961	0.92653	0.616868	0.001215	0	0.000547	0.002	0.3192	0.001322	0	0.000595	0.008	0.7448	803.9675	2414.339	44.56576	0.00626	2.435971	0.055823	0.018735	0.089714	0.057177	0.030067	10.64152	0.317303	0.073145	0.474779	0.014584	0.030637	0.043873	15.52808	0.347407	0.073145	0.474779	0.014584	0.030637	0.649967	82.24088	7.563743	0.007956	0.023892	0.000441
SANTA CLA	2030	SBUS	Aggregate	Aggregate	DSL	9805.629	30722.11	11315.56	4.472027	34.94152	1.257143	0.029756	0.025511	0	0.003	0.3192	0.031102	0.026664	0	0.012	0.7448	1052.894	3501.127	0	0.003486	0.012263	0	0.1655	0.550328	0	0.075046	0.264022	0	0	0	0.085434	0.300569	0	0	0	0	0	0	0.238791	7.720739	0	0.009947	0.033077	0
SANTA CLA	2030	UBUS	Aggregate	Aggregate	GAS	8.45001	1063.703	33.80004	0.336697	0	0.964336	0.002209	0	0.000888	0.003	0.05586	0.002402	0	0.000966	0.012	0.13034	1956.157	0	89.19596	0.006892	0	0.139066	0.027885	0	0.079916	0.022728	0	0.589249	0.05182	0.313542	0.009109	0.015639	0.033164	0	0.645153	0.05182	0.313542	0.009109	0.015639	0.405122	0	8.852622	0.019358	0	0.000883
SANTA CLA	2030	UBUS	Aggregate	Aggregate	DSL	376.8943	42036.62	1507.577	0.804174	0	0	0.005656	0	0	0.008428	0.029265	0.005912	0	0	0.03371	0.068284	1523.264	0	0	0.077448	0	0	0.239436	0	0	0.001107	0	0	0	0	0.079041	0	0	0	0	0	0	0	0.131472	0	0	0.0144	0	0
SANTA CLA	2030	UBUS	Aggregate	Aggregate	NG	152.2876	16985.28	609.1502	0.487691	0	0	0.003174	0	0	0.008428	0.029265	0.003317	0	0	0.03371	0.068284	2010.534	0	0	6.385838	0	0	0.40986	0	0	0.091241	0	0	0	0	6.517216	0	0	0	0	0	0	0	49.56612	0	0	0	0	0

Option 2 - 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	3	0	12	0	9	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	129.6	0	180
Site Preparation	10	0	50	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	540	0	0
Grading	18	0	324	0	250	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3499.2	0	5000
Trenching	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Building Construction	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Paving	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Architectural Coating	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
												0		
						10.8	7.3	20				0		
												0		
												0		

Number of Days Per Year			
2022	5/13/22	6/16/22	35
2023			0
2024			
			35

26 ***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	2022/05/13	2022/05/18	5	4
Site Preparation	2022/05/18	2022/05/24	5	5
Grading	2022/05/24	6/16/2022	5	18
Trenching	2022/11/10	2023/02/01	0	0
Building Construction	2022/11/10	2023/09/27	0	0
Paving	2023/09/28	2023/10/25	0	0
Architectural Coating	2023/10/26	2023/11/22	0	0

Attachment 4: Project Construction and Operational Emissions and Health Risk Calculations

The Crosswinds, Morgan Hill, CA

DPM Emissions and Modeling Emission Rates - Without Mitigation

Construction Year	Construction Area	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2022	Grading	0.0096	DPM_G	19.2	0.006	7.36E-04	112,445	**6.54E-09**
2022	Phase 1	0.0232	DPM_P1	46.4	0.014	1.78E-03	48,664	**3.66E-08**
2023	Phase 1	0.0041	DPM_P1	8.3	0.003	3.17E-04	48,664	**6.51E-09**
2023	Depaul Extention	0.0022	DPM_DE	4.3	0.001	1.66E-04	7,712	**2.15E-08**
2023	Phase 2	0.0127	DPM_P2	25.4	0.008	9.75E-04	52,075	**1.87E-08**
2024	Phase 2	0.0152	DPM_P2	30.5	0.009	1.17E-03	52,075	**2.24E-08**
2025	Phase 3A	0.0095	DPM_P3A	19.0	0.006	7.27E-04	7,133	**1.02E-07**
2025	Phase 3B	0.0052	DPM_P3B	10.5	0.003	4.01E-04	3,937	**1.02E-07**
		0.0147		29.4	0.009	1.13E-03	11,070	
Total		***0.0965***		***192.9***	***0.0587***	***0.0074***		

Construction Hours

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

The Crosswinds, Morgan Hill, CA

PM2.5 Fugitive Dust Emissions for Modeling - Without Mitigation

Construction Year	Construction Area	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2022	Grading	FUG_G	0.0040	8.0	0.0024	3.08E-04	112,445	**2.74E-09**
2022	Phase 1	FUG_P1	0.0054	10.8	0.0033	4.14E-04	48,664	**8.51E-09**
2023	Phase 1	FUG_P1	0.0020	4.0	0.0012	1.55E-04	48,664	**3.19E-09**
2023	Depaul Extention	FUG_DE	0.0007	1.4	0.0004	5.48E-05	7,712	**7.11E-09**
2023	Phase 2	FUG_P2	0.0059	11.8	0.0036	4.52E-04	52,075	**8.68E-09**
2024	Phase 2	FUG_P2	0.0039	7.7	0.0023	2.95E-04	52,075	**5.67E-09**
2025	Phase 3A	FUG_P3A	0.0030	6.0	0.0018	2.28E-04	7,133	**3.20E-08**
2025	Phase 3B	FUG_P3B	0.0016	3.3	0.0010	1.26E-04	3,937	**3.20E-08**
			0.0046	9.2	0.0028	3.54E-04	11,070	
Total			***0.0311***	***62.3***	***0.0190***	***0.0024***		

Construction Hours

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

The Crosswinds, Morgan Hill, 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
	Exhaust PM10/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Infant/Child	(-)	($\mu g/m^3$)
2022	0.0084	0.0030	1.50	0.002	0.01
2023	0.0106	0.0057	1.75	0.002	0.02
2024	0.0118	0.0035	0.30	0.002	0.02
2025	0.0010	0.0003	0.02	0.0002	0.001
Total	-	-	**3.6**	-	-
Maximum	0.0118	0.0057	**-**	**0.002**	**0.02**

Maximum Impacts at Live Oak High School

	Unmitigated Emissions				
Construction Year	Maximum Concentrations		Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)			
2022	0.0006	0.0001	0.04	0.0001	0.001
2023	0.0003	0.0001	0.02	0.0001	0.0004
2024	0.0003	0.0001	0.02	0.0001	0.0003
2025	0.0002	0.00004	0.01	0.00003	0.0002
Total	-	-	**0.1**	-	-
Maximum	0.0006	0.0001	**-**	**0.0001**	**0.001**

The Crosswinds, Morgan Hill, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
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

			Infant/Child - Exposure Information				Adult - Exposure Information						
						Infant/Child		Modeled		Adult	Adult	Maximum		
Exposure	Exposure Duration		DPM Conc (ug/m3)		Age Sensitivity	Cancer Risk	DPM Conc (ug/m3)		Age Sensitivity	Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2022	0.0084	10	0.11	2022	0.0084	-	-			
1	1	0 - 1	2022	0.0084	10	1.38	2022	0.0084	1	0.02	0.0017	0.0030	0.0115
2	1	1 - 2	2023	0.0106	10	1.75	2023	0.0106	1	0.03	0.0021	0.0057	0.0164
3	1	2 - 3	2024	0.0118	3	0.30	2024	0.0118	1	0.03	0.0024	0.0035	0.0152
4	1	3 - 4	2025	0.0010	3	0.02	2025	0.0010	1	0.00	0.0002	0.0003	0.0012
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						**3.6**				**0.09**			

* Third trimester of pregnancy

The Crosswinds, Morgan Hill, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Live Oak High School (+13 years old) - 1.5 meters - Child Exposure

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

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

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child	Adult
Age -->	**0 - <2**	**2 - <16**	**16 - 30**
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	240
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SAF =	1.00	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)
1	1	13 - 14	2022	0.0006	3	0.0
2	1	14 - 15	2023	0.0003	3	0.0
3	1	15 - 16	2024	0.0003	3	0.0
4	1	16 - 17	2025	0.0002	3	0.0
5	1			0.0000	3	0.0
6	1			0.0000	3	0.0
7	1			0.0000	3	0.0
8	1			0.0000	3	0.0
9	1			0.0000	3	0.0
Total Increased Cancer Risk						**0.1**

* Children assumed to be 13 years of age or older with 4 years of Construction Exposure

Maximum		
Hazard Index	**Fugitive PM2.5**	**Total PM2.5**
0.0001	0.0001	0.0007
0.0001	0.0001	0.0004
0.0001	0.0001	0.0003
0.0000	0.0000	0.0002

Option 2

The Crosswinds, Morgan Hill, CA

DPM Emissions and Modeling Emission Rates - Without Mitigation

Construction Year	Construction Area	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2022	Grading	0.0122	DPM_G	24.3	0.007	9.33E-04	112,445	**8.30E-09**
2022	Phase 1	0.0232	DPM_P1	46.4	0.014	1.78E-03	48,664	**3.66E-08**
2023	Phase 1	0.0041	DPM_P1	8.3	0.003	3.17E-04	48,664	**6.51E-09**
2023	Depaul Extention	0.0022	DPM_DE	4.3	0.001	1.66E-04	7,712	**2.15E-08**
2023	Phase 2	0.0127	DPM_P2	25.4	0.008	9.75E-04	52,075	**1.87E-08**
2024	Phase 2	0.0152	DPM_P2	30.5	0.009	1.17E-03	52,075	**2.24E-08**
2025	Phase 3A	0.0095	DPM_P3A	19.0	0.006	7.27E-04	7,133	**1.02E-07**
2025	Phase 3B	0.0052	DPM_P3B	10.5	0.003	4.01E-04	3,937	**1.02E-07**
		0.0147		29.4	0.009	1.13E-03	11,070	
Total		***0.0990***		***198.1***	***0.0603***	***0.0076***		

