HAYWARD PARK TRAIN STATION AIR QUALITY & GREENHOUSE GAS ASSESSMENT

San Mateo, California

February 8, 2022
Revised March 3, 2022

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Introduction

The purpose of this report is to address the air quality, community health risk, and greenhouse gas emission (GHG) impacts associated with the construction of the proposed residential apartment building located adjacent to the east of the Hayward Park Caltrain Station in San Mateo, California. The air quality impacts and GHG emissions from this project would be associated with the demolition of the existing Caltrain Station parking lot, construction of the new building and infrastructure, and operation of the project. Air pollutant and GHG emissions associated with construction and operation of the project were predicted using appropriate computer models. In addition, the potential project health risk impact (including construction and operation) and the impacts of existing toxic air contaminant (TAC) sources affecting the nearby existing 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[2]

The 2.8-acre project site is currently occupied by the Hayward Park Caltrain Station and associated park-and-ride lot. The project proposes to demolish the park and ride lot to construct a five-story residential building with a first-floor parking garage containing 111 parking spaces and a surface parking lot containing an additional 68 spaces. In addition to the parking garage, the ground floor would consist of 49,507 square feet (sf) of residential and building support amenities including a lobby, leasing office, mail room, and gym. Floors two through five would consist of 191 high quality studio, one-, two-, and three-bedroom apartment homes. Construction is proposed to begin in October 2023 and be completed by December 2024.

Proposed Construction Emissions Controls

The project proposes to include specific measures to minimize air quality impacts that may occur during construction. To reduce emissions from construction equipment, the project would implement at least one of the following measures during project construction:

> Option 1: Tier 4 Equivalent Engines for Specific Equipment. Contractors shall be required, as a condition of contract, to only operate construction equipment with Tier 4 engines or California Air Resources Board (CARB) certified Level 3 Verified Diesel Emission Control Strategy (VDECS), such as a diesel particulate filter (DPF), installed on Tier 2 or higher equipment. The use of Tier 4 equivalent engines on all forklifts, tractors/loaders/backhoes, rubber-tired dozers, and scrapers would reduce emissions to acceptable levels.
>
> Option 2: Reduced Idling and Tier 4 Equivalent Engines for Specific Equipment. Contractors shall be restricted to a two-minute idling limit on all construction equipment. In addition, the Tier 4 equivalent engines shall be implemented on all forklifts and tractors/loaders/backhoes.

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

[2] The original project description included 189 units and 47,107 sf of residential space. On March 2, 2022, the project was changed to include 2 additional units with a total sf of 2,400 sf. This change is not significant enough to require revisions to the emissions modeling conducted.

To reduce fugitive dust from construction activities, the applicant would implement best management practices (BMPs) recommended by BAAQMD for all new construction projects to reduce the air quality and fugitive dust-related impacts associated with grading and new construction to a less than significant level. The BPMs include:

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

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

3. All visible mud or dirt track-out onto adjacent public roads will 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 will be limited to 15 miles per hour (mph).

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

6. Idling times will 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 will be maintained and properly tuned in accordance with manufacturer's specifications. All equipment will 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 will respond and take corrective action within 48 hours. The Air District's phone number will also be visible to ensure compliance with applicable regulations.

These practices are consistent with BAAQMD-recommended control measures for reducing fugitive particulate matter that are contained in the BAAQMD CEQA Air Quality Guidelines intended to reduce emissions of air pollutants and toxic air contaminants. The proposed project conditions are consistent with the City's General Plan Policy LU 8.9 *Air Quality Construction Impact* and Policy LU 8.11 *Toxic Air Contaminants*.

Setting

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

Air Pollutants of Concern

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

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

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer). 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.

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 small children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Therefore, all residential locations are assumed to include infants and small children. The closest sensitive

receptors to the project site are in the adjacent multi-family residences to the east of the site. There are other sensitive receptors surrounding the site at further distances, including single family homes and the A+ Immersion Preschool approximately 700 feet northwest of the project site. This project would also introduce new sensitive receptors (i.e., residents) to the area.

Regulatory Setting

Federal Regulations

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

In the past decade, the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO_X and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified DPM 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 particulate matter 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

[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.

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.

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.

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

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

during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. *Attachment 1* includes detailed community risk modeling methodology.

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.[6] The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. Overburdened communities are areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen Version 4.0), developed by OEHHA, as having an overall score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[7] The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. The project site is not within a CARE area and not within a BAAQMD overburdened area as identified by CalEnviroScreen.[8]

City of San Mateo Vision 2030 General Plan

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

Climate Change Goals and Policies

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

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

Policy LU 8.2 Effects of Climate Change. Incorporate consideration of the effects of climate change in development of General Plan updates, disaster planning, City projects,

[6] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program.
[7] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en.
[8] Project area identified as being in the 40th overall percentile by CalEnviroScreen Version 4.0, accessed February 1, 2022.

infrastructure planning, future policies, and long-term strategies. Explore voluntary adjustments of base flood elevation.

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

Air Quality Goals and Policies

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

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

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

3. Utilization of construction emission control measures recommended by BAAQMD as appropriate for the specifics of the project (e.g., length of time of construction and distance from sensitive receptors). This may include the utilization of low emission construction equipment, restrictions on the length of time of use of certain heavy-duty construction equipment, and utilization of methods to reduce emissions from construction equipment (alternative fuels, particulate matter traps and diesel particulate filters).

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

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

<u>Significance Thresholds</u>

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, which were used in this analysis and are summarized in Table 1. Impacts above these thresholds are considered potentially significant.

Table 1. BAAQMD CEQA Significance Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	**Average Daily Emissions (lbs./day)**	**Annual Average Emissions (tons/year)**
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	None	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1000-foot zone of influence)**	
Excess Cancer Risk	10 per one million	100 per one million	
Hazard Index	1.0	10.0	
Incremental annual $PM_{2.5}$	0.3 µg/m^3	0.8 µg/m^3	
Greenhouse Gas Emissions			
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020) *		

Note: ROG = reactive organic gases, 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.

Source: Bay Area Air Quality Management District, 2017

AIR QUALITY IMPACTS AND MITIGATION MEASURES

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

The Bay Area is considered a non-attainment area for ground-level 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 2020.4.0 was used to estimate exhaust and evaporative emissions from on-site construction activity and estimate vehicle trips related to construction. The project land use types and size, and anticipated construction schedule were input to CalEEMod. The CARB EMission FACtors 2021 (EMFAC2021) model was used to predict exhaust and evaporative emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[9] The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

Consistent with the City's General Plan Policy LU 8.9 *Air Quality Construction Impact* and Policy LU 8.11 *Toxic Air Contaminants*, the proposed measures to minimize construction emissions impacts would be incorporated into project construction plans. Therefore, the construction impact analysis includes the effects of the proposed control measures previously identified.

CalEEMod Modeling[10]

Land Use Inputs

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

[9] See CARB's EMFAC2021 Emissions Inventory at https://arb.ca.gov/emfac/emissions-inventory.
[10] On March 2, 2022, the project was changed to include two additional units with a total sf of 2,400 sf. This change is not significant enough to require revisions to the emissions modeling conducted. Therefore, these inputs reflect the units and sf initially proposed in January 2022.

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Apartments Mid Rise	189	Dwelling Unit	190,000	2.81
Parking Lot	68	Parking Spaces	12,000	
Enclosed Parking with Elevator	111	Parking Spaces	40,000	

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 construction build-out scenario, including equipment list and schedule, were based on default CalEEMod information for a project of this type and size which was then reviewed and adjusted by the applicant.

The project construction equipment worksheet is based on CalEEMod model defaults, supplemented with demolition hauling quantities, soil hauling, and cement and asphalt import. Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was based on defaults. The construction schedule provided used the earliest possible start date of October 2023 and a 14-month duration, or 300 construction workdays. The earliest year of full operation was estimated to be 2025.

Construction Truck Traffic Emissions

Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the estimate of 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. Haul trips for demolition and soil hauling were estimated using CalEEMod and the provided demolition and soil import/export volumes. The number of concrete and asphalt total round haul trips were provided for the project and converted to total one-way trips, assuming two trips per delivery.

The latest version of the CalEEMod model is based on CARB's EMFAC2017 motor vehicle emission factor model. While EMFAC2021 has superseded EMFAC2017, CalEEMod has not yet been updated to include EMFAC2021. Therefore, the CalEEMod construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2021 provides aggregate emission rates in grams per mile for each vehicle type. EMFAC2021 emissions factors for 2023 in San Mateo County were used to estimate construction trip emissions. 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 and

soil import/export). Since CalEEMod does not address asphalt or cement truck deliveries, 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. Table 3 provides the traffic inputs that were used to estimate vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker	Total Vendor	Total Haul[2]	
Vehicle mix[1]	50% LDA 25% LDT1 25% LDT2	50% MHDT 50% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0	CalEEMod default distance include 5-min truck idle time.
Demolition	160	-	204	2,060 tons debris. CalEEMod default worker trips.
Site Preparation	50	-	-	CalEEMod default worker trips.
Grading	260	-	1,250	10,000-cy soil export. CalEEMod default worker trips.
Trenching – Wet Utilities	120	-	-	CalEEMod default worker trips.
Trenching – Dry Utilities	25	-	-	CalEEMod default worker trips.
Building Construction	36,340	6,670	540	270 cement round trips. CalEEMod default worker and vendor trips.
Architectural Coating	640	-	-	CalEEMod default worker trips.
Paving	460	-	126	630 tons asphalt CalEEMod default worker trips.

Notes: [1] Based on CalEEMod defaults.
[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 were computed by dividing the total construction emissions by the number of active construction workdays (300 days). Table 4 shows the average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 4, predicted project construction emissions would not exceed the BAAQMD significance thresholds during construction.

Table 4. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Total Construction Emissions (tons)	1.48	1.84	0.03	0.02
Average daily emissions (pounds)[1]	9.85	12.25	0.20	0.13
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

Notes: [1]Assumes 300 workdays.

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 BMPs are implemented to reduce emissions. As part of the project proposal, BAAQMD-recommended construction emissions BMPs would be implement as would use of equipment with Tier 4 engines or equivalate.

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[11]

Land Uses

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

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year of full operation would be 2025 if construction begins in 2023. Emissions associated with build-out later than 2025 would be lower.

Traffic Information

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-

[11] On March 2, 2022, the project was changed to include two additional units with a total sf of 2,400 sf. This change is not significant enough to require revisions to the emissions modeling conducted. Therefore, these inputs reflect the units and sf initially proposed in January 2022.

specific daily trip generation rate provided by the traffic consultant was entered into the model.[12] The project would produce 898 trips per weekday. Saturday and Sunday trip rates were estimated using the daily rate provided (4.75 trips per dwelling unit) and the ratio of CalEEMod default weekday rates to Saturday and Sunday default rates. The default trip types and lengths specified by CalEEMod were used.

EMFAC2021 Adjustment

CalEEMod Version 2020.4.0 uses vehicle emission factors and fleet mix from CARB's EMFAC2017 model. EMFAC2021 became available for use in January 2021 and includes the latest emissions factors for California's car and truck fleets based on updated travel activity. It replaces EMFAC2017. Therefore, CalEEMod emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2021. On road emission factors from San Mateo County in 2025 were used (See *Attachment 3*). More details about the updated emissions factors used can be found in the EMFAC2021 Technical Support Document.[13]

Energy

CalEEMod defaults for energy use were used, which include the 2019 Title 24 Building Standards. GHG emissions modeling includes those indirect emissions from electricity consumption. San Mateo has a reach code for mixed-use residential developments that bans natural gas from new construction. All Title 24 natural gas consumption was added to the Title 24 electricity intensity in CalEEMod because of this reach code. CalEEMod has a default emission factor of 0 pounds of CO_2 per megawatt of electricity produced, which is based on Peninsula Clean Energy's 2019 emissions rate.

Other Inputs

Default model assumptions for emissions associated with solid waste generation use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions since the project site would not send wastewater to septic tanks or facultative lagoons. CalEEMod default inputs assume new residential construction would include woodburning fireplaces and stoves. However, these devices are prohibited by BAAQMD Regulation 6, Rule 3.[14] Therefore, the number of woodstoves and woodburning fireplaces in CalEEMod were set to zero.

Existing Uses

The existing site consists of a surface park-and-ride lot used by the Hayward Park Caltrain Station. This use produces low operational emissions which would not considerably offset emissions from

[12] Kittelson & Associates, *Technical Memorandum: San Mateo Hayward Park Station Traffic Impact Analysis – Trip Generation Memorandum DRAFT*, December 17, 2021.
[13] See CARB 2021: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac
[14] Bay Area Air Quality Management District, https://www.baaqmd.gov/~/media/dotgov/files/rules/regulation-6-rule-3/documents/20191120_r0603_final-pdf.pdf?la=en

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. The daily emissions were estimated 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}	$PM_{2.5}$
2025 Project Operational Emissions (*tons/year*)	1.36	0.37	0.68	0.18
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Thresholds?	No	No	No	No
2025 Project Operational Emissions (*lbs./day*)[1]	7.54	2.06	3.77	1.02
BAAQMD Thresholds (lbs./day)	*54 lbs.*	*54 lbs.*	*82 lbs.*	*54 lbs.*
Exceed Threshold?	No	No	No	No

Notes: [1] Assumes 365-day operation.

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

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

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would not include the installation of any emergency generators powered by a diesel engine but would generate some traffic consisting of mostly light-duty gasoline-powered vehicles, which would produce TAC and air pollutant emissions.

Project impacts to existing sensitive receptors were addressed for temporary construction activities and long-term operational conditions. There are also several sources of existing TACs and localized air pollutants in the vicinity of the project. The impact of the existing sources of TAC was also assessed in terms of the cumulative risk which includes the project contribution, 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. Construction sources include on-site construction activity and construction truck hauling, while operation sources include stationary sources and traffic generated by the project. To evaluate the

increased cancer risks from the project, a 30-year exposure period was used, per BAAQMD guidance.[15]

Increased cancer risk is computed by summing the cancer risk contributions over the 30-year exposure period. Unlike cancer risk, the annual $PM_{2.5}$ concentration and HI values are not cumulative but based on the highest (or maximum) annual value. The maximally exposed individual (MEI) is identified as the receptor that is most impacted by the project's construction and/or 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 adjacent to the east side of the project site and other existing residences at further distances, as shown in Figure 1. Residential receptors are assumed to include an individual that resides at the location starting as a third trimester fetus, growing to be an infant, child, and adult over a 30-year period, applying age-appropriate sensitivity factors at each stage.