Construction Hours

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

The Crosswinds, Morgan Hill, CA

PM2.5 Fugitive Dust Emissions for Modeling - Without Mitigation

Construction Year	Construction Area	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2022	Grading	FUG_G	0.0039	7.8	0.0024	3.00E-04	112,445	**2.67E-09**
2022	Phase 1	FUG_P1	0.0054	10.8	0.0033	4.14E-04	48,664	**8.51E-09**
2023	Phase 1	FUG_P1	0.0020	4.0	0.0012	1.55E-04	48,664	**3.19E-09**
2023	Depaul Extention	FUG_DE	0.0007	1.4	0.0004	5.48E-05	7,712	**7.11E-09**
2023	Phase 2	FUG_P2	0.0059	11.8	0.0036	4.52E-04	52,075	**8.68E-09**
2024	Phase 2	FUG_P2	0.0039	7.7	0.0023	2.95E-04	52,075	**5.67E-09**
2025	Phase 3A	FUG_P3A	0.0030	6.0	0.0018	2.28E-04	7,133	**3.20E-08**
2025	Phase 3B	FUG_P3B	0.0016	3.3	0.0010	1.26E-04	3,937	**3.20E-08**
			0.0046	9.2	0.0028	3.54E-04	11,070	
Total			***0.0310***	***62.1***	***0.0189***	***0.0024***		

Construction Hours

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

The Crosswinds, Morgan Hill, 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
	Exhaust PM10/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Infant/Child	(-)	($\mu g/m^3$)
2022	0.0096	0.0030	1.70	0.002	0.01
2023	0.0106	0.0057	1.75	0.002	0.02
2024	0.0118	0.0035	0.30	0.002	0.02
2025	0.0010	0.0003	0.02	0.0002	0.001
Total	-	-	**3.8**	-	-
Maximum	0.0118	0.0057	**-**	**0.002**	**0.02**

Maximum Impacts at Live Oak High School

	Unmitigated Emissions				
Construction Year	Maximum Concentrations		Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)			
2022	0.0006	0.0001	0.04	0.0001	0.001
2023	0.0003	0.0001	0.02	0.0001	0.0004
2024	0.0003	0.0001	0.02	0.0001	0.0003
2025	0.0002	0.00004	0.01	0.00003	0.0002
Total	-	-	**0.1**	-	-
Maximum	0.0006	0.0001	**-**	**0.0001**	**0.001**

The Crosswinds, Morgan Hill, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
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

			Infant/Child - Exposure Information				Adult - Exposure Information					Maximum	
				DPM Conc (ug/m3)	Age	Infant/Child		Modeled DPM Conc (ug/m3)	Age	Adult			
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Hazard Index**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	2022	0.0096	10	0.13	2022	0.0096	-	-			
1	1	0 - 1	2022	0.0096	10	1.57	2022	0.0096	1	0.03	0.0019	0.0030	0.0125
2	1	1 - 2	2023	0.0106	10	1.75	2023	0.0106	1	0.03	0.0021	0.0057	0.0164
3	1	2 - 3	2024	0.0118	3	0.30	2024	0.0118	1	0.03	0.0024	0.0035	0.0152
4	1	3 - 4	2025	0.0010	3	0.02	2025	0.0010	1	0.00	0.0002	0.0003	0.0012
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						**3.8**				**0.09**			

* Third trimester of pregnancy

The Crosswinds, Morgan Hill, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Live Oak High School (+13 years old) - 1.5 meters - Child Exposure

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

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

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child	Adult
Age -->	**0 - <2**	**2 - <16**	**16 - 30**
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	240
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SAF =	1.00	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)
1	1	13 - 14	2022	0.0006	3	0.04
2	1	14 - 15	2023	0.0003	3	0.02
3	1	15 - 16	2024	0.0003	3	0.02
4	1	16 - 17	2025	0.0002	3	0.01
5	1			0.0000	3	0.0
6	1			0.0000	3	0.0
7	1			0.0000	3	0.0
8	1			0.0000	3	0.0
9	1			0.0000	3	0.0
Total Increased Cancer Risk						**0.1**

Maximum		
Hazard Index	Fugitive PM2.5	Total PM2.5
0.0001	0.0001	0.0007
0.0001	0.0001	0.0004
0.0001	0.0001	0.0003
0.0000	0.0000	0.0002

* Children assumed to be 13 years of age or older with 4 years of Construction Exposure

Attachment 5: Community Risk Modeling Information and Calculations

CT-EMFAC2017 Emissions Factors for Mission View Drive

File Name: Crosswinds - Santa Clara (SF) - 2022 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 2/11/2021 10:45
Area: Santa Clara (SF)
Analysis Year: 2022
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.015	0.478	0.522
Truck 2	0.02	0.94	0.046
Non-Truck	0.965	0.014	0.961

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph
PM2.5	0.010417	0.006915	0.004735	0.003408	0.002622	0.002145	0.001861	0.001715	0.001672	0.001719
TOG	0.220898	0.145348	0.097291	0.068555	0.051819	0.041294	0.034513	0.030252	0.027821	0.026864
Diesel PM	0.001756	0.001459	0.001108	0.000865	0.000743	0.000683	0.000662	0.000677	0.000727	0.00081

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

Pollutant Name	Emission Factor
TOG	1.418515

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

Pollutant Name	Emission Factor
PM2.5	0.002108

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

Pollutant Name	Emission Factor
PM2.5	0.016811

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

Pollutant Name	Emission Factor
PM2.5	0.014871

END

Mission View Drive Traffic Emissions and Health Risk Calculations

Traffic Data Year = ***2030***

	AADT Total
Cumulative + Project Mission View Drive	14,020

Percent of Total Vehicles

Traffic Increase per Year (%) = *1.00%*

The Crosswinds, Morgan Hill, CA - On- and Off-Site Residential
Cumulative Operation - Mission View Drive
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2022

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_NB_MIS	Mission View Drive Northbound	NB	1	762.8	0.47	9.7	31.7	3.4	40	7,010
DPM_SB_MIS	Mission View Drive Southbound	SB	1	763.7	0.47	9.7	31.7	3.4	40	7,010
									Total	14,020

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.00068			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and DPM Emissions - DPM_NB_MIS

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.91%	274	2.44E-05	9	6.44%	451	4.02E-05	17	5.52%	387	3.45E-05
2	2.59%	181	1.62E-05	10	7.25%	508	4.53E-05	18	3.34%	234	2.08E-05
3	2.82%	198	1.76E-05	11	6.33%	443	3.95E-05	19	2.42%	169	1.51E-05
4	3.39%	238	2.12E-05	12	6.90%	484	4.31E-05	20	0.92%	64	5.75E-06
5	2.19%	153	1.37E-05	13	6.27%	439	3.92E-05	21	2.99%	210	1.87E-05
6	3.39%	238	2.12E-05	14	6.15%	431	3.84E-05	22	4.14%	290	2.59E-05
7	6.10%	427	3.81E-05	15	5.12%	359	3.20E-05	23	2.47%	173	1.55E-05
8	4.66%	327	2.91E-05	16	3.85%	270	2.41E-05	24	0.86%	60	5.39E-06
								Total		7,010	

2022 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_MIS

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.91%	274	2.45E-05	9	6.44%	451	4.03E-05	17	5.52%	387	3.45E-05
2	2.59%	181	1.62E-05	10	7.25%	508	4.53E-05	18	3.34%	234	2.09E-05
3	2.82%	198	1.76E-05	11	6.33%	443	3.96E-05	19	2.42%	169	1.51E-05
4	3.39%	238	2.12E-05	12	6.90%	484	4.32E-05	20	0.92%	64	5.76E-06
5	2.19%	153	1.37E-05	13	6.27%	439	3.92E-05	21	2.99%	210	1.87E-05
6	3.39%	238	2.12E-05	14	6.15%	431	3.85E-05	22	4.14%	290	2.59E-05
7	6.10%	427	3.81E-05	15	5.12%	359	3.20E-05	23	2.47%	173	1.55E-05
8	4.66%	327	2.91E-05	16	3.85%	270	2.41E-05	24	0.86%	60	5.40E-06
								Total		7,010	

The Crosswinds, Morgan Hill, CA - On- and Off-Site Residential
Cumulative Operation - Mission View Drive
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2022

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM2.5_NB_MIS	Mission View Drive Northbound	NB	1	762.8	0.47	9.7	32	1.3	40	7,010
PM2.5_SB_MIS	Mission View Drive Southbound	SB	1	763.7	0.47	9.7	32	1.3	40	7,010
									Total	14,020

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.001715			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_NB_MIS