Figure 1. Locations of Project Site, Off-Site Sensitive Receptors, and MEI

[15] 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 (i.e., DPM), which is a known TAC. While it was previously determined in Impact AIR-1 that construction emissions would not contribute to future violations of ambient air quality standards, DPM emissions from equipment and fugitive dust emissions still pose health risks. The primary risks associated with construction emissions are increased cancer risk from DPM and annual exposures to $PM_{2.5}$. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby receptors from construction emissions of DPM and $PM_{2.5}$.[16] This assessment included dispersion modeling to predict the concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Consistent with the City's General Plan Policy LU 8.9 *Air Quality Construction Impact* and Policy LU 8.11 *Toxic Air Contaminants*, measures to minimize impacts would be incorporated into project construction plans. Project COAs include measures to minimize dust generation and equipment exhaust that are consistent with these policies. The construction impact analysis includes the effects of the COA that would reduce emissions of TACs and $PM_{2.5}$.

Construction Emissions

The CalEEMod model and EMFAC2021 emissions 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 0.02 tons (43 pounds). The on-road emissions are a result of haul truck travel during grading activities, worker travel, and vendor deliveries during construction. A trip length of a half mile was used to represent vehicle travel while at or near the construction site. It was assumed that the 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 0.003 tons (7 pounds) for the overall construction period. Emissions estimates were based on the controls proposed for the project; Tier 4 engines and BAAQMD's basic fugitive dust BMPs.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors in the vicinity of the project. AERMOD is the BAAQMD-recommended model for use in estimating pollutant concentration resulting from construction activities for CEQA purposes.[17] Emission sources for the construction site were grouped into two categories: DPM exhaust emissions and fugitive $PM_{2.5}$ dust emissions.

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

Construction Sources

Both equipment exhaust emissions and fugitive dust emissions were modeled as area sources to represent the on-site construction emissions, one for exhaust emissions and one for fugitive dust emissions. To represent the construction equipment exhaust emissions, an emission release height of 19.7 feet (6 meters) was used. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. Emissions from the construction equipment, on-site, and off-site vehicle travel were distributed throughout the modeled area sources.

For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 6.6 feet (2 meters) was used. 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 2-meter release height was used as the average release height across the construction site.

AERMOD Inputs and Meteorological Data

The modeling used a five-year data set (2013 - 2017) of hourly meteorological data from the San Francisco International Airport prepared for use with the AERMOD model by BAAQMD. Construction emissions were modeled as occurring between 7:00 a.m. and 7:00 p.m. during the week (Monday through Friday), between 9:00 a.m. and 5:00 p.m. on Saturdays, and between noon and 4:00 p.m. on Sundays. Annual DPM and $PM_{2.5}$ concentrations from construction activities for the years 2023 and 2024 were calculated at nearby receptors using the model. Receptor heights of 1.5 meters (4.9 feet), 4.5 meters (14.8 feet), and 7.6 meters (24.9 feet) were used to represent the breathing height on the first, second, and third floor of nearby single and multi-family residences.[18] Receptor heights of 1 meter (3.3 feet) were used at the A+ Immersion Preschool.

Summary of Construction Community Risk Impacts

The annual DPM and $PM_{2.5}$ concentrations were identified at nearby sensitive receptors (as shown in Figure 1) to find the maximally exposed individual (MEI) based on the highest (i.e., maximum) concentrations estimated by the AERMOD model. Increased cancer risks were then calculated for the MEI using the maximum modeled DPM concentrations combined with the Office of Environmental Health Hazard Assessment (OEHHA) guidance for age sensitivity factors and exposure parameters as recommended by BAAQMD (see *Attachment 1)*. The MEI is assumed to be an individual that resides at the location of maximum DPM concentration starting as a third trimester fetus, growing to be an infant, child, and adult over a 30-year period. Therefore, age-sensitivity factors are applied to reflect the greater sensitivity of infants and small children to DPM. Annual non-cancer health hazards and maximum $PM_{2.5}$ concentrations were also estimated.

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

Maximum annual $PM_{2.5}$ concentrations include both DPM and fugitive dust emissions. The maximum computed HI value was based on the ratio of the DPM concentration modeled at the MEI and the chronic inhalation refence exposure level of 5 $\mu g/m^3$.

Results of this assessment indicated that the construction MEI (i.e., maximum DPM concentration) was located on the second floor of the adjacent multi-family home east of the project site. The maximum annual $PM_{2.5}$ concentration was located on the first floor at the same location. Table 6 summarizes the maximum cancer risks, maximum annual $PM_{2.5}$ concentration, and HI for project related construction activities affecting the MEIs. *Attachment 4* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

DPM and $PM_{2.5}$ concentrations at the A+ Immersion Preschool would be significantly less than those predicated at the MEI receptor. Cancer risks associate with the project are estimated to be less than 0.02 in one million and the maximum annual $PM_{2.5}$ concentration would be less than 0.001 $\mu g/m^3$.

Table 6. Risk Impacts at the Off-Site MEI

Source	Cancer Risk[2] (per million)	Annual $PM_{2.5}$ [3] ($\mu g/m^3$)	Hazard Index
Project Construction[1]	3.25 (infant)	0.04	<0.01
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	*No*	*No*	*No*

[1] Construction equipment with Tier 4 interim engines and BAAQMD Fugitive Dust BMP.
[2] Maximum cancer risk occurs on the second floor.
[3] Maximum annual $PM_{2.5}$ concentration occurs on the first floor.

Community Risks from Project Operation

Stationary equipment that could emit TACs (e.g., emergency generators) are not planned for this project. Operation of the project would have long-term emissions from mobile sources (i.e., traffic). 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.[19] This project would generate 898 daily trips[20] dispersed on the roadway system with a majority of the trips being from light-duty vehicles (i.e., passenger automobiles), which is less than 9 percent of 10,000 daily vehicles needed to be considered an impact. Therefore, emissions from project traffic are considered negligible and were not analyzed.

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

Overall project risk impacts are the same as those shown in Table 6. The maximum cancer risks, maximum annual $PM_{2.5}$ concentration, and maximum non-cancer hazards from construction and operation of the project would not exceed the BAAQMD single-source significance threshold.

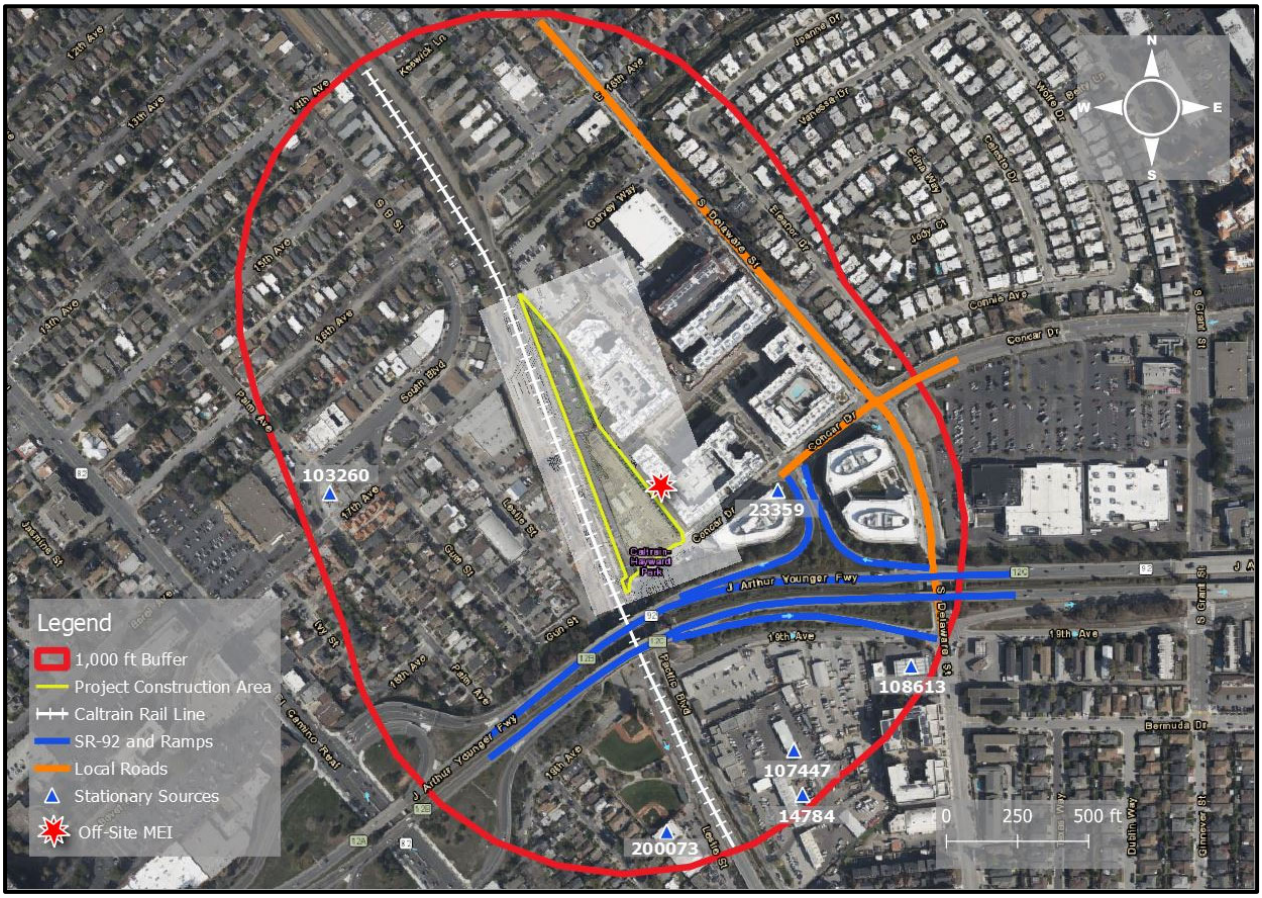
[19] Bay Area Air Quality Management District, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en
[20] Kittelson & Associates, *Technical Memorandum: San Mateo Hayward Park Station Traffic Impact Analysis – Trip Generation Memorandum DRAFT*, December 17, 2021.

Note the proposed project includes the use of construction equipment with Tier 4 engines and implementation of BAAQMD fugitive dust BMPs.[21]

Cumulative Community Risks of all TAC Sources at the Off-site Project MEI

Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of a project site (i.e., influence area). These sources include rail lines, highways, busy surface streets, and stationary sources identified by BAAQMD. A review of the project area identified several possible existing sources of TAC emissions including the Caltrain rail line adjacent to the west side of the project, three roadways with daily traffic volumes in excess of 10,000 vehicles per day (State Route 92, Concar Drive, and Delaware Street), and several BAAQMD permitted stationary sources. Other nearby streets are assumed to have less than 10,000 vehicles per day. Figure 2 shows the location of the sources affecting the MEI. Community risk impacts from these sources upon the MEI are reported in Table 7. Details of the modeling and community risk calculations are included in *Attachment 5*.

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



[21] As described in the Project Application prepared for the City of San Mateo by SRGC HPS-San Mateo, LLC May 7, 2021.

Table 7. Cumulative Community Risk Impacts at the Location of the Project MEI

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impacts			
Project Construction and Operation[1]	3.25 (infant) [2]	0.04 [3]	<0.01
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Sources			
Caltrain Rail	11.04 (infant) [2]	0.05 [3]	0.01
SR-92 Mainline, WB Ramps, & EB Off-ramp	1.49 (infant) [2]	0.07 [3]	<0.01
Concar Drive	<0.01(infant) [2]	<0.01 [3]	<0.01
Delaware Street	0.12 (infant) [2]	0.01 [3]	<0.01
Facility #14784 (Generator)	0.04	<0.01	<0.01
Facility #23359 (Generator)	0.22	<0.01	<0.01
Facility #103260 (Gas Dispensing Facility)	0.17	NA	<0.01
Facility #107447 (Gas Dispensing Facility)	0.04	NA	<0.01
Facility #108613 (Gas Dispensing Facility)	4.46	NA	0.02
Facility #200073 (Auto Europa Inc.)	NA	NA	<0.01
Cumulative Risks	20.84	<0.20	<0.12
BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	*No*	*No*	*No*

[1] Construction equipment with Tier 4 interim engines and BAAQMD Fugitive Dust BMPs.
[2] Maximum cancer risk occurs on the second floor.
[3] Maximum annual $PM_{2.5}$ concentration occurs on the first floor.

Caltrain Rail Lines

The project site is located adjacent to the Hayward Park Caltrain Station and about 20 feet east of two rail lines (see Figure 2). These rail lines are used primarily for Caltrain passenger service, however, there is some freight service by trains using diesel-fueled locomotives. Based on the current Caltrain schedule effective August 30, 2021 there are 104 trains that pass the project site during weekdays and 32 on weekends. On an annual average, this would be a total of 83 daily trains using diesel locomotives. Forty-six passenger trains stop at the station during the weekdays and 32 stop at the station on weekends. In addition, approximately four freight trains use the rail line on a daily basis.[22]

Currently all of Caltrain's trains use diesel locomotives. The Peninsula Corridor Electrification Project is a key component of the Caltrain Modernization Program that would electrify the Caltrain Corridor from San Francisco to the Tamien Caltrain station in San José. As part of the program to modernize operation of the Caltrain rail corridor between San José and San Francisco, Caltrain is planning to phase in the change from using diesel locomotives to use of electric trains.[23] This plan was formally adopted on January 8, 2015[24] and electrified service is anticipated to begin in late 2024.[25]

[22] U.S. Department of Transportation, Federal Railroad Administration. U.S. DOT Crossing Inventory Form for Crossing 764906P. August 31, 2019.
[23] Caltrain, 2014. *Peninsula Corridor Electrification Project. Final Environmental Impact Report.* December 2014.
[24] Caltrain, 2015. *Peninsula Corridor Electrification Fact Sheet.* May 2015.
[25] Caltrain, 2021. *Caltrain Electrification Delayed to 2024*. June 3, 2021. See: *www.caltrain.com/about/MediaRelations/news/Caltrain_Electrification_Delayed_to_2024.html*

Electrification of Caltrain would eliminate DPM emissions from these trains. Caltrain plans are that initial service between San José and San Francisco would use a mixed fleet of electric and diesel locomotives, with approximately 75 percent of the service being electric and 25 percent being diesel. After the initial implementation period, diesel locomotives would be replaced with electric trains over time as they reach the end of their service life. Caltrain's diesel-powered locomotives would continue to be used to provide service between the San José Diridon Station and Gilroy. It is expected that all of the San José to San Francisco fleet would be electric trains about five to eight years after initial electric service begins.[26]

With Caltrain electrification starting in late 2024 there would be 24 daily weekday trips using trains with diesel locomotives[27]. All other Caltrain trains would be electric. On an annual average, this would be a total of 17 daily trains using diesel locomotives. Use of these diesel trains by Caltrain between San Francisco and San José would be phased out over time and replaced by electric trains. All trains used for freight service are assumed to use diesel powered locomotives.

Rail Line Emissions

For calculating emissions from Caltrain locomotives it was assumed that during 2023 and 2024 all trains would use diesel locomotives. In 2025 it was assumed that, on an annual average basis, there would be 17 daily trips using diesel. All other Caltrain trains would be electric. All trains used for freight services were assumed to use diesel powered locomotives.

During the period from 2023 and 2024, it was assumed all trains would continue to use diesel locomotives. Along the rail line near the project site there would be a total of 83 daily trains using diesel locomotives on an annual average. Starting in 2025 when Caltrain electrification occurs, there would be 24 daily weekday trips using trains with diesel locomotives.[28] It was conservatively assumed that diesel emissions would remain at the 2025 levels in the future. All trains used for freight service were assumed to use diesel powered locomotives.

DPM and $PM_{2.5}$ emissions from trains on the rail line were calculated using EPA emission factors for locomotives[29] and CARB adjustment factors to account for fuels used in California[30]. Caltrain's current locomotive fleet consists of twenty-three 3,200 horsepower (hp) locomotives of model year or overhaul date of 1999 or later, three 3,200 hp locomotives of model year 1998, and six 3,600 hp locomotives of model year 2003.[31] The current fleet average locomotive engine size is about 3,285 hp. In estimating diesel emissions for 2023 and 2024, prior to electrification, a fleet average locomotive engine size of 3,285 hp was used. After electrification, Caltrain will initially retain the six 3,600 hp diesel locomotives and three 3,200 hp diesel locomotives[32]. In estimating diesel locomotive emissions for the case of electrification, an average locomotive horsepower of 3,467 hp was used. Emissions from the freight trains were calculated assuming they would use two

[26] Caltrain 2015. *Short Range Transit Plan:FY2018-2027*. June 6, 2019.
[27] Caltrain 2015. *Short Range Transit Plan: FY2018-2027*. June 6, 2019.
[28] Caltrain 2015. *Short Range Transit Plan: FY2018-2027*. June 6, 2019.
[29] *Emission Factors for Locomotives*, USEPA 2009 (EPA-420-F-09-025)
[30] *Offroad Modeling, Change Technical Memo*, Changes to the Locomotive Inventory, CARB July 2006.
[31] Caltrain *Commute Fleets*. Available at: http://www.caltrain.com/about/statsandreports.html. Accessed January 4, 2022.
[32] Caltrain 2015. *Short Range Transit Plan: FY2018-2027*. June 6, 2019.

diesel locomotives with 2,300 hp engines (total of 4,600 hp). Passenger trains were assumed to be traveling at an average speed of 5 mph at or near the station while arriving and departing the Hayward Park Station and 30 mph farther away from the station when approaching or leaving the station. The freight trains and Caltrain passenger trains that bypass the station were assumed to be traveling at 40 mph. Since the exposure duration used in calculating residential cancer risks is 30 years period (in this case from 2023 through 2052), the passenger and freight train average DPM and $PM_{2.5}$ emissions were calculated based on average EPA emission factors for the periods 2021-2024 and 2025-2052.

Dispersion Modeling

Dispersion modeling of locomotive emissions was conducted using the EPA's AERMOD dispersion model and five-year data set (2013-2017) of hourly meteorological data from the San Francisco International Airport prepared for use with the AERMOD model by the BAAQMD. Locomotive emissions from train travel within about 1,000 feet of the project site were modeled as line-volume sources comprised of a series of volume sources along the rail line (see Figure 2). Separate line-volume sources were used for trains approaching the station from the north and south of the station in the vicinity of the station and for trains that bypass the station. DPM and $PM_{2.5}$ concentrations were calculated at the MEI location and health risk impacts evaluated.

Health Risk Impacts

Table 7 provided the health risk impacts estimated at the project's off-site MEI. Based on the analysis described above, the maximum annual $PM_{2.5}$ and DPM concentrations at the MEI location were 0.048 $\mu g/m^3$ and 0.044 $\mu g/m^3$, respectively, occurring during the 2023-2024 period and 0.0043 $\mu g/m^3$ and 0.0043 $\mu g/m^3$, respectively, during 2025-205.[33] Annual $PM_{2.5}$ concentrations are below the BAAQMD single-source threshold of less than 0.30 $\mu g/m^3$.

Increased cancer and non-cancer health risks were calculated using dispersion model results and methods recommended by the BAAQMD, as described in *Attachment 1*. The increased cancer risk at the MEI was computed as 11.0 in one million, above the BAAQMD single-source threshold of 10 in one million. Potential non-cancer health effects due to chronic exposure to DPM were computed as a HI of 0.01, well below the BAAQMD single-source threshold. Details of the emission calculations, dispersion modeling and cancer risk calculations are contained in *Attachment 5.*

State Route 92

An analysis of the impacts of TACs and $PM_{2.5}$ from State Route 92 (SR-92) and its on and off-ramps is necessary to evaluate potential cumulative cancer risks and $PM_{2.5}$ concentrations associated with the freeway. A review of the AADT information provided by California Department of Transportation (Caltrans) indicates this portion of the SR-92 mainline had an average annual daily traffic (AADT) volume of 82,000 vehicles per day based on 2019 measurements, while the westbound (WB) on and off-ramps had 7,000 an 11,632 vehicles per day,

[33] Maximum $PM_{2.5}$ concentration occurs on the first floor, maximum DPM concentration occurs at the same location, second floor.

respectively and the eastbound (EB) off-ramp had a daily volume of 8,029.[34] These traffic volumes were increased by three percent (or 0.5 percent each year) to obtain year 2025 estimates. 2025 is the first year the project will be in operation and represents a conservative traffic volume for analyzing traffic emissions in 2023 and 2024. Caltrans census data also indicates that SR-92 nearest the project site had an average truck percentage of 2.5 percent, with 1.1 percent considered heavy duty trucks and 1.4 percent considered medium duty trucks.[35]

Emissions Modeling

Analysis of SR-92 and involved developing emissions estimates of DPM, organic TACs (as TOG), and $PM_{2.5}$. Estimates were developed using emissions factors for 2023. Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Overall vehicle emissions, in particular diesel truck emissions, will decrease in the future. Therefore, the earlier the year analyzed, the higher the emission rates produced. Therefore, year 2023 emissions were conservatively assumed as being representative of future conditions over the period that cancer risks are evaluated (30 years).

The fraction of traffic volume each hour on SR-92 and the nearby on and off-ramps were calculated and applied to the 2023 AADTs to estimate hourly traffic emission rates. Hourly traffic distributions specific to SR-92 were obtained from Caltrans Performance Measurement System (PeMS). PeMS data are collected in real-time from nearly 40,000 individual detectors spanning the freeway system across all major metropolitan areas of California.[36]

SR-92 mainline hourly speeds were also obtained from weekday 2019 speed data from PeMS. The WB mainline speeds range on average between 65 mph and 55 mph over the course of a 24-hour period, while the EB speeds range between 60 mph and 50 mph. On-ramps were assumed to have an average speed of 45 mph, as they are accelerating from 25 mph to 60 mph. Likewise, off-ramp speeds were assumed to be 35 mph as they are decelerating from 60 mph to a full stop.

Analysis of the impacts from SR-92 required developing emissions rates for DPM and organic TACs (as TOG). The latest version of CARB's EMFAC emissions model (EMFAC2021) was used to develop the emissions rates needed. EMFAC2021 includes the latest data on California's car and truck fleets and travel activity. However, because EMFAC2021 only produces emissions rates using county-wide vehicle populations and does not provide specific emissions rates for DPM, CT-EMFAC2017 was also used to aid in the development of emissions rates used in the analysis. CT-EMFAC2017 is the Caltrans version of the CARB's EMFAC2017 emissions model and provides emission factors for mobile source criteria pollutants and TACs, including DPM, based on specific truck fractions input by the user. EMFAC2017 became available for use in March 2018 and approved by the EPA in August 2019. EMFAC2021 has not yet been approved by U.S. EPA at the time this report was prepared.

[34] Caltrans Traffic Census Program, Traffic Volumes: Annual Average Daily Traffic (AADT), 2019-AADT (XLSX), accessed January 2022. https://dot.ca.gov/programs/traffic-operations/census

[35] Estimate provided by CT-EMFAC2017 using an overall truck percentage of 2.5. Truck percentage provided by Caltrans Traffic Census Program.

[36] https://dot.ca.gov/programs/traffic-operations/mpr/pems-source

CT-EMFAC2017 was used to estimate the fraction of gasoline and diesel vehicles in three vehicle categories (i.e., Non-Truck, Truck 1, and Truck 2) based on the truck percentage of 2.5 percent. These CT-EMFAC2017 fractions were then applied to the EMFAC2021 emissions rates and aggregated to provide one emissions factor for each pollutant and speed needed. The ratio of DMP to $PM_{2.5}$ produced by CT-EMFAC2017 was used to derive a DPM emissions rate using EMFAC2021 for each speed needed. Emission processes modeled for the analysis include running exhaust for DPM and TOG and running evaporative losses for TOG. Inputs to the emissions models (both EMFAC2021 and CT-EMFAC2017) include region (i.e., San Mateo County), type of road (i.e., freeway), year of analysis (i.e., 2023), and season (i.e., annual).

Hourly emissions rates were developed for DPM, organic TACs, and $PM_{2.5}$ using emissions factors for 2023, applied to forecasted 2025 traffic volumes along the applicable segments of SR-92 and adjacent on and off-ramps. TAC and $PM_{2.5}$ concentrations at the MEI location were developed using the hourly emissions rates with an air quality dispersion model (AERMOD). Maximum increased lifetime cancer risks and annual $PM_{2.5}$ concentrations for the MEI receptor was then computed using modeled TAC and $PM_{2.5}$ concentrations and the BAAQMD methods and exposure parameters described in *Attachment 1*.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the U.S. EPA AERMOD dispersion model, which is recommended by the BAAQMD for this type of analysis. WB and EB traffic on SR-92 and on/off-ramps near the project site were evaluated with the model. Emissions from vehicle traffic were modeled in AERMOD using a series of volume sources along a line (line volume sources), with line segments used to represent each direction of travel on the SR-92 mainline and ramps. The modeling used a five-year data set (2013-2017) of hourly meteorological data from the San Francisco International Airport prepared for use with the AERMOD model by the BAAQMD. Other inputs to the model included road geometry and elevations, hourly traffic emissions, and receptor locations and heights. Figure 2 shows the links used for the modeling SR-92 mainline, ramps, receptor locations, and the off-site MEI where health risks were calculated.

Computed Cancer and Non-Cancer Health Impacts

The calculation of risk impacts from SR-92 and nearby on and off-ramps were developed for an individual that resides at the previously identified MEI for the project starting as a third trimester fetus, growing to become an infant, child, and adult over a 30-year period. Therefore, age-appropriate sensitivity factors were applied. Table 7 provides the results of the health risk assessment for the project's off-site MEI. The increased cancer risk was computed as 1.49 in one million, and the $PM_{2.5}$ concentration at the MEI was 0.07 $\mu g/m^3$. Both estimates are below the BAAQMD single source thresholds of less than 10 per million cancer risk and less than 0.3 $\mu g/m^3$ for $PM_{2.5}$. The predicted annual DPM concentration from traffic on SR-92 and associated ramps at the MEI was less than 0.002 $\mu g/m^3$. This concentration is lower than the REL and the HI would be less than 0.01, well below the BAAQMD single-source threshold.

Local Roadways – Concar Drive and Delaware Street

An analysis of the TACs and $PM_{2.5}$ impacts from the adjacent local roadways with estimated daily traffic volumes in excess of 10,000 vehicles per day was conducted to evaluate potential cancer risks and $PM_{2.5}$ concentrations associated with these nearby sources of TACs. Traffic count forecasts for the local roadway intersections impacted by the project were evaluated and it was determined that a segment of Concar Drive east of the SR-92 WB ramps and Delaware Street would likely exceed 10,000 vehicles per day in 2025 given the forecasts provided by Kittelson & Associates, Inc.[37] Truck percentages for these local roadways were assumed to be half of those identified for the SR-92 mainline (1.2 percent) were used for both roadways. Figure 2 shows the roadway links used for the modeling and receptor locations at the project site where concentrations were calculated.

Modeling Roadway Emissions

Analysis of local roadway TAC impacts involved developing estimates of annual DPM, organic TACs (as TOG), and $PM_{2.5}$ roadway emissions. For this analysis, annual emissions are based on 2025 traffic volume estimates and 2023 emissions rates. Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Overall vehicle emissions, in particular diesel truck emissions, will decrease in the future. Therefore, the earlier the year analyzed, the higher the emission rates produced. Therefore, year 2023 emissions were conservatively assumed as being representative of future conditions over the period that cancer risks are evaluated (30 years). Likewise, 2025 represents the opening year of the project and incorporates the largest traffic impacts associated with the project into the analysis.

Hourly traffic distributions for Concar Drive and Delaware Street were estimated from the average distributions of traffic on WB and EB SR-92 at the Delaware Street ramps. Hourly traffic distributions on SR-92 were obtained from Caltrans PeMS data, as previously described. The fraction of traffic volume each hour was calculated for both roadways and applied to the ADT to estimate hourly traffic emission rates for each of the roadways.

For all hours of the day an average speed of 25 mph was assumed for all vehicles on Concar Drive and 35 mph for Delaware Street. This is the posted speed limit on both roadways. Given the low speed limits and amount of access to and from each roadway segment, it was assumed peak period speeds would not change from the off-peak speeds.

As was done for estimating emissions from SR-92, the latest version of CARB's EMFAC emissions model (EMFAC2021) was used to develop the emissions rates needed. However, because EMFAC2021 only produces emissions rates using county-wide vehicle populations and does not provide specific emissions rates for DPM, CT-EMFAC2017 was also used to aid in the development of emissions rates used in the analysis.

[37] Intersection volumes for the "Existing + Background + Project" condition provided by Kittelson & Associates, Inc., *24837.004 Hayward Park_Final Traffic Volumes_20220228.xlsx*, February 28, 2022.

CT-EMFAC2017 estimated the fraction of gasoline and diesel vehicles in three vehicle categories (i.e., Non-Truck, Truck 1, and Truck 2) based on the truck percentage of 1.2 percent. These fractions were then applied to the EMFAC2021 emissions rates and aggregated to provide one emissions factor for each pollutant and speed needed. Inputs to the emissions models (both EMFAC2021 and CT-EMFAC2017) include region (i.e., San Mateo County), type of road (i.e., major/collector), year of analysis (i.e., 2023), and season (i.e., annual).