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	81	1.82E-05	9	7.11%	499	1.13E-04	17	7.39%	518	1.17E-04
2	0.42%	29	6.63E-06	10	4.39%	308	6.95E-05	18	8.17%	573	1.29E-04
3	0.41%	29	6.48E-06	11	4.67%	327	7.39E-05	19	5.70%	399	9.01E-05
4	0.27%	19	4.22E-06	12	5.89%	413	9.33E-05	20	4.27%	300	6.76E-05
5	0.50%	35	7.90E-06	13	6.15%	431	9.73E-05	21	3.26%	228	5.16E-05
6	0.91%	64	1.43E-05	14	6.03%	423	9.55E-05	22	3.30%	231	5.22E-05
7	3.79%	266	6.01E-05	15	7.01%	491	1.11E-04	23	2.46%	172	3.89E-05
8	7.76%	544	1.23E-04	16	7.13%	500	1.13E-04	24	1.86%	131	2.95E-05
								Total		7,010	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	81	1.82E-05	9	7.11%	499	1.13E-04	17	7.39%	518	1.17E-04
2	0.42%	29	6.64E-06	10	4.39%	308	6.96E-05	18	8.17%	573	1.29E-04
3	0.41%	29	6.48E-06	11	4.67%	327	7.39E-05	19	5.70%	399	9.03E-05
4	0.27%	19	4.23E-06	12	5.89%	413	9.34E-05	20	4.27%	300	6.77E-05
5	0.50%	35	7.91E-06	13	6.15%	431	9.74E-05	21	3.26%	228	5.16E-05
6	0.91%	64	1.44E-05	14	6.03%	423	9.56E-05	22	3.30%	231	5.23E-05
7	3.79%	266	6.01E-05	15	7.01%	491	1.11E-04	23	2.46%	172	3.89E-05
8	7.76%	544	1.23E-04	16	7.13%	500	1.13E-04	24	1.86%	131	2.95E-05
								Total		7,010	

The Crosswinds, Morgan Hill, CA - On- and Off-Site Residential
Cumulative Operation - Mission View Drive
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2022

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_NB_MIS	Mission View Drive Northbound	NB	1	762.8	0.47	9.7	32	1.3	40	7,010
TEXH_SB_MIS	Mission View Drive Southbound	SB	1	763.7	0.47	9.7	32	1.3	40	7,010
									Total	14,020

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.03025			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_MIS

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	81	3.21E-04	9	7.11%	499	1.99E-03	17	7.39%	518	2.06E-03
2	0.42%	29	1.17E-04	10	4.39%	308	1.23E-03	18	8.17%	573	2.28E-03
3	0.41%	29	1.14E-04	11	4.67%	327	1.30E-03	19	5.70%	399	1.59E-03
4	0.27%	19	7.45E-05	12	5.89%	413	1.65E-03	20	4.27%	300	1.19E-03
5	0.50%	35	1.39E-04	13	6.15%	431	1.72E-03	21	3.26%	228	9.10E-04
6	0.91%	64	2.53E-04	14	6.03%	423	1.68E-03	22	3.30%	231	9.22E-04
7	3.79%	266	1.06E-03	15	7.01%	491	1.96E-03	23	2.46%	172	6.86E-04
8	7.76%	544	2.17E-03	16	7.13%	500	1.99E-03	24	1.86%	131	5.20E-04
								Total		7,010	

2022 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_SB_MIS

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	81	3.22E-04	9	7.11%	499	1.99E-03	17	7.39%	518	2.06E-03
2	0.42%	29	1.17E-04	10	4.39%	308	1.23E-03	18	8.17%	573	2.28E-03
3	0.41%	29	1.14E-04	11	4.67%	327	1.30E-03	19	5.70%	399	1.59E-03
4	0.27%	19	7.46E-05	12	5.89%	413	1.65E-03	20	4.27%	300	1.19E-03
5	0.50%	35	1.40E-04	13	6.15%	431	1.72E-03	21	3.26%	228	9.11E-04
6	0.91%	64	2.53E-04	14	6.03%	423	1.69E-03	22	3.30%	231	9.23E-04
7	3.79%	266	1.06E-03	15	7.01%	491	1.96E-03	23	2.46%	172	6.87E-04
8	7.76%	544	2.17E-03	16	7.13%	500	1.99E-03	24	1.86%	131	5.21E-04
								Total		7,010	

The Crosswinds, Morgan Hill, CA - On- and Off-Site Residential
Cumulative Operation - Mission View Drive
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2022

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_NB_MIS	Mission View Drive Northbound	NB	1	762.8	0.47	9.7	32	1.3	40	7,010
TEVAP_SB_MIS	Mission View Drive Southbound	SB	1	763.7	0.47	9.7	32	1.3	40	7,010
									Total	14,020

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle per Hour (g/hour)	1.41852			
Emissions per Vehicle per Mile (g/VMT)	0.03546			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_MIS

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	81	3.77E-04	9	7.11%	499	2.33E-03	17	7.39%	518	2.42E-03
2	0.42%	29	1.37E-04	10	4.39%	308	1.44E-03	18	8.17%	573	2.67E-03
3	0.41%	29	1.34E-04	11	4.67%	327	1.53E-03	19	5.70%	399	1.86E-03
4	0.27%	19	8.73E-05	12	5.89%	413	1.93E-03	20	4.27%	300	1.40E-03
5	0.50%	35	1.63E-04	13	6.15%	431	2.01E-03	21	3.26%	228	1.07E-03
6	0.91%	64	2.97E-04	14	6.03%	423	1.97E-03	22	3.30%	231	1.08E-03
7	3.79%	266	1.24E-03	15	7.01%	491	2.29E-03	23	2.46%	172	8.04E-04
8	7.76%	544	2.54E-03	16	7.13%	500	2.34E-03	24	1.86%	131	6.10E-04
								Total		7,010	

2022 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_MIS

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	81	3.77E-04	9	7.11%	499	2.33E-03	17	7.39%	518	2.42E-03
2	0.42%	29	1.37E-04	10	4.39%	308	1.44E-03	18	8.17%	573	2.68E-03
3	0.41%	29	1.34E-04	11	4.67%	327	1.53E-03	19	5.70%	399	1.87E-03
4	0.27%	19	8.74E-05	12	5.89%	413	1.93E-03	20	4.27%	300	1.40E-03
5	0.50%	35	1.64E-04	13	6.15%	431	2.01E-03	21	3.26%	228	1.07E-03
6	0.91%	64	2.97E-04	14	6.03%	423	1.98E-03	22	3.30%	231	1.08E-03
7	3.79%	266	1.24E-03	15	7.01%	491	2.30E-03	23	2.46%	172	8.05E-04
8	7.76%	544	2.54E-03	16	7.13%	500	2.34E-03	24	1.86%	131	6.10E-04
								Total		7,010	

The Crosswinds, Morgan Hill, CA - On- and Off-Site Residential
Cumulative Operation - Mission View Drive
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2022

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_NB_MIS	Mission View Drive Northbound	NB	1	762.8	0.47	9.7	32	1.3	40	7,010
FUG_SB_MIS	Mission View Drive Southbound	SB	1	763.7	0.47	9.7	32	1.3	40	7,010
									Total	14,020

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681			
Road Dust - Emissions per Vehicle (g/VMT)	0.01487			
otal Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03379			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_MIS

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	81	3.59E-04	9	7.11%	499	2.22E-03	17	7.39%	518	2.30E-03
2	0.42%	29	1.31E-04	10	4.39%	308	1.37E-03	18	8.17%	573	2.55E-03
3	0.41%	29	1.28E-04	11	4.67%	327	1.46E-03	19	5.70%	399	1.78E-03
4	0.27%	19	8.32E-05	12	5.89%	413	1.84E-03	20	4.27%	300	1.33E-03
5	0.50%	35	1.56E-04	13	6.15%	431	1.92E-03	21	3.26%	228	1.02E-03
6	0.91%	64	2.83E-04	14	6.03%	423	1.88E-03	22	3.30%	231	1.03E-03
7	3.79%	266	1.18E-03	15	7.01%	491	2.19E-03	23	2.46%	172	7.66E-04
8	7.76%	544	2.42E-03	16	7.13%	500	2.23E-03	24	1.86%	131	5.81E-04
								Total		7,010	

2022 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_MIS

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	81	3.59E-04	9	7.11%	499	2.22E-03	17	7.39%	518	2.31E-03
2	0.42%	29	1.31E-04	10	4.39%	308	1.37E-03	18	8.17%	573	2.55E-03
3	0.41%	29	1.28E-04	11	4.67%	327	1.46E-03	19	5.70%	399	1.78E-03
4	0.27%	19	8.33E-05	12	5.89%	413	1.84E-03	20	4.27%	300	1.33E-03
5	0.50%	35	1.56E-04	13	6.15%	431	1.92E-03	21	3.26%	228	1.02E-03
6	0.91%	64	2.83E-04	14	6.03%	423	1.88E-03	22	3.30%	231	1.03E-03
7	3.79%	266	1.18E-03	15	7.01%	491	2.19E-03	23	2.46%	172	7.67E-04
8	7.76%	544	2.42E-03	16	7.13%	500	2.23E-03	24	1.86%	131	5.82E-04
								Total		7,010	

The Crosswinds, Morgan Hill, CA - Mission View Drive Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Residential MEI Receptor (1.5 meter receptor height)

Emission Year	2022
Receptor Information	Construction Residential MEI receptor
Number of Receptors	1
Receptor Height	1.5 meters
Receptor Distances	At Construction Residential MEI location

Meteorological Conditions	
BAQMD San Martin Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00161	0.07345	0.08644

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	0.0865	0.08232	0.00418

The Crosswinds, Morgan Hill, CA - Mission View Drive Traffic Cancer Risk
Impacts at Construction Residential MEI - 1.5 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 $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