Hourly emissions rates for 2023 were developed for DPM, organic TACs, and $PM_{2.5}$ and applied to 2025 daily traffic estimates along each applicable roadway segment (see Figure 2). TAC and $PM_{2.5}$ concentrations were developed using the hourly emissions rates described above and an air quality dispersion model (AERMOD). Increased lifetime cancer risks and annual $PM_{2.5}$ concentrations for the project MEI were then computed using modeled TAC and $PM_{2.5}$ concentrations and the BAAQMD methods and exposure parameters described in *Attachment 1*. Concar Drive and Delaware Street emissions calculations are included in *Attachment 5*.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the U.S. EPA AERMOD dispersion model in the same manner as was conducted for modeling impacts from SR-92. Traffic on Concar Drive and Delaware Street near the project site was evaluated using a series of area sources along a line (line area sources), with line segments used to represent all lanes of each roadway. Figure 2 shows the roadway links used for the modeling.

Computed Cancer and Non-Cancer Health Impacts

Table 7 provides the results of the health risk assessment for the project's off-site MEI. Health risk impacts from Concar Drive and Delaware Street were developed for an individual that resides at the previously identified MEI for the project starting as a third trimester fetus, growing to become an infant, child, and adult over a 30-year period. Therefore, age-appropriate sensitivity factors were applied.

The increased cancer risk from Concar Drive emissions at the project MEI was computed as less than 0.01 in one million, well below the BAAQMD single source threshold of 10 in a million. The maximum total $PM_{2.5}$ concentration from Broadway was 0.05 $\mu g/m^3$, below the BAAQMD single source threshold of 0.3 $\mu g/m^3$. The maximum predicted annual DPM concentration from Broadway was less than 0.001 $\mu g/m^3$ resulting in an HI less than 0.001.

The increased cancer risk from Delaware Street emissions at the project MEI was computed as 0.10 in one million, well below the BAAQMD single source threshold of 10 in a million. The annual $PM_{2.5}$ concentration from Delaware Street was 0.01 $\mu g/m^3$, well below the BAAQMD single source threshold of 0.3 $\mu g/m^3$. The predicted annual DPM concentration from Delaware Street at the project MEI was less than 0.0001 $\mu g/m^3$ resulting in an HI less than 0.001.

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2018* GIS website,[38] which identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for new OEHHA guidance. Six sources were identified using this tool: two diesel-fueled emergency power generators, three gasoline dispensing facilities, and one auto body repair shop. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD.[39] The provided risk values were then adjusted for distance using the appropriate BAAQMD *Distance Multiplier Tool for Diesel Internal Combustion Engines, Gasoline Dispensing Facilities (GDFs), or Generic Sources.* Community risk impacts from the stationary sources upon the MEIs are reported in Table 7.

One of the gasoline dispensing facilities, Facility #108613, is listed by BAAQMD as having a cancer risk greater than the single-source threshold of 10 in a million. It is likely the risk calculation does not represent the facility's permit limitations. Additionally, CalEnviroScreen Version 4.0 shows the project area as being in the 40th overall percentile, meaning the cancer risk being reported by BAAQMD may not accurately reflect the facilities current operating conditions.

Summary of Cumulative Health Risk Impact at Construction MEI

Table 7 displays the cumulative community risk impacts at the sensitive receptors most affected by the project (i.e., the off-site MEI). As proposed (i.e., implementing BAAQMD BMPs and equipment with Tier 4 engines), the project's cumulative cancer risks would be less than significant given the BAAQMD cumulative source threshold of 100 in a million. Likewise, the cumulative annual $PM_{2.5}$ and HI would be below BAAQMD cumulative source thresholds.

However, one of the existing TAC sources pose cancer risks above the BAAQMD single source threshold. The Caltrain rail line would have a cancer risk at the MEI of 11 in one million, exceeding the BAAQMD single source threshold of less than 10 in one million. As the Caltrain engine fleet moves from diesel-powered engines to electric engines, the cancer risk at the MEI would be substantially reduced. The impact on of engine electrification can bee seen in the analysis of health risks to new on-site residents.

On-Site Community Health Risk Impacts – New Project Residents

This health risk assessment was completed to assess the impact existing TAC sources would have on the new proposed sensitive receptors (residents) that that project would introduce. The same TAC sources identified above were used in this health risk assessment.[40] Figure 3 shows the location of the sources affecting the new residents and the location of the on-site MEI. Community

[38] BAAQMD, https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65
[39] Email correspondence from Matthew Hanson, BAAQMD, January 21, 2022.
[40] 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.

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 6.*

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

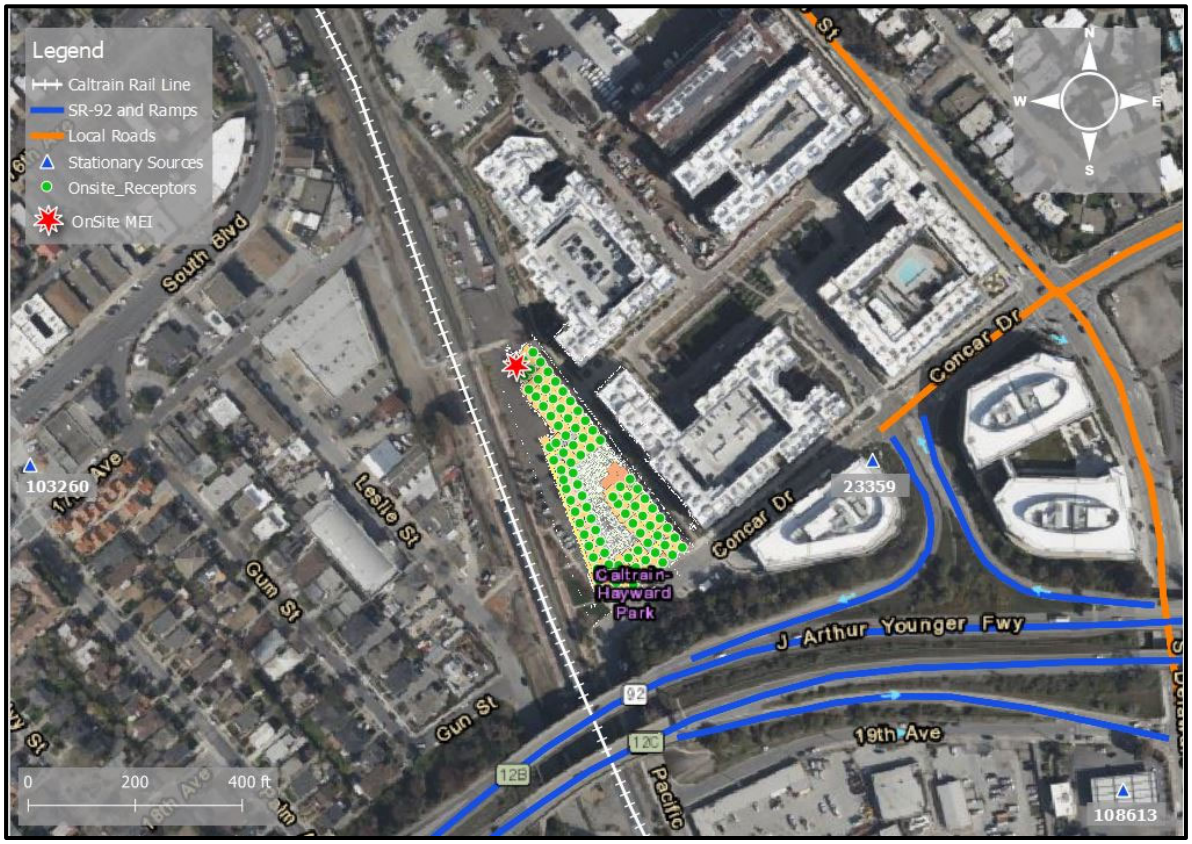


Table 8. Cumulative Community Risk Impacts Upon New On-site MEI

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Caltrain Rail	3.96 (infant)	<0.01	<0.01
SR-92 Mainline, WB Ramps, & EB Off-ramp	0.73 (infant)	0.03	<0.01
Concar Drive	<0.01(infant)	<0.01	<0.01
Delaware Street	0.10 (infant)	<0.01	<0.01
Facility #14784 (Generator)	0.04	<0.01	<0.01
Facility #23359 (Generator)	0.10	<0.01	<0.01
Facility #103260 (Gas Dispensing Facility)	0.20	NA	<0.01
Facility #107447 (Gas Dispensing Facility)	0.03	NA	<0.01
Facility #108613 (Gas Dispensing Facility)	4.34	NA	0.02
Facility #200073 (Auto Europa Inc.)	NA	NA	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Risks	9.51	<0.08	<0.11
BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	*No*	*No*	*No*

Caltrain Rail Lines

The potential health impacts from the Caltrain rail line to new project residents at the proposed project site were evaluated as previously described. Dispersion Model receptors were placed in the areas where the new apartments would be constructed. Because the first floor of the build would not include any residential units, receptors were modeled at heights of 6.8 meters (22.3 feet) to represent those living on the second floor of the building and 9.9 meters (32.5 feet) representing receptors on the third-floor residences. Figure 3 shows the portions of the rail line included in the modeling along with the project site and receptor locations where TAC concentrations were modeled. Impacts were estimated for the 30-year starting in 2025 through 2054. Results of this evaluation are summarized in Table 8. Details of the emission calculations, dispersion modeling and cancer risk calculations are contained in *Attachment 6.*

The highest DPM concentration was determined to occur on the second floor of the new building at the northern-most unit, closest to the rail line. As a result, this receptor was identified as the on-site MEI. Increased cancer risk at the on-site MEI was estimated to be 3.98 in one million. Annual $PM_{2.5}$ concentrations and non-cancer health risks at this location would be well below BAAQMD single source thresholds.

As alluded to, the cancer risk associated with the on-site MEI is lower than the off-site (i.e., project MEI) despite the on-site MEI being located closer to the Caltrain tracks. This has to do with the engine electrification assumptions made for calculating emissions. During the period from 2023 and 2024, it was assumed all trains would continue to use diesel locomotives. Along the rail line near the project site there would be a total of 83 daily trains using diesel locomotives on an annual average. However, starting in 2025, Caltrain electrification occurs.[41] The project would be open to new residents starting in 2025. Thus, the on-site MEI would not be exposed to the same amount of diesel engine train emissions as the off-site MEI.

SR-92 and Ramps

The health risks associated with SR-92 and the Delaware Street Ramps were evaluated for the new project residents and on-site MEI in the same manner as described above for the off-site MEI. The same receptor locations and heights used for the rail line modeling were used. The portions of the SR-92 mainline and ramps included in the modeling are shown in Figure 3 along with the project site and receptor locations where impacts were modeled.

Increased cancer risks were calculated for the on-site MEI at the project site using the TAC concentrations calculated at the MEI receptor. Cancer risks associated with SR-92 are greatest closest to the roadway and decrease with distance. Table 8 shows the health risk impacts from SR-92 on the on-site MEI. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 6.* SR-92 impacts are below BAAQMD single source thresholds for cancer risk, annual $PM_{2.5}$ concentration, and non-cancer health risks.

[41] Caltrain 2015. *Short Range Transit Plan: FY2018-2027*. June 6, 2019.

Local Roadways

An analysis of health risks associated with TAC emissions from Cancar Drive and Delaware Street for the on-site MEI was conducted in the same manner as previously described for the project (i.e., off-site) MEI. The portions of Cancar Drive and Delaware Street included in the modeling are shown in Figure 3 along with the proposed building layout and on-site receptor locations where TAC pollutant concentrations were modeled. The same receptors used for the analysis of the on-site TAC pollutant concentrations from the Caltrain rail lines and SR-92 were used.

Maximum increased cancer risks were calculated for the on-site MEI using the modeled TAC concentrations attributable to Cancar Drive and Delaware Street. TAC concentrations, and subsequently cancer risks associated with these local roadways are greatest closest to the roadway and decrease with distance. Table 8 shows the health risk impacts from Cancar Drive and Delaware Street on the on-site MEI. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 6.* Impacts at the on-site MEI from both Cancar Drive and Delaware Street are below BAAQMD single source thresholds for cancer risk, annual $PM_{2.5}$ concentration, and non-cancer health risks.

Stationary Sources

The stationary source screening analysis for the on-site MEI was conducted in the same manner as described above for the project (i.e., off-site) MEI. Table 8 shows the health risk screening results from the existing stationary sources identified near the new apartment building. None of the impacts from the existing TAC sources would exceed the BAAQMD single source thresholds when adjusted for distance.

Combined Community Health Risk at Project Site

Cumulative community health risk impacts from the existing TAC sources upon the on-site MEI are reported in Table 8. As shown, the cumulative cancer risk, annual $PM_{2.5}$ concentrations, and non-cancer health impacts (HI) from the nearby existing sources of TACs do not exceed the BAAQMD cumulative-source thresholds.

Findings of Cumulative Health Risk Impact to New Residents

The City's General Plan, Policy LU 8.11 - *Toxic Air Contaminants*, requires that when new residential units are proposed near existing sources of TAC's, either adequate buffer distances shall be provided, or filters (or other equipment/solutions) shall be provided to reduce the potential exposure to acceptable levels. BAAQMD's health risk thresholds are used to evaluate on-site exposures and the need for buffer distances and/or filtration. Additionally, as part of the 2019 California Building Code (CBC), Section 120.1(b)(1)(C): *Multi-Family Residential*, buildings that are 4-stories and higher are required to use a filtration system with a Minimum Efficiency Reporting Value (MERV) of at least 13.

Based on the health risk assessment conducted, neither BAAQMD single source thresholds nor cumulative source thresholds would be exceeded. Therefore, no filtration requirements are needed beyond those required by the City's General Plan and the 2019 CBC.

Greenhouse Gas Emissions

Setting

Greenhouse gases (GHGs) are chemical compounds that trap heat in the earth's atmosphere, raising its temperature. 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 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 GHG Emissions

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

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

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

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

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

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of 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 EO B-30-15, which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*.[42] 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

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

Order S-3-05. The Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and obtain the statewide goals.

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

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

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

Executive Order B-55-18 – Carbon Neutrality

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

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

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan

planning organizations (e.g., Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

Senate Bill 350 - Renewable Portfolio Standards

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

Senate Bill 100 – Current Renewable Portfolio Standards

In September 2018, SB 100 was signed by Governor Brown to revise California's RPS program goals, furthering California's focus on using renewable energy and carbon-free power sources for its energy needs. The bill would require all California utilities to supply a specific percentage of their retail sales from renewable resources by certain target years. By December 31, 2024, 44 percent of the 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.[43] 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.[44]

[43] 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.
[44] 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).[45] 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.[46] 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.[47] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011.