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

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

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

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

Values

	Infant/Child			Adult
Age –>	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
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 Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2021	10	0.0016	0.0735	0.0864	0.022	0.006	0.0004	0.03
1	1	0 - 1	2021	10	0.0016	0.0735	0.0864	0.264	0.069	0.0048	0.34
2	1	1 - 2	2022	10	0.0016	0.0735	0.0864	0.264	0.069	0.0048	0.34
3	1	2 - 3	2023	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
4	1	3 - 4	2024	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
5	1	4 - 5	2025	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
6	1	5 - 6	2026	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
7	1	6 - 7	2027	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
8	1	7 - 8	2028	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
9	1	8 - 9	2029	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
10	1	9 - 10	2030	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
11	1	10 - 11	2031	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
12	1	11 - 12	2032	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
13	1	12 - 13	2033	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
14	1	13 - 14	2034	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
15	1	14 - 15	2035	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
16	1	15 - 16	2036	3	0.0016	0.0735	0.0864	0.042	0.011	0.0008	0.05
17	1	16-17	2037	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
18	1	17-18	2038	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
19	1	18-19	2039	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
20	1	19-20	2040	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
21	1	20-21	2041	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
22	1	21-22	2042	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
23	1	22-23	2043	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
24	1	23-24	2044	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
25	1	24-25	2045	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
26	1	25-26	2046	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
27	1	26-27	2047	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
28	1	27-28	2048	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
29	1	28-29	2049	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
30	1	29-30	2050	1	0.0016	0.0735	0.0864	0.005	0.001	0.0001	0.01
Total Increased Cancer Risk								1.20	0.312	0.022	**1.5**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0003	0.08	0.09

* Third trimester of pregnancy

The Crosswinds, Morgan Hill, CA - Mission View Drive Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
On-Site 1st Floor Residential Receptors (1.5 meter receptor height)

Emission Year	2022
Receptor Information	Maximum On-Site Receptor
Number of Receptors	514
Receptor Height	1.5 meters
Receptor Distances	12 meter grid spacing

Meteorological Conditions	
BAQMD San Martin Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

1st Floor Project Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00856	0.46646	0.54862

1st Floor Project PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.54895	0.52243	0.02652

The Crosswinds, Morgan Hill, CA - Mission View Drive Traffic Cancer Risk
Impacts at On-Site 1st Floor Residential Receptors - 1.5 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration

Cancer Risk Calculation Method

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

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

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

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

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

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

Values

	Infant/Child			Adult
Age –>	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
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 Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2021	10	0.0086	0.4665	0.5486	0.116	0.036	0.0025	0.16
1	1	0 - 1	2021	10	0.0086	0.4665	0.5486	1.406	0.437	0.0303	1.87
2	1	1 - 2	2022	10	0.0086	0.4665	0.5486	1.406	0.437	0.0303	1.87
3	1	2 - 3	2023	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
4	1	3 - 4	2024	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
5	1	4 - 5	2025	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
6	1	5 - 6	2026	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
7	1	6 - 7	2027	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
8	1	7 - 8	2028	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
9	1	8 - 9	2029	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
10	1	9 - 10	2030	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
11	1	10 - 11	2031	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
12	1	11 - 12	2032	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
13	1	12 - 13	2033	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
14	1	13 - 14	2034	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
15	1	14 - 15	2035	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
16	1	15 - 16	2036	3	0.0086	0.4665	0.5486	0.221	0.069	0.0048	0.29
17	1	16-17	2037	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
18	1	17-18	2038	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
19	1	18-19	2039	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
20	1	19-20	2040	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
21	1	20-21	2041	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
22	1	21-22	2042	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
23	1	22-23	2043	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
24	1	23-24	2044	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
25	1	24-25	2045	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
26	1	25-26	2046	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
27	1	26-27	2047	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
28	1	27-28	2048	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
29	1	28-29	2049	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
30	1	29-30	2050	1	0.0086	0.4665	0.5486	0.025	0.008	0.0005	0.03
Total Increased Cancer Risk								6.37	1.982	0.137	**8.5**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.002	0.52	0.55

* Third trimester of pregnancy

The Crosswinds, Morgan Hill, CA - Mission View Drive Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations - With MERV13 Filtration
On-Site 1st Floor Residential Receptors (1.5 meter receptor height)

Emission Year	2022
Receptor Information	Maximum On-Site Receptor
Number of Receptors	514
Receptor Height	1.5 meters
Receptor Distances	12 meter grid spacing
Meteorological Conditions	
BAQMD San Martin Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

1st Floor Project Cancer Risk Maximum Concentrations

Meteorological	Concentration (µg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.002568	0.46646	0.54862

1st Floor Project PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (µg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.164685	0.156729	0.007956

The Crosswinds, Morgan Hill, CA - Mission View Drive Traffic Cancer Risk
Impacts at On-Site 1st Floor Residential Receptors - 1.5 meter receptor height
30 Year Residential Exposure - With MERV13 Filtration

Cancer Risk Calculation Method

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

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

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

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

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

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

Values

	Infant/Child			Adult
Age –>	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
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 Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2021	10	0.0026	0.4665	0.5486	0.035	0.036	0.0025	0.07
1	1	0 - 1	2021	10	0.0026	0.4665	0.5486	0.422	0.437	0.0303	0.89
2	1	1 - 2	2022	10	0.0026	0.4665	0.5486	0.422	0.437	0.0303	0.89
3	1	2 - 3	2023	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
4	1	3 - 4	2024	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
5	1	4 - 5	2025	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
6	1	5 - 6	2026	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
7	1	6 - 7	2027	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
8	1	7 - 8	2028	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
9	1	8 - 9	2029	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
10	1	9 - 10	2030	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
11	1	10 - 11	2031	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
12	1	11 - 12	2032	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
13	1	12 - 13	2033	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
14	1	13 - 14	2034	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
15	1	14 - 15	2035	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
16	1	15 - 16	2036	3	0.0026	0.4665	0.5486	0.066	0.069	0.0048	0.14
17	1	16-17	2037	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
18	1	17-18	2038	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
19	1	18-19	2039	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
20	1	19-20	2040	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
21	1	20-21	2041	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
22	1	21-22	2042	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
23	1	22-23	2043	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
24	1	23-24	2044	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
25	1	24-25	2045	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
26	1	25-26	2046	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
27	1	26-27	2047	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
28	1	27-28	2048	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
29	1	28-29	2049	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
30	1	29-30	2050	1	0.0026	0.4665	0.5486	0.007	0.008	0.0005	0.02
Total Increased Cancer Risk								1.91	1.982	0.137	**4.0**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.001	0.16	0.16

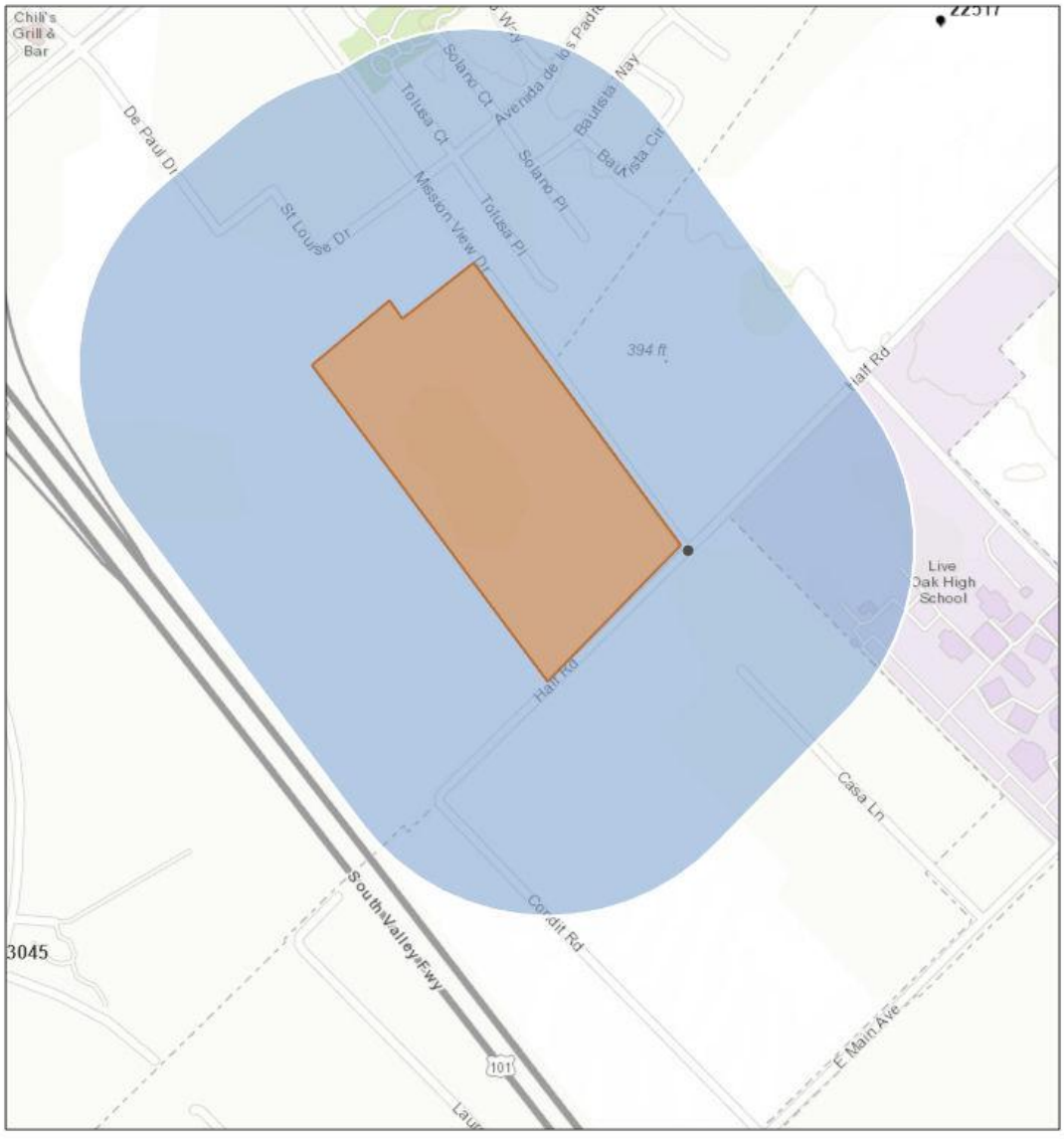
* Third trimester of pregnancy

Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 9,250,182.75 ft²

Dec 10 2020 16:15:14 Pacific Standard Time



Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	0	N/A	N/A

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.

ILLINGWORTH & RODKIN, INC.
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May 26, 2021

Amber Sharpe
Project Manager
David J. Powers & Associates, Inc.
1871 The Alameda, Suite 200
San José, CA 95126

Via email: asharpe@davidjpowers.com

Subject: **The Crosswinds Off-Site Sanitary Sewer Installation, Morgan Hill, CA**
Addendum to the Air Quality and Greenhouse Gas Assessment

Dear Amber:

In April 2021, *Illingworth & Rodkin, Inc*. prepared an air quality and greenhouse gas (GHG) assessment for The Crosswinds at Morgan Hill residential project in Morgan Hill, California.[1] The applicant is now also proposing to install a sanitary sewer line that extends from the project site to the existing sewer line on E. Main Avenue. This sewer line installation was not addressed in the original air quality analysis. This addendum letter discusses the potential impact of the construction of the proposed sewer line installation.

Off-Site Sanitary Sewer Line Installation

The proposed off-site sanitary sewer line would extend from DePaul Drive to Half Road to Condit Road, which would connect to the existing sewer line on E. Main Avenue. The length of the off-site sewer improvement would be approximately 2,745 lineal feet. The depth of the off-site trench will vary between 10 and 13 feet and the width would be approximately 2 feet wide. The sewer line construction and installation would begin during the Grading Phase of the original project in May 2022 and take approximately 18 working days to complete.

Construction Criteria Air Pollutants

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions from the construction activity, construction vehicle trips, and evaporative emissions. The sanitary sewer option land use types and size, and anticipated construction schedule were input

[1] Illingworth & Rodkin, Inc., "The Crosswinds at Morgan Hill Air Quality and Greenhouse Gas Assessment," April 6, 2021.

to CalEEMod. The CARB EMission FACtors 2017 (EMFAC2017) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[2] The CalEEMod model output along with construction inputs are included in *Attachment 1* and EMFAC2017 vehicle emissions modeling outputs are included in *Attachment 2*.

CalEEMod Inputs

Land Use Inputs

The proposed off-site sanitary sewer use was entered into CalEEMod as described in Table 1.

Table 1. Summary of Sanitary Sewer Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Other Asphalt Surface	5.5	1,000-sf	5,500	1.0
Note: CalEEMod does not have a land use for a sewer treatment facility or sewer pipeline, so other asphalt surface uses were used and sizes were based on provided information.				

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-site activity includes worker, hauling, and vendor traffic. The sanitary sewer construction information was provided by the project applicant, which the grading and paving phases. Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was also provided by the project applicant. The construction schedule assumed that the earliest possible start date would be May 2022 and the sanitary sewer facility would be built out over a period of approximately 1 month, or 18 construction workdays.

Construction Truck Traffic Emissions

The construction traffic information was combined with EMFAC2017 motor vehicle emissions factors. This 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 provided applicant information of two dump trucks making a dozen trips per day for soil material exported to the site. 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. On-road emission rates from the years 2022 for Santa Clara County were used. Table 2 provides the traffic inputs that were combined with the EMFAC2017 emission database to compute vehicle emissions.

[2] See CARB's EMFAC2017 Web Database at https://www.arb.ca.gov/emfac/2017/

Table 2. Construction Traffic Data Used for EMFAC2017 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]	72% LDA 6% LDT1 22% LDT2	38% MHDT 62% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Cement/Asphalt)	CalEEMod default distance with 5-min truck idle time.
Grading	10	-	720	360 daily soil hauling truck trips. CalEEMod default worker trips.
Paving	5	-	-	CalEEMod default worker trips.

Notes: [1] Based on 2022 EMFAC2017 light-duty vehicle fleet mix for Santa Clara County.
[2] Includes grading trips estimated by CalEEMod based on amount of material to be removed.

Summary of Computed Construction Period Emissions

Average daily emissions were computed by dividing the total sewer construction emissions by the number of active workdays. Table 3 shows average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ fugitive during construction of the project. As indicated in Table 3, predicted construction period emissions would not exceed the BAAQMD significance thresholds.

Table 3. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Fugitive
Construction Emissions Per Year (Tons)				
2022	0.01	0.13	0.01	<0.01
Average Daily Construction Emissions Per Year (pounds/day)				
2022 (18 construction workdays)	1.10	14.08	0.56	0.42
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

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

Community Health Risk from Sanitary Sewer Facility Construction

Construction Emissions

The CalEEMod and EMFAC2017 models provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.0030 tons (6 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.0001 tons (0.2 pounds) for the construction period.

Dispersion Modeling

Dispersion modeling for the sanity sewer line construction was conducted using the same methods in the original air quality analysis. These methods included using the U.S. EPA AERMOD dispersion model was used to predict DPM and $PM_{2.5}$ concentrations at nearby sensitive receptors (residences), using area sources for exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions, using San Martin Airport meteorological data, and using the same sensitive receptor locations.

Summary of Construction Community Risk Impacts

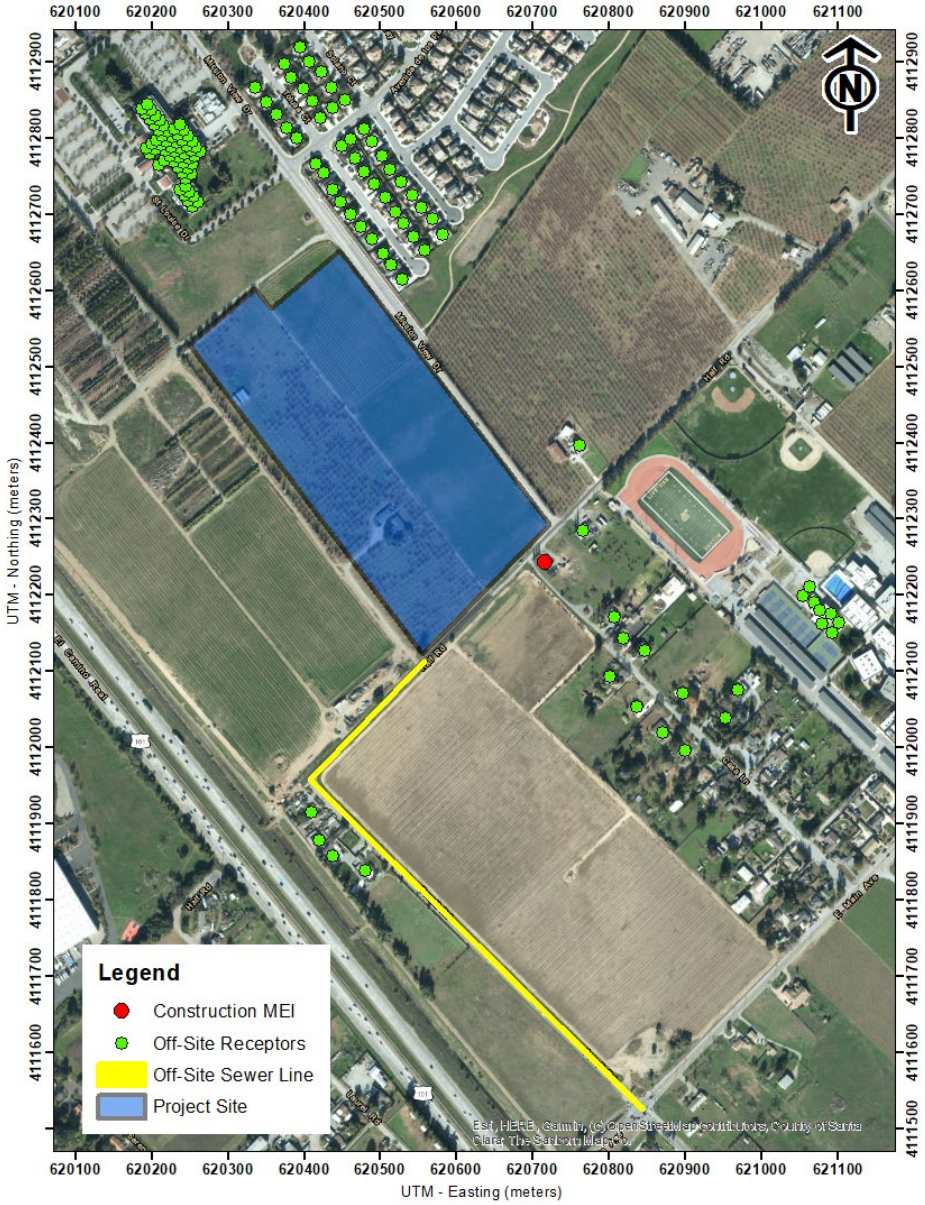
The maximum modeled annual DPM and $PM_{2.5}$ concentrations were identified at nearby sensitive receptors. Results of the sewer line modeling were analyzed specifically at the MEI identified in the original project construction (i.e., a single-family residence to the south of the project site opposite Half Road). This is because the original project MEI would have great health risk impacts from the original project's construction than the sanitary sewer line's construction. The location of the MEI and nearby sensitive receptors are shown in Figure 1. Table 4 lists the community risks from the sewer line construction at the location of the MEI. *Attachment 3* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

Additionally, modeling was conducted to predict the cancer risks, non-cancer health hazards, and maximum $PM_{2.5}$ concentrations associated with construction activities at the nearby high school. The maximum increased cancer risks were adjusted using child exposure parameters. The uncontrolled cancer risk, $PM_{2.5}$ concentration, and HI at the nearby high school would not exceed their respective BAAQMD single-source significance thresholds, as shown in Table 4.