City of San Mateo Climate Action Plan

The City of San Mateo Climate Action Plan (CAP),[48] updated and adopted in April 2020, is a qualified GHG reduction strategy that was developed by the City to not only reduce their GHG emissions but also improve the quality of life in San Mateo. The 2020 CAP contains 29 GHG reduction measures that will help reduce the community's GHG emissions to meet the City's reduction targets. The City has GHG reduction targets of reducing GHG levels by 15 percent from 2005 levels by 2020, 4.3 MT CO_2e per capita by 2030, and 1.2 MT CO_2e per capita by 2050.

Additionally, The CAP includes the CAP Consistency Checklist (Appendix 3 of the CAP) that identifies the minimum criteria a project must demonstrate to use the City's CAP for purposes of streamlining the analysis of GHG emissions under CEQA. The CAP Checklist ensures that all new development projects are complaint with the City's CAP measures. If a new development complies with the CAP, then the new development would be found to have a less-than-significant impact for GHG emissions.

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

[45] 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

[46] 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

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

[48] *City of San Mateo Climate Action Plan.* April 2020. https://www.cityofsanmateo.org/DocumentCenter/View/80652/2020-Climate-Action-Plan?bidId=

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.

BAAQMD has not published quantified thresholds post 2020. Therefore, the City of San Mateo has elected to rely on the compliance with the City's CAP Checklist measures to determine significance for GHG emissions. The City's CAP Checklist is included in *Attachment 7*.

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 vehicles used by workers and vendors. Long-term operational emissions are associated with increased vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines and the City's Climate Action Plan.

CalEEMod Modeling

CalEEMod was used to predict GHG emissions from operation of the site assuming full build-out of the project. Land use types, size, and other project-specific information were input into the model, as previously described in ***Impact AIR-1****, Operational Period Emissions*. CalEEMod output is included in *Attachment 2*.

Service Population

The project service population efficiency rate is based on the number of future residents and employees. For this project, the number of future residents was estimated using the average household size for San Mateo, 2.59 person per household.[49] Therefore, the service population was estimated to be 490 (189 residential units x 2.59 persons per unit).

Construction GHG Emissions

GHG emissions associated with construction were computed to be 611 MT of CO_2e for the total construction period. These are the emissions from on-site operation of construction equipment, and vehicles used for worker, vendor, and hauling trips to and from the site. 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.

[49] State of California, Department of Finance. "E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2021, with 2010 Benchmark." Accessed: May 18, 2021. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/.

Operational GHG Emissions

The CalEEMod model, along with the provided vehicle trip generation rates, were used to estimate daily emissions associated with operation of the fully developed site as proposed. Table 9 shows the annual GHG emissions resulting from operation of the new apartment building are predicted to be 815 MT of CO_2e in 2025 and 768 MT of CO_2e in 2030. The service population emission for the year 2025 and 2030 are predicted to be 1.66 and 1.57 MT/CO_{2e}/year/service population, respectively.

The project would be below the City's service population target of 4.3 MT CO_2e per capita by 2030. However, the project is subject to the City of San Mateo's CAP to meet AB 32 requirements. Use of the required CAP checklist would demonstrate the project's consistency with the City's CAP.

Table 9. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	Proposed Project in 2025	Proposed Project in 2030
Area	10	10
Energy Consumption	86	86
Mobile	668	621
Solid Waste Generation	44	44
Water Usage	8	8
Total (MT CO_{2e}/year)	815	768
Service Population Emissions (MT CO_{2e}/year/service population)	1.66	1.57
City's CAP Target	***NA***	***4.3 in 2030***

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 emissions. Also included are any modeling assumptions.

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

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

Attachment 5 includes the emissions calculations, modeling results, and health risk calculations from existing sources affecting the off-site construction MEI.

Attachment 6 includes the health risk calculations from existing sources affecting the on-site MEI.

Attachment 7 is the Compliance Checklist contained in the City's Climate Action Plan.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[50] 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.[51] 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.[52] 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

[50] 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.
[51] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[52] 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

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

Non-Cancer Hazards

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

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

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

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	111.00	Space	0.00	40,000.00	0
Parking Lot	68.00	Space	0.00	12,000.00	0
Apartments Mid Rise	189.00	Dwelling Unit	2.81	190,000.00	541

1.2 Other Project Characteristics

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Provided land uses from construction worksheet

Construction Phase - Provided Construction State date, CalEEMod default schedule based on land uses

Off-road Equipment - Default const equip & hours

Off-road Equipment - Const equip & hours provided

Off-road Equipment - Provided const equip & hours

Off-road Equipment - Provided const equip & hours

Off-road Equipment - Provided const equip & hours

Off-road Equipment - Provided const equip & hours

Off-road Equipment - Provided const equip & hours

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Off-road Equipment - Provided const equip & hours

Demolition - Per Construction data sheet. 111,000 sf of existing asphalt grinding and 2,060 tons removed/hauled off

Grading - grading = 10,000-cy export

Trips and VMT - 270 Concrete deliveries (RTs) = 540 haul trips. 630 tons ashpalt = 63 deliveries assuming 10 CY/delivery. Haul trips = 126

Vehicle Trips - Sat = (4.91/5.44) Sun = (4.09/5.44)

Vehicle Emission Factors - EFs from EMFAC2021 for year 2025

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix - Based on EMFAC2021, 2025 Fleet, Pop based

Woodstoves - No wood burning appliances. Gas only

Water And Wastewater - Assume 100% WWTP

Stationary Sources - Emergency Generators and Fire Pumps - Assume the 50kW fire pump is electric

Construction Off-road Equipment Mitigation - These are not mitigation, but proposed as part of the project.

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	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	3.00	10.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	220.00	230.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	28.35	60.48
tblFleetMix	HHD	2.0600e-003	2.5580e-003
tblFleetMix	HHD	2.0600e-003	2.5580e-003
tblFleetMix	HHD	2.0600e-003	2.5580e-003
tblFleetMix	LDA	0.47	0.45
tblFleetMix	LDA	0.47	0.45

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tblFleetMix	LDA	0.47	0.45
tblFleetMix	LDT1	0.07	0.04
tblFleetMix	LDT1	0.07	0.04
tblFleetMix	LDT1	0.07	0.04
tblFleetMix	LDT2	0.24	0.28
tblFleetMix	LDT2	0.24	0.28
tblFleetMix	LDT2	0.24	0.28
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD2	6.4120e-003	6.3300e-003
tblFleetMix	LHD2	6.4120e-003	6.3300e-003
tblFleetMix	LHD2	6.4120e-003	6.3300e-003
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MDV	0.15	0.16
tblFleetMix	MDV	0.15	0.16
tblFleetMix	MDV	0.15	0.16
tblFleetMix	MH	2.6570e-003	2.0400e-003
tblFleetMix	MH	2.6570e-003	2.0400e-003
tblFleetMix	MH	2.6570e-003	2.0400e-003
tblFleetMix	MHD	0.01	8.7430e-003
tblFleetMix	MHD	0.01	8.7430e-003
tblFleetMix	MHD	0.01	8.7430e-003
tblFleetMix	OBUS	1.4460e-003	2.3100e-003
tblFleetMix	OBUS	1.4460e-003	2.3100e-003
tblFleetMix	OBUS	1.4460e-003	2.3100e-003
tblFleetMix	SBUS	4.3200e-004	4.1800e-004

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tblFleetMix	SBUS	4.3200e-004	4.1800e-004
tblFleetMix	SBUS	4.3200e-004	4.1800e-004
tblFleetMix	UBUS	5.7200e-004	7.4300e-004
tblFleetMix	UBUS	5.7200e-004	7.4300e-004
tblFleetMix	UBUS	5.7200e-004	7.4300e-004
tblGrading	MaterialExported	0.00	10,000.00
tblLandUse	LandUseSquareFeet	44,400.00	40,000.00
tblLandUse	LandUseSquareFeet	27,200.00	12,000.00
tblLandUse	LandUseSquareFeet	189,000.00	190,000.00
tblLandUse	LotAcreage	1.00	0.00
tblLandUse	LotAcreage	0.61	0.00
tblLandUse	LotAcreage	4.97	2.81
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	8.00	3.20
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.60

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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripNumber	204.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,250.00	0.00
tblTripsAndVMT	VendorTripNumber	29.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	158.00	0.00
tblTripsAndVMT	WorkerTripNumber	32.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblVehicleEF	HHD	0.03	0.27
tblVehicleEF	HHD	0.18	0.25
tblVehicleEF	HHD	3.0000e-006	1.0000e-006
tblVehicleEF	HHD	5.29	4.67
tblVehicleEF	HHD	0.95	1.65
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	931.63	768.77
tblVehicleEF	HHD	1,585.25	1,745.93

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tblVehicleEF	HHD	0.28	0.28
tblVehicleEF	HHD	0.15	0.13
tblVehicleEF	HHD	0.26	0.28
tblVehicleEF	HHD	3.0000e-006	1.0000e-006
tblVehicleEF	HHD	5.24	3.95
tblVehicleEF	HHD	3.05	2.50
tblVehicleEF	HHD	2.40	2.74
tblVehicleEF	HHD	3.7460e-003	3.0270e-003
tblVehicleEF	HHD	0.06	0.09
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.0000e-006	4.0000e-006
tblVehicleEF	HHD	3.5840e-003	2.8900e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7190e-003	8.6260e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.0000e-006	4.0000e-006
tblVehicleEF	HHD	4.0000e-006	5.8500e-004
tblVehicleEF	HHD	2.0300e-004	1.7500e-004
tblVehicleEF	HHD	0.36	0.29
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	9.4000e-005	1.3050e-003
tblVehicleEF	HHD	1.4000e-005	3.0000e-006
tblVehicleEF	HHD	8.3030e-003	6.3920e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	4.0000e-006	5.8500e-004
tblVehicleEF	HHD	2.0300e-004	1.7500e-004
tblVehicleEF	HHD	0.42	0.58

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tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	HHD	0.21	0.29
tblVehicleEF	HHD	9.4000e-005	1.3050e-003
tblVehicleEF	HHD	1.6000e-005	3.0000e-006
tblVehicleEF	LDA	1.3630e-003	1.6200e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.46	0.53
tblVehicleEF	LDA	2.01	2.73
tblVehicleEF	LDA	223.03	239.85
tblVehicleEF	LDA	47.59	62.52
tblVehicleEF	LDA	3.5080e-003	3.5780e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.15	0.21
tblVehicleEF	LDA	0.04	6.3990e-003
tblVehicleEF	LDA	1.2000e-003	1.1140e-003
tblVehicleEF	LDA	1.6180e-003	1.9130e-003
tblVehicleEF	LDA	0.02	2.2400e-003
tblVehicleEF	LDA	1.1050e-003	1.0250e-003
tblVehicleEF	LDA	1.4870e-003	1.7590e-003
tblVehicleEF	LDA	0.03	0.24
tblVehicleEF	LDA	0.08	0.07
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	5.0920e-003	6.1730e-003
tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.17	0.27
tblVehicleEF	LDA	2.2060e-003	2.3710e-003
tblVehicleEF	LDA	4.7100e-004	6.1800e-004
tblVehicleEF	LDA	0.03	0.24

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tblVehicleEF	LDA	0.08	0.07
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	7.4000e-003	8.9940e-003
tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.19	0.30
tblVehicleEF	LDT1	2.1260e-003	4.1000e-003
tblVehicleEF	LDT1	0.04	0.08
tblVehicleEF	LDT1	0.59	0.99
tblVehicleEF	LDT1	2.12	4.22
tblVehicleEF	LDT1	263.34	311.98
tblVehicleEF	LDT1	56.19	81.09
tblVehicleEF	LDT1	4.1590e-003	6.8480e-003
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.04	0.09
tblVehicleEF	LDT1	0.17	0.31
tblVehicleEF	LDT1	0.04	8.0170e-003
tblVehicleEF	LDT1	1.4220e-003	1.5650e-003
tblVehicleEF	LDT1	1.8860e-003	2.4740e-003
tblVehicleEF	LDT1	0.02	2.8060e-003
tblVehicleEF	LDT1	1.3090e-003	1.4400e-003
tblVehicleEF	LDT1	1.7340e-003	2.2750e-003
tblVehicleEF	LDT1	0.04	0.42
tblVehicleEF	LDT1	0.09	0.12
tblVehicleEF	LDT1	0.04	0.00
tblVehicleEF	LDT1	8.5960e-003	0.02
tblVehicleEF	LDT1	0.06	0.34
tblVehicleEF	LDT1	0.20	0.42
tblVehicleEF	LDT1	2.6060e-003	3.0840e-003
tblVehicleEF	LDT1	5.5600e-004	8.0200e-004

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tblVehicleEF	LDT1	0.04	0.42
tblVehicleEF	LDT1	0.09	0.12
tblVehicleEF	LDT1	0.04	0.00
tblVehicleEF	LDT1	0.01	0.03
tblVehicleEF	LDT1	0.06	0.34
tblVehicleEF	LDT1	0.22	0.46
tblVehicleEF	LDT2	1.9400e-003	1.9300e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.56	0.60
tblVehicleEF	LDT2	2.52	3.01
tblVehicleEF	LDT2	275.26	320.59
tblVehicleEF	LDT2	59.15	81.06
tblVehicleEF	LDT2	4.2420e-003	4.4170e-003
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.19	0.25
tblVehicleEF	LDT2	0.04	7.6970e-003
tblVehicleEF	LDT2	1.3050e-003	1.1980e-003
tblVehicleEF	LDT2	1.6860e-003	1.9510e-003
tblVehicleEF	LDT2	0.02	2.6940e-003
tblVehicleEF	LDT2	1.2010e-003	1.1020e-003
tblVehicleEF	LDT2	1.5500e-003	1.7940e-003
tblVehicleEF	LDT2	0.03	0.19
tblVehicleEF	LDT2	0.07	0.06
tblVehicleEF	LDT2	0.04	0.00
tblVehicleEF	LDT2	7.4300e-003	7.2480e-003
tblVehicleEF	LDT2	0.05	0.14
tblVehicleEF	LDT2	0.22	0.29
tblVehicleEF	LDT2	2.7230e-003	3.1690e-003