Table 4. Construction Risk Impacts at the Offsite Project MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Sewer Construction	Unmitigated	0.02 (infant)	<0.01	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
Most Affected Nearby Child – Live Oak High School Student Receptors				
Sewer Construction	Unmitigated	<0.01 (child)	<0.01	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

Figure 2. Off-Site Sanitary Sewer Line Construction Site, Locations of Off-Site Sensitive Receptors, and TAC Impacts



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

Table 5 reports both the total project and cumulative community risk impacts at the sensitive receptors most affected by the project with sewer treatment (i.e., the MEI). Without mitigation, the total project's community risk from project construction would not exceed the single-source maximum increased cancer risk, $PM_{2.5}$ concentration, or HI thresholds. In addition, the combined unmitigated cancer risk, $PM_{2.5}$ concentration, and HI values would not exceed their respective cumulative thresholds.

Table 5. Cumulative Community Risk Impacts from Combined TAC Sources at MEI

Source	Cancer Risk (per million)	$PM_{2.5}$ concentration ($\mu g/m^3$)	Hazard Index
Total Project Impacts			
Off-site Sewer Construction Unmitigated	0.02 (infant)	<0.01	<0.01
Project Residential Site Construction	3.6 (infant)	0.02	<0.01
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Impacts			
Mission View Drive, ADT 14,020	1.5 (infant)	0.09	<0.01
Combined Sources Unmitigated	5.12 (infant)	<0.12	<0.03
BAAQMD Cumulative-Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	*No*	*No*	*No*

♦ ♦ ♦

This concludes the assessment for air quality and health risk impacts due to the construction of an off-site sanitary sewer line for The Crosswinds project. Please feel free to contact us with any questions on the analysis or if we can be of further assistance.

Sincerely,

Casey Divine
Consultant
Illingworth & Rodkin, Inc.

(I&R #20-161)

Supporting Documentation

Attachment 1 includes the CalEEMod output for project construction criteria air pollutant emissions. Also included are any modeling assumptions.

Attachment 2 includes the EMFAC2017 emissions modeling. The input files for these calculations are voluminous and are available upon request in digital format.

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

Attachment 1: CalEEMod Modeling Inputs and Outputs

Construction Criteria Air Pollutants						
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	**CO2e**	
Year	Tons				MT	
Construction Equipment						
2022	0.00802	0.0645	0.00287	0.00264	13.4604	
EMFAC						
2022	0.0019	0.0622	0.0022	0.0011	23.02	
Total Construction Emissions by Year						
2022	0.01	0.13	0.01	0.00	36.48	
	Total Construction Emissions					
Tons	0.01	0.13	0.01	0.00	36.48	
Pounds/Workdays	*Average Daily Emissions*				Workdays	
2022	1.10	14.08	0.56	0.42		**18**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Half Road Construction - Sewer

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	5.50	1000sqft	1.00	5,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	21	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SVCE w/som PG&E (10%)

Land Use - 2,745 linear feet, 5,500 sf, approx 1 acre disturb

Construction Phase - Provided construction schedule

Off-road Equipment - Provided const equipment and hours

Off-road Equipment - Provided const equipment and hours

Grading - Approx 1 acre disturbed

Trips and VMT - 0 trips emfac2017, grading = 2 dump trucks 12 trips a day for 15 days - 720 one-way trips

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	NumDays	5.00	3.00
tblConstructionPhase	PhaseEndDate	6/9/2022	6/13/2022
tblConstructionPhase	PhaseEndDate	11/3/2022	6/16/2022
tblConstructionPhase	PhaseStartDate	6/8/2022	5/24/2022
tblConstructionPhase	PhaseStartDate	10/28/2022	6/14/2022
tblGrading	AcresOfGrading	0.00	1.00
tblLandUse	LotAcreage	0.13	1.00
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
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	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	21
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	8.0200e-003	0.0645	0.0802	1.5000e-004	5.3000e-004	2.8700e-003	3.4000e-003	6.0000e-005	2.6400e-003	2.7000e-003	0.0000	13.3524	13.3524	4.3200e-003	0.0000	13.4604
Maximum	**8.0200e-003**	**0.0645**	**0.0802**	**1.5000e-004**	**5.3000e-004**	**2.8700e-003**	**3.4000e-003**	**6.0000e-005**	**2.6400e-003**	**2.7000e-003**	**0.0000**	**13.3524**	**13.3524**	**4.3200e-003**	**0.0000**	**13.4604**

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	8.0200e-003	0.0645	0.0802	1.5000e-004	5.3000e-004	2.8700e-003	3.4000e-003	6.0000e-005	2.6400e-003	2.7000e-003	0.0000	13.3524	13.3524	4.3200e-003	0.0000	13.4604
Maximum	**8.0200e-003**	**0.0645**	**0.0802**	**1.5000e-004**	**5.3000e-004**	**2.8700e-003**	**3.4000e-003**	**6.0000e-005**	**2.6400e-003**	**2.7000e-003**	**0.0000**	**13.3524**	**13.3524**	**4.3200e-003**	**0.0000**	**13.4604**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-24-2022	8-23-2022	0.0713	0.0713
		Highest	0.0713	0.0713

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.7000e-004	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.7000e-004**	**0.0000**	**5.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-004**	**1.0000e-004**	**0.0000**	**0.0000**	**1.0000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.7000e-004	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	4.7000e-004	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	5/24/2022	6/13/2022	5	15	
2	Paving	Paving	6/14/2022	6/16/2022	5	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1

Acres of Paving: 1

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Paving	Pavers	0	0.00	130	0.42
Paving	Rollers	1	4.00	80	0.38
Grading	Rubber Tired Dozers	0	0.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Grading	Graders	0	0.00	187	0.41
Paving	Paving Equipment	0	0.00	132	0.36

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4600e-003	0.0619	0.0771	1.5000e-004		2.7300e-003	2.7300e-003		2.5100e-003	2.5100e-003	0.0000	12.9746	12.9746	4.2000e-003	0.0000	13.0795
Total	**6.4600e-003**	**0.0619**	**0.0771**	**1.5000e-004**	**5.3000e-004**	**2.7300e-003**	**3.2600e-003**	**6.0000e-005**	**2.5100e-003**	**2.5700e-003**	**0.0000**	**12.9746**	**12.9746**	**4.2000e-003**	**0.0000**	**13.0795**

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					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4600e-003	0.0619	0.0771	1.5000e-004		2.7300e-003	2.7300e-003		2.5100e-003	2.5100e-003	0.0000	12.9745	12.9745	4.2000e-003	0.0000	13.0795
Total	**6.4600e-003**	**0.0619**	**0.0771**	**1.5000e-004**	**5.3000e-004**	**2.7300e-003**	**3.2600e-003**	**6.0000e-005**	**2.5100e-003**	**2.5700e-003**	**0.0000**	**12.9745**	**12.9745**	**4.2000e-003**	**0.0000**	**13.0795**

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 Paving - 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	2.5000e-004	2.5500e-003	3.0700e-003	0.0000		1.4000e-004	1.4000e-004		1.3000e-004	1.3000e-004	0.0000	0.3779	0.3779	1.2000e-004	0.0000	0.3809
Paving	1.3100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5600e-003**	**2.5500e-003**	**3.0700e-003**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.3779**	**0.3779**	**1.2000e-004**	**0.0000**	**0.3809**

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	2.5000e-004	2.5500e-003	3.0700e-003	0.0000		1.4000e-004	1.4000e-004		1.3000e-004	1.3000e-004	0.0000	0.3779	0.3779	1.2000e-004	0.0000	0.3809
Paving	1.3100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5600e-003**	**2.5500e-003**	**3.0700e-003**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.3779**	**0.3779**	**1.2000e-004**	**0.0000**	**0.3809**

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**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.612822	0.036208	0.182365	0.105071	0.013933	0.005011	0.012748	0.021514	0.002168	0.001529	0.005280	0.000629	0.000720

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

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					
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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

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

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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.7000e-004	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Unmitigated	4.7000e-004	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Total	**4.7000e-004**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-004**	**1.0000e-004**	**0.0000**	**0.0000**	**1.0000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Total	**4.7000e-004**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-004**	**1.0000e-004**	**0.0000**	**0.0000**	**1.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000

Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment 2: EMFAC2017 Calculations

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*
Grading	10	0	150	0	720	10.3	7.3	20	LD_Mix	HDT_Mix	HHDT	1545	0	14400
Paving	5	0	15	0	0	10.3	7.3	20	LD_Mix	HDT_Mix	HHDT	154.5	0	0

Number of Days Per Year				
2022	5/24/22	6/16/22	18	
			18	**18** ***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Grading	5/24/2022	6/13/2022	5	15
Paving	6/14/2022	6/16/2022	5	3

Summary of Construction Traffic Emissions (EMFAC2017)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2
					Tons						*Metric Tons*
Criteria Pollutants											
2022	0.0019	0.0622	0.0148	0.0002	0.0053	0.0022	0.0075	0.0008	0.0011	0.0019	23.0164
Toxic Air Contaminants (1 Mile Trip Length)											
2022	0.0005	0.0092	0.0057	0.0000	0.0003	0.00012	0.0004	0.00004	0.0001	0.0001	1.9377

Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles					
Year	NOx Exhaust	TOG Evaporative	TOG Exhaust	PM Exhaust	CO Exhaust
NA	1	1	1	1	1
2021	1.0002	1.0001	1.0002	1.0009	1.0005
2022	1.0004	1.0003	1.0004	1.0018	1.0014
2023	1.0007	1.0006	1.0007	1.0032	1.0027
2024	1.0012	1.0010	1.0011	1.0051	1.0044
2025	1.0018	1.0016	1.0016	1.0074	1.0065
2026	1.0023	1.0022	1.0020	1.0091	1.0083
2027	1.0028	1.0028	1.0024	1.0105	1.0102
2028	1.0034	1.0035	1.0028	1.0117	1.0120
2029	1.0040	1.0042	1.0032	1.0129	1.0138
2030	1.0047	1.0051	1.0037	1.0142	1.0156
2031	1.0054	1.0061	1.0042	1.0155	1.0173
2032	1.0061	1.0072	1.0047	1.0169	1.0189
2033	1.0068	1.0083	1.0052	1.0182	1.0204
2034	1.0075	1.0095	1.0058	1.0196	1.0218
2035	1.0081	1.0108	1.0063	1.0210	1.0232
2036	1.0088	1.0121	1.0069	1.0223	1.0244
2037	1.0094	1.0134	1.0074	1.0236	1.0255
2038	1.0099	1.0148	1.0079	1.0248	1.0265
2039	1.0104	1.0161	1.0085	1.0259	1.0274
2040	1.0109	1.0174	1.0090	1.0270	1.0281
2041	1.0113	1.0186	1.0095	1.0279	1.0288
2042	1.0116	1.0198	1.0099	1.0286	1.0294
2043	1.0119	1.0207	1.0103	1.0293	1.0299
2044	1.0122	1.0216	1.0106	1.0299	1.0303
2045	1.0124	1.0225	1.0109	1.0303	1.0306
2046	1.0125	1.0233	1.0111	1.0308	1.0309
2047	1.0127	1.0240	1.0113	1.0311	1.0311
2048	1.0128	1.0246	1.0115	1.0314	1.0313
2049	1.0128	1.0252	1.0116	1.0316	1.0315
2050	1.0129	1.0257	1.0117	1.0318	1.0316
Enter Year: 2022	**1.0004**	**1.0003**	**1.0004**	**1.0018**	**1.0014**

*PM Exhaust off model factor is only applied to the PM Exhaust emissions not start/idle

The off-model adjustment factors need to be applied only to emissions from gasoline light duty vehicles (LDA, LDT1, LDT2 and MDV). Please note that the adjustment factors are by calendar year and includes all model years.

Enter NA in the date field if adjustments do not apply

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: SANTA CLARA
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMB	PM2.5_PMT	PM10_RUP	PM10_IDL	PM10_STR	PM10_PMB	PM10_PMT	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLE	N2O_STRE	ROG_RUNI	ROG_IDLE	ROG_STRE	ROG_HOTS	TOG_RUNI	TOG_IDLE	TOG_STRE	TOG_HOTS	TOG_RESTI	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
SANTA CLA	2022	HHDT	Aggregate	Aggregate	GAS	4.973172	516.9338	99.50323	3.654204	0	0.338391	0.001236	0	0.000744	0.005	0.02646	0.001344	0	0.00081	0.02	0.06174	1964.961	0	46.86739	0.097725	0	0.00044	0.140899	0	0.010576	0.494672	0	0.002301	0.136891	0.830556	0.033943	0.061166	0.721824	0	0.00252	0.136891	0.830556	0.033943	0.061166	30.00648	0	5.27737	0.019445	0	0.000464
SANTA CLA	2022	HHDT	Aggregate	Aggregate	DSL	8277.463	1011013	88031.26	3.535499	63.08378	2.080194	0.033949	0.03347	0	0.008873	0.026088	0.035484	0.034983	0	0.035494	0.060872	1486.606	11783.13	0	0.003901	0.215524	0	0.233674	1.852143	0	0.08399	4.640183	0	0	0	0.095616	5.282495	0	0	0	0	0	0.366847	63.30293	0	0.014045	0.111321	0
SANTA CLA	2022	HHDT	Aggregate	Aggregate	NG	348.7902	14223.14	1360.282	1.755776	21.14752	0	0.004789	0.030991	0	0.009	0.02646	0.005006	0.032392	0	0.036	0.06174	3203.692	4060.116	0	3.511574	1.248503	0	0.653093	0.827681	0	0.161697	0.045805	0	0	0	3.710887	1.306054	0	0	0	0	0	10.70122	21.55662	0	0	0	0
SANTA CLA	2022	LDA	Aggregate	Aggregate	GAS	733557.7	26453304	3456649	0.03872	0	0.197227	0.001299	0	0.001748	0.002	0.01575	0.001413	0	0.001902	0.008	0.03675	259.2126	0	55.39361	0.002345	0	0.054199	0.004449	0	0.026685	0.009015	0	0.243726	0.100881	0.22086	0.178182	0.20337	0.013151	0	0.266848	0.100881	0.22086	0.178182	0.20337	0.63218	0	2.325265	0.002565	0	0.000548
SANTA CLA	2022	LDA	Aggregate	Aggregate	DSL	7146.668	268335.1	33963.02	0.071556	0	0	0.006579	0	0	0.002	0.01575	0.006877	0	0	0.008	0.03675	200.3149	0	0	0.000626	0	0	0.031487	0	0	0.013485	0	0	0	0	0.015352	0	0	0	0	0	0.198488	0	0	0.001894	0	0
SANTA CLA	2022	LDA	Aggregate	Aggregate	ELEC	25894.61	943282.8	126428	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0
SANTA CLA	2022	LDT1	Aggregate	Aggregate	GAS	73556.92	2443329	340743.8	0.091156	0	0.251292	0.001724	0	0.002226	0.002	0.01575	0.001875	0	0.002421	0.008	0.03675	300.527	0	64.49485	0.004882	0	0.070027	0.007217	0	0.028775	0.021236	0	0.344801	0.173613	0.628849	0.332831	0.420667	0.030964	0	0.377511	0.173613	0.628849	0.332831	0.420667	1.068397	0	2.450832	0.002974	0	0.000638
SANTA CLA	2022	LDT1	Aggregate	Aggregate	DSL	36.8388	667.9121	121.0603	1.185315	0	0	0.157566	0	0	0.002	0.01575	0.164691	0	0	0.008	0.03675	408.3259	0	0	0.009501	0	0	0.064183	0	0	0.204561	0	0	0	0	0.232879	0	0	0	0	0	1.159574	0	0	0.00386	0	0
SANTA CLA	2022	LDT1	Aggregate	Aggregate	ELEC	624.8771	24059.07	3099.469	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0
SANTA CLA	2022	LDT2	Aggregate	Aggregate	GAS	250455.4	8295824	1167439	0.077278	0	0.299792	0.001307	0	0.001684	0.002	0.01575	0.001421	0	0.001831	0.008	0.03675	327.6413	0	71.42656	0.003665	0	0.072415	0.006473	0	0.033384	0.014906	0	0.339292	0.128171	0.436499	0.281495	0.299507	0.021744	0	0.371482	0.128171	0.436499	0.281495	0.299507	0.860463	0	2.923834	0.003242	0	0.000707
SANTA CLA	2022	LDT2	Aggregate	Aggregate	DSL	1663.513	62652.21	8136.947	0.039252	0	0	0.004754	0	0	0.002	0.01575	0.004969	0	0	0.008	0.03675	275.5741	0	0	0.000647	0	0	0.043316	0	0	0.013935	0	0	0	0	0.015864	0	0	0	0	0	0.123161	0	0	0.002605	0	0
SANTA CLA	2022	LDT2	Aggregate	Aggregate	ELEC	2695.96	82111.52	13502.44	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0
SANTA CLA	2022	LHDT1	Aggregate	Aggregate	GAS	16536.9	566343.8	246375.2	0.235238	0.038471	0.530556	0.002161	0	0.000388	0.002	0.03276	0.00235	0	0.000422	0.008	0.07644	1006.569	121.1222	18.98971	0.01086	0.121305	0.025473	0.014262	0.003125	0.041267	0.052874	0.440699	0.129054	0.125369	0.861898	0.025267	0.050121	0.077153	0.643067	0.141298	0.125369	0.861898	0.025267	0.050121	0.97349	3.751848	1.764958	0.009961	0.001199	0.000188
SANTA CLA	2022	LHDT1	Aggregate	Aggregate	DSL	11104.44	423266.4	139679.8	1.613919	2.033114	0	0.021273	0.026869	0	0.003	0.03276	0.022235	0.028084	0	0.012	0.07644	544.3042	133.047	0	0.007318	0.005098	0	0.085557	0.020913	0	0.157544	0.10976	0	0	0	0.179353	0.124954	0	0	0	0	0	0.661457	0.909745	0	0.005146	0.001258	0
SANTA CLA	2022	LHDT2	Aggregate	Aggregate	GAS	2253.3	77523.96	33570.81	0.240034	0.037891	0.516259	0.002078	0	0.000346	0.002	0.03822	0.00226	0	0.000377	0.008	0.08918	1147.291	139.0737	21.54397	0.008737	0.120275	0.024583	0.015135	0.003045	0.039911	0.039365	0.434196	0.123837	0.121118	0.819863	0.023133	0.046225	0.057441	0.633578	0.135586	0.121118	0.819863	0.023133	0.046225	0.722025	3.75488	1.776904	0.011353	0.001376	0.000213
SANTA CLA	2022	LHDT2	Aggregate	Aggregate	DSL	4438.985	166319.5	55836.85	1.346918	2.041795	0	0.021771	0.027131	0	0.003	0.03822	0.022756	0.028358	0	0.012	0.08918	612.5422	213.4891	0	0.007003	0.005098	0	0.096283	0.033558	0	0.150761	0.10976	0	0	0	0.171631	0.124954	0	0	0	0	0	0.634383	0.909745	0	0.005791	0.002018	0
SANTA CLA	2022	MCY	Aggregate	Aggregate	GAS	32925.36	241011	65850.71	1.151611	0	0.270649	0.001812	0	0.002978	0.001	0.00504	0.001937	0	0.003161	0.004	0.01176	210.2729	0	61.39967	0.328946	0	0.256691	0.06628	0	0.015352	2.228751	0	1.954835	0.704215	2.060677	0.995009	1.817765	2.753726	0	2.127328	0.704215	2.060677	0.995009	1.817765	19.18808	0	9.0045	0.002081	0	0.000608
SANTA CLA	2022	MDV	Aggregate	Aggregate	GAS	151961.1	4876240	702265.7	0.099589	0	0.371177	0.001397	0	0.001912	0.002	0.01575	0.001519	0	0.002079	0.008	0.03675	396.236	0	86.90417	0.004621	0	0.087878	0.007887	0	0.036541	0.019446	0	0.437645	0.147462	0.472734	0.331376	0.347901	0.028322	0	0.479161	0.147462	0.472734	0.331376	0.347901	0.980018	0	3.406111	0.003921	0	0.00086
SANTA CLA	2022	MDV	Aggregate	Aggregate	DSL	3721.225	135478.8	18101.22	0.038775	0	0	0.004203	0	0	0.002	0.01575	0.004393	0	0	0.008	0.03675	360.3121	0	0	0.000478	0	0	0.056636	0	0	0.010285	0	0	0	0	0.011709	0	0	0	0	0	0.184421	0	0	0.003406	0	0
SANTA CLA	2022	MDV	Aggregate	Aggregate	ELEC	1080.167	34834.41	5508.057	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0
SANTA CLA	2022	MH	Aggregate	Aggregate	GAS	2891.835	26265.33	289.2991	0.413359	0	0.334516	0.001633	0	0.000362	0.003	0.05586	0.001776	0	0.000394	0.012	0.13034	1756.095	0	25.97914	0.015124	0	0.032419	0.025426	0	0.034963	0.066433	0	0.137518	0.088945	2.156488	0.036513	0.106238	0.096939	0	0.150564	0.088945	2.156488	0.036513	0.106238	1.697423	0	3.037213	0.017378	0	0.000257
SANTA CLA	2022	MH	Aggregate	Aggregate	DSL	1019.353	9712.32	101.9353	4.184918	0	0	0.085576	0	0	0.004	0.05586	0.089445	0	0	0.016	0.13034	1018.587	0	0	0.005027	0	0	0.160108	0	0	0.108225	0	0	0	0	0.123206	0	0	0	0	0	0.382773	0	0	0.009629	0	0
SANTA CLA	2022	MHDT	Aggregate	Aggregate	GAS	1456.112	75284.48	29133.88	0.474932	0.088412	0.377896	0.001319	0	0.000449	0.003	0.05586	0.001435	0	0.00051	0.012	0.13034	1722.789	532.6547	39.05903	0.014881	0.262553	0.04023	0.023376	0.007484	0.029181	0.072945	1.011617	0.219187	0.087649	0.506692	0.018903	0.038182	0.166442	1.47615	0.239982	0.087649	0.506692	0.018903	0.038182	1.680953	15.10368	4.939745	0.017048	0.005271	0.000287
SANTA CLA	2022	MHDT	Aggregate	Aggregate	DSL	9430.024	551923.8	94917.85	2.277066	7.413096	1.687822	0.039812	0.015538	0	0.003	0.05586	0.041612	0.01624	0	0.012	0.13034	1050.628	914.98	0	0.004378	0.004667	0	0.165144	0.143822	0	0.094265	0.100481	0	0	0	0.107314	0.11439	0	0	0	0	0	0.32147	2.58681	0	0.009926	0.008644	0
SANTA CLA	2022	OBUS	Aggregate	Aggregate	GAS	501.9655	24150.25	10043.33	0.443255	0.065137	0.32561	0.000952	0	0.000213	0.003	0.05586	0.001035	0	0.000232	0.012	0.13034	1767.375	377.9272	26.38965	0.013022	0.200837	0.030332	0.022732	0.005646	0.026387	0.061436	0.747416	0.156088	0.026802	0.295531	0.015889	0.036065	0.089647	1.090627	0.170897	0.026802	0.295531	0.015889	0.036065	1.365657	5.781487	3.261978	0.01749	0.00374	0.000261
SANTA CLA	2022	OBUS	Aggregate	Aggregate	DSL	762.3964	53839.19	6991.348	2.314382	10.4182	2.005848	0.021086	0.015288	0	0.003	0.05586	0.02204	0.015979	0	0.012	0.13034	1185.916	1892.098	0	0.002538	0.027964	0	0.18641	0.297411	0	0.054653	0.602048	0	0	0	0.062218	0.685386	0	0	0	0	0	0.239321	8.657847	0	0.011204	0.017876	0
SANTA CLA	2022	SBUS	Aggregate	Aggregate	GAS	249.3134	11500.83	997.2534	0.430325	0.924415	0.566946	0.001196	0	0.000498	0.002	0.3192	0.001301	0	0.000541	0.008	0.7448	865.5448	2582.545	48.67377	0.011856	2.442701	0.058309	0.024366	0.088243	0.053528	0.058325	10.61061	0.332747	0.061157	0.415506	0.010413	0.025261	0.085108	15.48298	0.364316	0.061157	0.415506	0.010413	0.025261	1.259002	82.05319	8.624782	0.008565	0.025556	0.000482
SANTA CLA	2022	SBUS	Aggregate	Aggregate	DSL	1014.086	31965.96	11702.42	6.765334	45.00081	0.786274	0.042018	0.05033	0	0.003	0.3192	0.043917	0.052605	0	0.012	0.7448	1145.085	3716.49	0	0.004669	0.013069	0	0.179991	0.584181	0	0.100532	0.281366	0	0	0	0.114448	0.320314	0	0	0	0	0	0.27746	5.867721	0	0.010818	0.035112	0
SANTA CLA	2022	UBUS	Aggregate	Aggregate	GAS	8.419396	1059.849	33.67758	0.491737	0	1.236285	0.000328	0	9.7E-05	0.003	0.05586	0.000356	0	0.000105	0.012	0.13034	2351.817	0	104.599	0.006789	0	0.178596	0.036386	0	0.091633	0.022728	0	0.768536	0.190076	1.35875	0.031079	0.049249	0.033164	0	0.84145	0.190076	1.35875	0.031079	0.049249	0.527722	0	8.852622	0.023273	0	0.001035
SANTA CLA	2022	UBUS	Aggregate	Aggregate	DSL	423.2358	46482.16	1692.943	0.803453	0	0	0.005651	0	0	0.008415	0.029326	0.005907	0	0	0.033661	0.068427	1481.178	0	0	0.077358	0	0	0.232821	0	0	0.001105	0	0	0	0	0.078949	0	0	0	0	0	0.131304	0	0	0.014002	0	0
SANTA CLA	2022	UBUS	Aggregate	Aggregate	NG	104.0289	12325.91	416.1154	0.48934	0	0	0.003183	0	0	0.008475	0.029034	0.003327	0	0	0.033899	0.067746	2016.3	0	0	6.413607	0	0	0.411036	0	0	0.091638	0	0	0	0	6.545556	0	0	0	0	0	49.80397	0	0	0	0	0