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tblVehicleEF	LDT2	5.8500e-004	8.0100e-004
tblVehicleEF	LDT2	0.03	0.19
tblVehicleEF	LDT2	0.07	0.06
tblVehicleEF	LDT2	0.04	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.05	0.14
tblVehicleEF	LDT2	0.24	0.32
tblVehicleEF	LHD1	4.6830e-003	5.0900e-003
tblVehicleEF	LHD1	5.8360e-003	5.0980e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.18	0.20
tblVehicleEF	LHD1	0.51	0.68
tblVehicleEF	LHD1	0.97	2.39
tblVehicleEF	LHD1	8.57	8.29
tblVehicleEF	LHD1	751.95	745.68
tblVehicleEF	LHD1	11.12	18.86
tblVehicleEF	LHD1	7.2100e-004	5.7300e-004
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.34	0.35
tblVehicleEF	LHD1	0.26	0.39
tblVehicleEF	LHD1	8.5300e-004	6.1900e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	9.7990e-003	9.3030e-003
tblVehicleEF	LHD1	7.0500e-003	8.5920e-003
tblVehicleEF	LHD1	2.2400e-004	1.6500e-004
tblVehicleEF	LHD1	8.1600e-004	5.9200e-004
tblVehicleEF	LHD1	0.03	0.03

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tblVehicleEF	LHD1	2.4500e-003	2.3260e-003
tblVehicleEF	LHD1	6.6990e-003	8.1840e-003
tblVehicleEF	LHD1	2.0600e-004	1.5100e-004
tblVehicleEF	LHD1	1.0710e-003	0.08
tblVehicleEF	LHD1	0.05	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	6.9000e-004	0.00
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.14	0.12
tblVehicleEF	LHD1	0.05	0.09
tblVehicleEF	LHD1	8.3000e-005	8.1000e-005
tblVehicleEF	LHD1	7.3400e-003	7.2890e-003
tblVehicleEF	LHD1	1.1000e-004	1.8600e-004
tblVehicleEF	LHD1	1.0710e-003	0.08
tblVehicleEF	LHD1	0.05	0.02
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	6.9000e-004	0.00
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.14	0.12
tblVehicleEF	LHD1	0.06	0.10
tblVehicleEF	LHD2	2.8930e-003	2.9140e-003
tblVehicleEF	LHD2	5.4660e-003	4.9480e-003
tblVehicleEF	LHD2	5.9890e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.46	0.43
tblVehicleEF	LHD2	0.57	1.33
tblVehicleEF	LHD2	13.29	13.09
tblVehicleEF	LHD2	728.51	785.97
tblVehicleEF	LHD2	7.48	10.02

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tblVehicleEF	LHD2	1.6500e-003	1.5680e-003
tblVehicleEF	LHD2	0.06	0.08
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.08	0.07
tblVehicleEF	LHD2	0.37	0.47
tblVehicleEF	LHD2	0.15	0.22
tblVehicleEF	LHD2	1.4140e-003	1.3360e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.2000e-004	8.0000e-005
tblVehicleEF	LHD2	1.3530e-003	1.2780e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.6890e-003	2.6520e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.1000e-004	7.4000e-005
tblVehicleEF	LHD2	5.6800e-004	0.05
tblVehicleEF	LHD2	0.03	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7300e-004	0.00
tblVehicleEF	LHD2	0.09	0.08
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.03	0.05
tblVehicleEF	LHD2	1.2700e-004	1.2600e-004
tblVehicleEF	LHD2	7.0360e-003	7.5740e-003
tblVehicleEF	LHD2	7.4000e-005	9.9000e-005
tblVehicleEF	LHD2	5.6800e-004	0.05
tblVehicleEF	LHD2	0.03	0.01
tblVehicleEF	LHD2	0.02	0.02

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tblVehicleEF	LHD2	3.7300e-004	0.00
tblVehicleEF	LHD2	0.11	0.10
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.03	0.06
tblVehicleEF	MCY	0.33	0.14
tblVehicleEF	MCY	0.26	0.17
tblVehicleEF	MCY	18.30	10.67
tblVehicleEF	MCY	9.27	7.69
tblVehicleEF	MCY	212.79	186.43
tblVehicleEF	MCY	59.80	44.64
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	7.1110e-003
tblVehicleEF	MCY	1.15	0.51
tblVehicleEF	MCY	0.27	0.12
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.1570e-003	2.0310e-003
tblVehicleEF	MCY	3.1010e-003	3.7190e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	2.0130e-003	1.8970e-003
tblVehicleEF	MCY	2.9050e-003	3.4890e-003
tblVehicleEF	MCY	0.60	3.15
tblVehicleEF	MCY	0.51	3.55
tblVehicleEF	MCY	0.35	0.00
tblVehicleEF	MCY	2.17	0.89
tblVehicleEF	MCY	0.41	3.70
tblVehicleEF	MCY	1.93	1.22
tblVehicleEF	MCY	2.1060e-003	1.8430e-003
tblVehicleEF	MCY	5.9200e-004	4.4100e-004
tblVehicleEF	MCY	0.60	0.07

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tblVehicleEF	MCY	0.51	3.55
tblVehicleEF	MCY	0.35	0.00
tblVehicleEF	MCY	2.71	1.08
tblVehicleEF	MCY	0.41	3.70
tblVehicleEF	MCY	2.10	1.33
tblVehicleEF	MDV	1.9550e-003	2.1320e-003
tblVehicleEF	MDV	0.05	0.07
tblVehicleEF	MDV	0.55	0.62
tblVehicleEF	MDV	2.62	3.10
tblVehicleEF	MDV	330.48	383.68
tblVehicleEF	MDV	69.96	96.40
tblVehicleEF	MDV	5.5310e-003	5.3350e-003
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.04	7.7240e-003
tblVehicleEF	MDV	1.3170e-003	1.2030e-003
tblVehicleEF	MDV	1.6910e-003	1.9650e-003
tblVehicleEF	MDV	0.02	2.7040e-003
tblVehicleEF	MDV	1.2140e-003	1.1080e-003
tblVehicleEF	MDV	1.5550e-003	1.8070e-003
tblVehicleEF	MDV	0.04	0.21
tblVehicleEF	MDV	0.08	0.06
tblVehicleEF	MDV	0.04	0.00
tblVehicleEF	MDV	7.6550e-003	8.4160e-003
tblVehicleEF	MDV	0.05	0.16
tblVehicleEF	MDV	0.25	0.34
tblVehicleEF	MDV	3.2660e-003	3.7910e-003
tblVehicleEF	MDV	6.9200e-004	9.5300e-004

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tblVehicleEF	MDV	0.04	0.21
tblVehicleEF	MDV	0.08	0.06
tblVehicleEF	MDV	0.04	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.05	0.16
tblVehicleEF	MDV	0.27	0.38
tblVehicleEF	MH	5.5960e-003	8.1070e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.42	0.70
tblVehicleEF	MH	1.78	2.27
tblVehicleEF	MH	1,419.69	1,667.34
tblVehicleEF	MH	16.60	21.42
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.92	1.15
tblVehicleEF	MH	0.23	0.27
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	2.4300e-004	2.9600e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2800e-003	3.3240e-003
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	2.2300e-004	2.7200e-004
tblVehicleEF	MH	0.25	21.03
tblVehicleEF	MH	0.02	5.78
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	0.04	0.06
tblVehicleEF	MH	5.8350e-003	0.14

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tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.6400e-004	2.1200e-004
tblVehicleEF	MH	0.25	21.03
tblVehicleEF	MH	0.02	5.78
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	5.8350e-003	0.14
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MHD	3.9340e-003	0.01
tblVehicleEF	MHD	1.4090e-003	0.01
tblVehicleEF	MHD	9.5150e-003	0.01
tblVehicleEF	MHD	0.38	0.67
tblVehicleEF	MHD	0.19	0.33
tblVehicleEF	MHD	1.06	1.26
tblVehicleEF	MHD	61.97	147.67
tblVehicleEF	MHD	1,043.81	1,250.18
tblVehicleEF	MHD	9.62	10.56
tblVehicleEF	MHD	8.7820e-003	0.02
tblVehicleEF	MHD	0.13	0.14
tblVehicleEF	MHD	8.1610e-003	8.0710e-003
tblVehicleEF	MHD	0.34	0.82
tblVehicleEF	MHD	1.30	0.99
tblVehicleEF	MHD	1.66	1.31
tblVehicleEF	MHD	2.4000e-004	1.8050e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	6.2030e-003	0.01
tblVehicleEF	MHD	1.1800e-004	1.3100e-004
tblVehicleEF	MHD	2.3000e-004	1.7260e-003

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tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	5.9280e-003	0.01
tblVehicleEF	MHD	1.0900e-004	1.2000e-004
tblVehicleEF	MHD	2.6600e-004	0.02
tblVehicleEF	MHD	0.02	6.3670e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.7600e-004	0.00
tblVehicleEF	MHD	0.01	0.04
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	5.8900e-004	1.3680e-003
tblVehicleEF	MHD	9.9640e-003	0.01
tblVehicleEF	MHD	9.5000e-005	1.0400e-004
tblVehicleEF	MHD	2.6600e-004	0.02
tblVehicleEF	MHD	0.02	6.3670e-003
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	1.7600e-004	0.00
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	OBUS	6.7000e-003	6.5670e-003
tblVehicleEF	OBUS	2.5540e-003	7.1970e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.63	0.49
tblVehicleEF	OBUS	0.31	0.22
tblVehicleEF	OBUS	1.48	1.05
tblVehicleEF	OBUS	103.58	90.16
tblVehicleEF	OBUS	1,286.62	1,296.63
tblVehicleEF	OBUS	12.91	9.34

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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.13	0.17
tblVehicleEF	OBUS	0.01	9.8750e-003
tblVehicleEF	OBUS	0.44	0.39
tblVehicleEF	OBUS	1.48	0.72
tblVehicleEF	OBUS	1.21	1.13
tblVehicleEF	OBUS	1.4300e-004	2.3300e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	7.6570e-003	8.2930e-003
tblVehicleEF	OBUS	1.4400e-004	9.9000e-005
tblVehicleEF	OBUS	1.3700e-004	2.2300e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.3130e-003	7.9280e-003
tblVehicleEF	OBUS	1.3300e-004	9.1000e-005
tblVehicleEF	OBUS	7.6700e-004	0.03
tblVehicleEF	OBUS	0.01	8.1250e-003
tblVehicleEF	OBUS	0.05	0.03
tblVehicleEF	OBUS	4.0100e-004	0.00
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.07	0.05
tblVehicleEF	OBUS	9.8300e-004	8.5000e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.2800e-004	9.2000e-005
tblVehicleEF	OBUS	7.6700e-004	0.03
tblVehicleEF	OBUS	0.01	8.1250e-003
tblVehicleEF	OBUS	0.06	0.04
tblVehicleEF	OBUS	4.0100e-004	0.00
tblVehicleEF	OBUS	0.02	0.03

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tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.08	0.06
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	8.8090e-003	0.08
tblVehicleEF	SBUS	0.01	8.5690e-003
tblVehicleEF	SBUS	4.01	2.38
tblVehicleEF	SBUS	0.80	1.39
tblVehicleEF	SBUS	1.56	1.23
tblVehicleEF	SBUS	367.56	204.35
tblVehicleEF	SBUS	971.83	958.41
tblVehicleEF	SBUS	8.11	6.00
tblVehicleEF	SBUS	0.05	0.02
tblVehicleEF	SBUS	0.10	0.11
tblVehicleEF	SBUS	8.1850e-003	5.6650e-003
tblVehicleEF	SBUS	3.13	1.37
tblVehicleEF	SBUS	4.12	2.53
tblVehicleEF	SBUS	0.74	0.47
tblVehicleEF	SBUS	3.4540e-003	1.3780e-003
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	1.3000e-004	7.9000e-005
tblVehicleEF	SBUS	3.3050e-003	1.3170e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.5240e-003	2.5140e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	1.1900e-004	7.3000e-005
tblVehicleEF	SBUS	6.7200e-004	0.05
tblVehicleEF	SBUS	8.3910e-003	0.01

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tblVehicleEF	SBUS	0.48	0.28
tblVehicleEF	SBUS	3.3200e-004	0.00
tblVehicleEF	SBUS	0.09	0.07
tblVehicleEF	SBUS	0.01	0.04
tblVehicleEF	SBUS	0.06	0.05
tblVehicleEF	SBUS	3.5190e-003	1.8720e-003
tblVehicleEF	SBUS	9.3510e-003	8.9820e-003
tblVehicleEF	SBUS	8.0000e-005	5.9000e-005
tblVehicleEF	SBUS	6.7200e-004	0.05
tblVehicleEF	SBUS	8.3910e-003	0.01
tblVehicleEF	SBUS	0.70	0.44
tblVehicleEF	SBUS	3.3200e-004	0.00
tblVehicleEF	SBUS	0.11	0.17
tblVehicleEF	SBUS	0.01	0.04
tblVehicleEF	SBUS	0.06	0.05
tblVehicleEF	UBUS	1.52	0.55
tblVehicleEF	UBUS	0.01	6.4140e-003
tblVehicleEF	UBUS	11.42	6.30
tblVehicleEF	UBUS	0.83	0.87
tblVehicleEF	UBUS	1,603.69	1,061.97
tblVehicleEF	UBUS	9.21	5.58
tblVehicleEF	UBUS	0.26	0.16
tblVehicleEF	UBUS	7.3110e-003	9.5510e-003
tblVehicleEF	UBUS	0.69	0.25
tblVehicleEF	UBUS	0.10	0.07
tblVehicleEF	UBUS	0.08	0.14
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	4.9940e-003	4.6870e-003
tblVehicleEF	UBUS	5.3000e-005	2.3000e-005

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tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	7.8010e-003	0.01
tblVehicleEF	UBUS	4.7760e-003	4.4790e-003
tblVehicleEF	UBUS	4.9000e-005	2.1000e-005
tblVehicleEF	UBUS	6.3800e-004	0.02
tblVehicleEF	UBUS	0.01	8.0370e-003
tblVehicleEF	UBUS	4.9700e-004	0.00
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	4.4160e-003	0.02
tblVehicleEF	UBUS	0.06	0.02
tblVehicleEF	UBUS	0.01	8.5230e-003
tblVehicleEF	UBUS	9.1000e-005	5.5000e-005
tblVehicleEF	UBUS	6.3800e-004	0.02
tblVehicleEF	UBUS	0.01	8.0370e-003
tblVehicleEF	UBUS	4.9700e-004	0.00
tblVehicleEF	UBUS	1.55	0.61
tblVehicleEF	UBUS	4.4160e-003	0.02
tblVehicleEF	UBUS	0.07	0.03
tblVehicleTrips	ST_TR	4.91	4.23
tblVehicleTrips	SU_TR	4.09	3.57
tblVehicleTrips	WD_TR	5.44	4.75
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

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tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	3.78	0.00
tblWoodstoves	NumberNoncatalytic	3.78	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0428	0.4234	0.4192	8.2000e-004	0.0782	0.0183	0.0964	0.0227	0.0170	0.0397	0.0000	71.6439	71.6439	0.0211	0.0000	72.1725
2024	1.5176	1.5549	1.8553	3.1100e-003	0.0000	0.0705	0.0705	0.0000	0.0663	0.0663	0.0000	267.9291	267.9291	0.0642	0.0000	269.5346
Maximum	**1.5176**	**1.5549**	**1.8553**	**3.1100e-003**	**0.0782**	**0.0705**	**0.0964**	**0.0227**	**0.0663**	**0.0663**	**0.0000**	**267.9291**	**267.9291**	**0.0642**	**0.0000**	**269.5346**

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					

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2023	0.0138	0.2888	0.5181	8.2000e-004	0.0352	1.6400e-003	0.0368	0.0102	1.6400e-003	0.0119	0.0000	71.6438	71.6438	0.0211	0.0000	72.1724
2024	1.4098	1.2505	2.0602	3.1100e-003	0.0000	9.4300e-003	9.4300e-003	0.0000	9.4300e-003	9.4300e-003	0.0000	267.9287	267.9287	0.0642	0.0000	269.5342
Maximum	**1.4098**	**1.2505**	**2.0602**	**3.1100e-003**	**0.0352**	**9.4300e-003**	**0.0368**	**0.0102**	**9.4300e-003**	**0.0119**	**0.0000**	**267.9287**	**267.9287**	**0.0642**	**0.0000**	**269.5342**

	ROG	NOx	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	**8.77**	**22.19**	**-13.35**	**0.00**	**55.00**	**87.53**	**72.30**	**55.02**	**86.70**	**79.90**	**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	**10-2-2023**	**1-1-2024**	0.4797	0.3116
2	**1-2-2024**	**4-1-2024**	0.4847	0.3720
3	**4-2-2024**	**7-1-2024**	0.4847	0.3720
4	**7-2-2024**	**9-30-2024**	0.4847	0.3720
		Highest	0.4847	0.3720

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9233	0.0227	1.4064	1.2000e-004		8.3100e-003	8.3100e-003		8.3100e-003	8.3100e-003	0.0000	9.8458	9.8458	2.3500e-003	1.4000e-004	9.9458
Energy	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
Mobile	0.4259	0.2740	2.8376	7.1500e-003	0.6597	4.3400e-003	0.6641	0.1644	4.0400e-003	0.1685	0.0000	659.1045	659.1045	0.0327	0.0268	667.9162

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Waste						0.0000	0.0000		0.0000	0.0000	17.6480	0.0000	17.6480	1.0430	0.0000	43.7223
Water						0.0000	0.0000		0.0000	0.0000	4.3568	0.0000	4.3568	0.0150	9.4700e-003	7.5550
Total	**1.3577**	**0.3703**	**4.2753**	**7.7400e-003**	**0.6597**	**0.0186**	**0.6783**	**0.1644**	**0.0183**	**0.1827**	**22.0048**	**754.1045**	**776.1092**	**1.0947**	**0.0380**	**814.7994**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9233	0.0227	1.4064	1.2000e-004		8.3100e-003	8.3100e-003		8.3100e-003	8.3100e-003	0.0000	9.8458	9.8458	2.3500e-003	1.4000e-004	9.9458
Energy	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
Mobile	0.4259	0.2740	2.8376	7.1500e-003	0.6597	4.3400e-003	0.6641	0.1644	4.0400e-003	0.1685	0.0000	659.1045	659.1045	0.0327	0.0268	667.9162
Waste						0.0000	0.0000		0.0000	0.0000	17.6480	0.0000	17.6480	1.0430	0.0000	43.7223
Water						0.0000	0.0000		0.0000	0.0000	4.3568	0.0000	4.3568	0.0150	9.4700e-003	7.5550
Total	**1.3577**	**0.3703**	**4.2753**	**7.7400e-003**	**0.6597**	**0.0186**	**0.6783**	**0.1644**	**0.0183**	**0.1827**	**22.0048**	**754.1045**	**776.1092**	**1.0947**	**0.0380**	**814.7994**

	ROG	NOx	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

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

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/2/2023	10/27/2023	5	20	
2	Site Preparation	Site Preparation	10/28/2023	11/10/2023	5	10	
3	Grading	Grading	11/11/2023	12/8/2023	5	20	
4	Trenching - Wet Utilities	Trenching	11/11/2023	12/1/2023	5	15	
5	Trenching - dry utilities	Trenching	12/2/2023	12/8/2023	5	5	
6	Building Construction	Building Construction	12/9/2023	10/25/2024	5	230	
7	Architectural Coating	Architectural Coating	10/26/2024	11/22/2024	5	20	
8	Paving	Paving	11/23/2024	12/20/2024	5	20	

Acres of Grading (Site Preparation Phase): 10

Acres of Grading (Grading Phase): 38

Acres of Paving: 0

Residential Indoor: 384,750; Residential Outdoor: 128,250; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,120

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	2.80	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading	Excavators	1	5.60	158	0.38
Grading	Graders	1	8.00	187	0.41

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Grading	Plate Compactors	1	2.80	8	0.43
Grading	Rubber Tired Dozers	0	0.00	247	0.40
Grading	Scrapers	2	5.60	367	0.48
Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching - Wet Utilities	Excavators	2	8.00	158	0.38
Trenching - Wet Utilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching - dry utilities	Excavators	1	8.00	158	0.38
Trenching - dry utilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	3.20	9	0.56
Paving	Graders	1	8.00	187	0.41
Paving	Pavers	1	1.60	130	0.42
Paving	Paving Equipment	0	0.00	132	0.36
Paving	Rollers	2	1.60	80	0.38
Paving	Tractors/Loaders/Backhoes	3	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
Demolition	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching - Wet Utilities	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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

Trenching - dry utilities	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	0.00	0.00	0.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	0.00	0.00	0.00	10.80	7.30	7.30	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 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	3.3400e-003	0.0000	3.3400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5700e-003	0.0399	0.0677	1.0000e-004		1.9700e-003	1.9700e-003		1.8400e-003	1.8400e-003	0.0000	9.1545	9.1545	2.4400e-003	0.0000	9.2157
Total	**4.5700e-003**	**0.0399**	**0.0677**	**1.0000e-004**	**0.0220**	**1.9700e-003**	**0.0240**	**3.3400e-003**	**1.8400e-003**	**5.1800e-003**	**0.0000**	**9.1545**	**9.1545**	**2.4400e-003**	**0.0000**	**9.2157**

Unmitigated Construction Off-Site

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

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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					9.9200e-003	0.0000	9.9200e-003	1.5000e-003	0.0000	1.5000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7300e-003	0.0441	0.0761	1.0000e-004		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	9.1545	9.1545	2.4400e-003	0.0000	9.2157
Total	**1.7300e-003**	**0.0441**	**0.0761**	**1.0000e-004**	**9.9200e-003**	**1.6000e-004**	**0.0101**	**1.5000e-003**	**1.6000e-004**	**1.6600e-003**	**0.0000**	**9.1545**	**9.1545**	**2.4400e-003**	**0.0000**	**9.2157**

Mitigated Construction Off-Site

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

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

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

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0354	0.0000	0.0354	0.0171	0.0000	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3400e-003	0.0589	0.0240	8.0000e-005		2.3600e-003	2.3600e-003		2.1700e-003	2.1700e-003	0.0000	6.6581	6.6581	2.1500e-003	0.0000	6.7119
Total	**5.3400e-003**	**0.0589**	**0.0240**	**8.0000e-005**	**0.0354**	**2.3600e-003**	**0.0378**	**0.0171**	**2.1700e-003**	**0.0193**	**0.0000**	**6.6581**	**6.6581**	**2.1500e-003**	**0.0000**	**6.7119**

Unmitigated Construction Off-Site

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

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

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0159	0.0000	0.0159	7.7100e-003	0.0000	7.7100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2400e-003	0.0200	0.0402	8.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.6581	6.6581	2.1500e-003	0.0000	6.7119
Total	**1.2400e-003**	**0.0200**	**0.0402**	**8.0000e-005**	**0.0159**	**1.2000e-004**	**0.0161**	**7.7100e-003**	**1.2000e-004**	**7.8300e-003**	**0.0000**	**6.6581**	**6.6581**	**2.1500e-003**	**0.0000**	**6.7119**

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

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

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

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0207	0.0000	0.0207	2.2600e-003	0.0000	2.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0163	0.1742	0.1264	3.2000e-004		6.6200e-003	6.6200e-003		6.0900e-003	6.0900e-003	0.0000	27.7705	27.7705	8.9600e-003	0.0000	27.9945
Total	**0.0163**	**0.1742**	**0.1264**	**3.2000e-004**	**0.0207**	**6.6200e-003**	**0.0273**	**2.2600e-003**	**6.0900e-003**	**8.3500e-003**	**0.0000**	**27.7705**	**27.7705**	**8.9600e-003**	**0.0000**	**27.9945**

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

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.3200e-003	0.0000	9.3200e-003	1.0200e-003	0.0000	1.0200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0100e-003	0.0895	0.1757	3.2000e-004		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	27.7705	27.7705	8.9600e-003	0.0000	27.9944
Total	**5.0100e-003**	**0.0895**	**0.1757**	**3.2000e-004**	**9.3200e-003**	**5.2000e-004**	**9.8400e-003**	**1.0200e-003**	**5.2000e-004**	**1.5400e-003**	**0.0000**	**27.7705**	**27.7705**	**8.9600e-003**	**0.0000**	**27.9944**

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

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

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

3.5 Trenching - Wet 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	3.9700e-003	0.0348	0.0656	1.0000e-004		1.7100e-003	1.7100e-003		1.5700e-003	1.5700e-003	0.0000	8.8572	8.8572	2.8600e-003	0.0000	8.9288
Total	**3.9700e-003**	**0.0348**	**0.0656**	**1.0000e-004**		**1.7100e-003**	**1.7100e-003**		**1.5700e-003**	**1.5700e-003**	**0.0000**	**8.8572**	**8.8572**	**2.8600e-003**	**0.0000**	**8.9288**

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					

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

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	1.4800e-003	0.0443	0.0763	1.0000e-004		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	8.8572	8.8572	2.8600e-003	0.0000	8.9288
Total	**1.4800e-003**	**0.0443**	**0.0763**	**1.0000e-004**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**	**0.0000**	**8.8572**	**8.8572**	**2.8600e-003**	**0.0000**	**8.9288**

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

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Trenching - dry 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	8.5000e-004	7.7100e-003	0.0137	2.0000e-005		3.8000e-004	3.8000e-004		3.5000e-004	3.5000e-004	0.0000	1.8182	1.8182	5.9000e-004	0.0000	1.8329
Total	**8.5000e-004**	**7.7100e-003**	**0.0137**	**2.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**1.8182**	**1.8182**	**5.9000e-004**	**0.0000**	**1.8329**

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

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

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	3.3000e-004	9.0800e-003	0.0157	2.0000e-005		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	1.8182	1.8182	5.9000e-004	0.0000	1.8329
Total	**3.3000e-004**	**9.0800e-003**	**0.0157**	**2.0000e-005**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**1.8182**	**1.8182**	**5.9000e-004**	**0.0000**	**1.8329**

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

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

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

3.7 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0118	0.1079	0.1218	2.0000e-004		5.2500e-003	5.2500e-003		4.9400e-003	4.9400e-003	0.0000	17.3854	17.3854	4.1400e-003	0.0000	17.4888
Total	**0.0118**	**0.1079**	**0.1218**	**2.0000e-004**		**5.2500e-003**	**5.2500e-003**		**4.9400e-003**	**4.9400e-003**	**0.0000**	**17.3854**	**17.3854**	**4.1400e-003**	**0.0000**	**17.4888**

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**

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Hayward Park Residential, San Mateo - San Mateo County, Annual

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

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	4.0000e-003	0.0818	0.1341	2.0000e-004		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	17.3853	17.3853	4.1400e-003	0.0000	17.4887
Total	**4.0000e-003**	**0.0818**	**0.1341**	**2.0000e-004**		**6.3000e-004**	**6.3000e-004**		**6.3000e-004**	**6.3000e-004**	**0.0000**	**17.3853**	**17.3853**	**4.1400e-003**	**0.0000**	**17.4887**

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**

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

3.7 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	0.1582	1.4452	1.7379	2.9000e-003		0.0659	0.0659		0.0620	0.0620	0.0000	249.2378	249.2378	0.0589	0.0000	250.7112
Total	**0.1582**	**1.4452**	**1.7379**	**2.9000e-003**		**0.0659**	**0.0659**		**0.0620**	**0.0620**	**0.0000**	**249.2378**	**249.2378**	**0.0589**	**0.0000**	**250.7112**

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

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0574	1.1731	1.9214	2.9000e-003		9.0900e-003	9.0900e-003		9.0900e-003	9.0900e-003	0.0000	249.2375	249.2375	0.0589	0.0000	250.7109
Total	**0.0574**	**1.1731**	**1.9214**	**2.9000e-003**		**9.0900e-003**	**9.0900e-003**		**9.0900e-003**	**9.0900e-003**	**0.0000**	**249.2375**	**249.2375**	**0.0589**	**0.0000**	**250.7109**

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**

3.8 Architectural Coating - 2024

Unmitigated Construction On-Site

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3483					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**1.3501**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

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

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3483					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4000e-004	0.0106	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**1.3489**	**0.0106**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

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**

3.9 Paving - 2024

Unmitigated Construction On-Site

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.2800e-003	0.0975	0.0993	1.9000e-004		3.9400e-003	3.9400e-003		3.6400e-003	3.6400e-003	0.0000	16.1380	16.1380	5.1400e-003	0.0000	16.2665
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.2800e-003**	**0.0975**	**0.0993**	**1.9000e-004**		**3.9400e-003**	**3.9400e-003**		**3.6400e-003**	**3.6400e-003**	**0.0000**	**16.1380**	**16.1380**	**5.1400e-003**	**0.0000**	**16.2665**

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

Hayward Park Residential, San Mateo - San Mateo County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5200e-003	0.0668	0.1205	1.9000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	16.1380	16.1380	5.1400e-003	0.0000	16.2665
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5200e-003**	**0.0668**	**0.1205**	**1.9000e-004**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**16.1380**	**16.1380**	**5.1400e-003**	**0.0000**	**16.2665**

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

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4259	0.2740	2.8376	7.1500e-003	0.6597	4.3400e-003	0.6641	0.1644	4.0400e-003	0.1685	0.0000	659.1045	659.1045	0.0327	0.0268	667.9162
Unmitigated	0.4259	0.2740	2.8376	7.1500e-003	0.6597	4.3400e-003	0.6641	0.1644	4.0400e-003	0.1685	0.0000	659.1045	659.1045	0.0327	0.0268	667.9162