Attachment 3: Construction Health Risk Calculations

Off-Site Sewer Line, The Crosswinds, Morgan Hill, CA

DPM Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2022	Construction	0.0030	CON_DPM	6.0	0.00182	2.29E-04	931	2.46E-07

Construction Hours

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

Off-Site Sewer Line, The Crosswinds, Morgan Hill, CA

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2022	Construction	CON_FUG	0.0001	0.2	0.00006	7.97E-06	931	8.56E-09

Construction Hours

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

Off-Site Sewer Line, The Crosswinds, Morgan Hill, 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
	Exhaust PM10/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Infant/Child	(-)	($\mu g/m^3$)
2022	0.0001	0.0000	0.02	0.00002	0.0001

Maximum Impacts at Live Oak High School

Construction Year	Unmitigated Emissions				
	Maximum Concentrations		Child Cancer Risk	Hazard Index	Maximum Annual PM2.5 Concentration
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	(per million)	(-)	($\mu g/m^3$)
2022	0.00003	0.0000	0.002	0.00001	0.00003

Off-Site Sewer Line, The Crosswinds, Morgan Hill, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
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

			Infant/Child - Exposure Information				Adult - Exposure Information						
							Modeled				Maximum		
Exposure	Exposure Duration		DPM Conc (ug/m3)		Age Sensitivity	Infant/Child Cancer Risk	DPM Conc (ug/m3)		Age Sensitivity	Adult Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2022	0.0001	10	0.00	2022	0.0001	-	-			
1	1	0 - 1	2022	0.0001	10	0.02	2022	0.0001	1	0.0003	0.00002	0.0000	0.0001
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**0.02**				**0.0003**			

* Third trimester of pregnancy

Off-Site Sewer Line, The Crosswinds, Morgan Hill, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Live Oak High School (+13 years old) - 1.5 meters - Child Exposure

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

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

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child	Adult
Age -->	**0 - <2**	**2 - <16**	**16 - 30**
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	240
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SAF =	1.00	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Child - Exposure Information			Child Cancer Risk (per million)
			DPM Conc (ug/m3)		Age* Sensitivity Factor	
			Year	Annual		
1	1	13 - 14	2022	0.00003	3	0.002
2	1			0.0000	3	0.0
3	1			0.0000	3	0.0
4	1			0.0000	3	0.0
5	1			0.0000	3	0.0
6	1			0.0000	3	0.0
7	1			0.0000	3	0.0
8	1			0.0000	3	0.0
9	1			0.0000	3	0.0
Total Increased Cancer Risk						**0.002**

Maximum		
Hazard Index	Fugitive PM2.5	Total PM2.5
0.00001	0.0000	0.00003

* Children assumed to be 13 years of age or older with 1 months of Construction Exposure