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	897.75	799.47	674.73	1,967,439	1,967,439
Enclosed Parking with Elevator	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	897.75	799.47	674.73	1,967,439	1,967,439

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.448243	0.043109	0.275360	0.157817	0.028829	0.006330	0.008743	0.002558	0.002310	0.000743	0.023500	0.000418	0.002040
Enclosed Parking with Elevator	0.448243	0.043109	0.275360	0.157817	0.028829	0.006330	0.008743	0.002558	0.002310	0.000743	0.023500	0.000418	0.002040

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

Parking Lot	0.448243	0.043109	0.275360	0.157817	0.028829	0.006330	0.008743	0.002558	0.002310	0.000743	0.023500	0.000418	0.002040

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
NaturalGas Unmitigated	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602

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					

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Apartments Mid Rise	1.59573e+006	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.6000e-003**	**0.0735**	**0.0313**	**4.7000e-004**		**5.9400e-003**	**5.9400e-003**		**5.9400e-003**	**5.9400e-003**	**0.0000**	**85.1542**	**85.1542**	**1.6300e-003**	**1.5600e-003**	**85.6602**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.59573e+006	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.6000e-003**	**0.0735**	**0.0313**	**4.7000e-004**		**5.9400e-003**	**5.9400e-003**		**5.9400e-003**	**5.9400e-003**	**0.0000**	**85.1542**	**85.1542**	**1.6300e-003**	**1.5600e-003**	**85.6602**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

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Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	734524	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	217600	0.0000	0.0000	0.0000	0.0000
Parking Lot	4200	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			
Apartments Mid Rise	734524	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	217600	0.0000	0.0000	0.0000	0.0000
Parking Lot	4200	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

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9233	0.0227	1.4064	1.2000e-004		8.3100e-003	8.3100e-003		8.3100e-003	8.3100e-003	0.0000	9.8458	9.8458	2.3500e-003	1.4000e-004	9.9458
Unmitigated	0.9233	0.0227	1.4064	1.2000e-004		8.3100e-003	8.3100e-003		8.3100e-003	8.3100e-003	0.0000	9.8458	9.8458	2.3500e-003	1.4000e-004	9.9458

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	0.1348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7454					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	7.5503	7.5503	1.4000e-004	1.4000e-004	7.5952
Landscaping	0.0423	0.0162	1.4037	7.0000e-005		7.7900e-003	7.7900e-003		7.7900e-003	7.7900e-003	0.0000	2.2955	2.2955	2.2000e-003	0.0000	2.3506
Total	**0.9233**	**0.0227**	**1.4064**	**1.1000e-004**		**8.3200e-003**	**8.3200e-003**		**8.3200e-003**	**8.3200e-003**	**0.0000**	**9.8458**	**9.8458**	**2.3400e-003**	**1.4000e-004**	**9.9458**

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

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	0.1348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7454					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	7.5503	7.5503	1.4000e-004	1.4000e-004	7.5952
Landscaping	0.0423	0.0162	1.4037	7.0000e-005		7.7900e-003	7.7900e-003		7.7900e-003	7.7900e-003	0.0000	2.2955	2.2955	2.2000e-003	0.0000	2.3506
Total	**0.9233**	**0.0227**	**1.4064**	**1.1000e-004**		**8.3200e-003**	**8.3200e-003**		**8.3200e-003**	**8.3200e-003**	**0.0000**	**9.8458**	**9.8458**	**2.3400e-003**	**1.4000e-004**	**9.9458**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.3568	0.0150	9.4700e-003	7.5550
Unmitigated	4.3568	0.0150	9.4700e-003	7.5550

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	12.3141 / 7.76324	4.3568	0.0150	9.4700e-003	7.5550
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.3568**	**0.0150**	**9.4700e-003**	**7.5550**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	12.3141 / 7.76324	4.3568	0.0150	9.4700e-003	7.5550
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000

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

Total	**4.3568**	**0.0150**	**9.4700e-003**	**7.5550**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	17.6480	1.0430	0.0000	43.7223
Unmitigated	17.6480	1.0430	0.0000	43.7223

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	86.94	17.6480	1.0430	0.0000	43.7223
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000

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Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**17.6480**	**1.0430**	**0.0000**	**43.7223**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	86.94	17.6480	1.0430	0.0000	43.7223
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**17.6480**	**1.0430**	**0.0000**	**43.7223**

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

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Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	111.00	Space	0.00	40,000.00	0
Parking Lot	68.00	Space	0.00	12,000.00	0
Apartments Mid Rise	189.00	Dwelling Unit	2.81	190,000.00	541

1.2 Other Project Characteristics

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Provided land uses from construction worksheet

Construction Phase - Ops Only

Off-road Equipment - Default const equip & hours

Off-road Equipment - Const equip & hours provided

Off-road Equipment - Provided const equip & hours

Off-road Equipment - Provided const equip & hours

Off-road Equipment - Ops Only. No Const Emissions

Off-road Equipment - Provided const equip & hours

Off-road Equipment - Provided const equip & hours

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Off-road Equipment - Provided const equip & hours

Trips and VMT - Ops Only

Demolition - Ops Only

Grading - Ops Only

Vehicle Trips - Sat = (4.91/5.44) Sun = (4.09/5.44)

Vehicle Emission Factors - EFs from EMFAC2021 for year 2025

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - No wood burning appliances. Gas only

Water And Wastewater - Assume 100% WWTP

Construction Off-road Equipment Mitigation - Ops Only. No Const.

Fleet Mix - Based on EMFAC2021, 2025 Fleet, Pop based

Stationary Sources - Emergency Generators and Fire Pumps - Assume the 50kW fire pump is electric

Architectural Coating - Ops Only. No Const

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	3,120.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	128,250.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Interior	384,750.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	3.00	0.00
tblConstructionPhase	NumDays	6.00	0.00
tblConstructionPhase	NumDays	220.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	28.35	60.48
tblFireplaces	NumberWood	32.13	0.00

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

tblFleetMix	HHD	1.7910e-003	2.3623e-003
tblFleetMix	HHD	1.7910e-003	2.3623e-003
tblFleetMix	HHD	1.7910e-003	2.3623e-003
tblFleetMix	LDA	0.43	0.39
tblFleetMix	LDA	0.43	0.39
tblFleetMix	LDA	0.43	0.39
tblFleetMix	LDT1	0.08	0.04
tblFleetMix	LDT1	0.08	0.04
tblFleetMix	LDT1	0.08	0.04
tblFleetMix	LDT2	0.25	0.31
tblFleetMix	LDT2	0.25	0.31
tblFleetMix	LDT2	0.25	0.31
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD2	7.1360e-003	7.4138e-003
tblFleetMix	LHD2	7.1360e-003	7.4138e-003
tblFleetMix	LHD2	7.1360e-003	7.4138e-003
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MCY	0.03	0.02
tblFleetMix	MDV	0.16	0.18
tblFleetMix	MDV	0.16	0.18
tblFleetMix	MDV	0.16	0.18
tblFleetMix	MH	2.9170e-003	2.1461e-003
tblFleetMix	MH	2.9170e-003	2.1461e-003
tblFleetMix	MH	2.9170e-003	2.1461e-003
tblFleetMix	MHD	0.01	8.2624e-003
tblFleetMix	MHD	0.01	8.2624e-003

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tblFleetMix	MHD	0.01	8.2624e-003
tblFleetMix	OBUS	1.3500e-003	2.2043e-003
tblFleetMix	OBUS	1.3500e-003	2.2043e-003
tblFleetMix	OBUS	1.3500e-003	2.2043e-003
tblFleetMix	SBUS	4.2100e-004	3.9408e-004
tblFleetMix	SBUS	4.2100e-004	3.9408e-004
tblFleetMix	SBUS	4.2100e-004	3.9408e-004
tblFleetMix	UBUS	4.9600e-004	6.4549e-004
tblFleetMix	UBUS	4.9600e-004	6.4549e-004
tblFleetMix	UBUS	4.9600e-004	6.4549e-004
tblLandUse	LandUseSquareFeet	44,400.00	40,000.00
tblLandUse	LandUseSquareFeet	27,200.00	12,000.00
tblLandUse	LandUseSquareFeet	189,000.00	190,000.00
tblLandUse	LotAcreage	1.00	0.00
tblLandUse	LotAcreage	0.61	0.00
tblLandUse	LotAcreage	4.97	2.81
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	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

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

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	3.20
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	VendorTripNumber	29.00	0.00
tblTripsAndVMT	WorkerTripNumber	158.00	0.00
tblTripsAndVMT	WorkerTripNumber	32.00	0.00
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	HHD	0.19	0.18
tblVehicleEF	HHD	3.0000e-006	3.0600e-007
tblVehicleEF	HHD	5.46	4.57

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tblVehicleEF	HHD	1.06	1.44
tblVehicleEF	HHD	0.04	0.02
tblVehicleEF	HHD	860.08	692.39
tblVehicleEF	HHD	1,405.74	1,514.61
tblVehicleEF	HHD	0.35	0.20
tblVehicleEF	HHD	0.14	0.11
tblVehicleEF	HHD	0.23	0.24
tblVehicleEF	HHD	3.0000e-006	1.7300e-007
tblVehicleEF	HHD	5.01	3.57
tblVehicleEF	HHD	2.73	1.87
tblVehicleEF	HHD	2.40	2.65
tblVehicleEF	HHD	2.7380e-003	2.0816e-003
tblVehicleEF	HHD	0.06	0.09
tblVehicleEF	HHD	0.04	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.0000e-006	1.8200e-006
tblVehicleEF	HHD	2.6200e-003	1.9853e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7570e-003	8.6348e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.0000e-006	1.6800e-006
tblVehicleEF	HHD	6.0000e-006	2.3552e-004
tblVehicleEF	HHD	3.2200e-004	6.4900e-005
tblVehicleEF	HHD	0.36	0.27
tblVehicleEF	HHD	5.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	1.5200e-004	3.9132e-004
tblVehicleEF	HHD	1.4000e-005	1.6600e-006
tblVehicleEF	HHD	7.5950e-003	5.6170e-003

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

tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	3.0000e-006	1.9600e-006
tblVehicleEF	HHD	6.0000e-006	2.3552e-004
tblVehicleEF	HHD	3.2200e-004	6.4900e-005
tblVehicleEF	HHD	0.43	0.53
tblVehicleEF	HHD	5.0000e-006	0.00
tblVehicleEF	HHD	0.23	0.21
tblVehicleEF	HHD	1.5200e-004	3.9132e-004
tblVehicleEF	HHD	1.6000e-005	1.8100e-006
tblVehicleEF	LDA	8.5200e-004	1.0908e-003
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.38	0.43
tblVehicleEF	LDA	1.70	2.12
tblVehicleEF	LDA	197.85	218.14
tblVehicleEF	LDA	41.93	56.38
tblVehicleEF	LDA	2.9620e-003	2.8890e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.12	0.18
tblVehicleEF	LDA	0.04	6.3462e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	8.6000e-004	8.0045e-004
tblVehicleEF	LDA	1.2290e-003	1.4713e-003
tblVehicleEF	LDA	0.02	2.2212e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	7.9200e-004	7.3622e-004
tblVehicleEF	LDA	1.1300e-003	1.3528e-003
tblVehicleEF	LDA	0.02	0.21
tblVehicleEF	LDA	0.06	0.06

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tblVehicleEF	LDA	0.02	0.00
tblVehicleEF	LDA	2.9250e-003	3.8523e-003
tblVehicleEF	LDA	0.03	0.16
tblVehicleEF	LDA	0.12	0.20
tblVehicleEF	LDA	1.9570e-003	2.1564e-003
tblVehicleEF	LDA	4.1500e-004	5.5733e-004
tblVehicleEF	LDA	0.02	0.21
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.00
tblVehicleEF	LDA	4.2480e-003	5.6170e-003
tblVehicleEF	LDA	0.03	0.16
tblVehicleEF	LDA	0.13	0.22
tblVehicleEF	LDT1	1.1990e-003	2.2148e-003
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.44	0.66
tblVehicleEF	LDT1	1.81	2.84
tblVehicleEF	LDT1	236.05	285.53
tblVehicleEF	LDT1	50.08	72.58
tblVehicleEF	LDT1	3.1790e-003	4.5003e-003
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.14	0.23
tblVehicleEF	LDT1	0.04	7.9630e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	9.9000e-004	1.0382e-003
tblVehicleEF	LDT1	1.3910e-003	1.7654e-003
tblVehicleEF	LDT1	0.02	2.7870e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	9.1100e-004	9.5461e-004

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tblVehicleEF	LDT1	1.2790e-003	1.6232e-003
tblVehicleEF	LDT1	0.03	0.31
tblVehicleEF	LDT1	0.07	0.08
tblVehicleEF	LDT1	0.03	0.00
tblVehicleEF	LDT1	4.4220e-003	9.0469e-003
tblVehicleEF	LDT1	0.05	0.24
tblVehicleEF	LDT1	0.13	0.27
tblVehicleEF	LDT1	2.3360e-003	2.8228e-003
tblVehicleEF	LDT1	4.9600e-004	7.1749e-004
tblVehicleEF	LDT1	0.03	0.31
tblVehicleEF	LDT1	0.07	0.08
tblVehicleEF	LDT1	0.03	0.00
tblVehicleEF	LDT1	6.4520e-003	0.01
tblVehicleEF	LDT1	0.05	0.24
tblVehicleEF	LDT1	0.14	0.29
tblVehicleEF	LDT2	1.3110e-003	1.4507e-003
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.47	0.52
tblVehicleEF	LDT2	2.22	2.46
tblVehicleEF	LDT2	241.10	296.13
tblVehicleEF	LDT2	51.42	74.14
tblVehicleEF	LDT2	3.4280e-003	3.6744e-003
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.15	0.21
tblVehicleEF	LDT2	0.04	7.7669e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	9.8200e-004	8.8292e-004
tblVehicleEF	LDT2	1.3140e-003	1.4991e-003

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tblVehicleEF	LDT2	0.02	2.7184e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	9.0400e-004	8.1234e-004
tblVehicleEF	LDT2	1.2080e-003	1.3783e-003
tblVehicleEF	LDT2	0.03	0.16
tblVehicleEF	LDT2	0.06	0.04
tblVehicleEF	LDT2	0.03	0.00
tblVehicleEF	LDT2	4.7820e-003	5.1450e-003
tblVehicleEF	LDT2	0.05	0.12
tblVehicleEF	LDT2	0.16	0.22
tblVehicleEF	LDT2	2.3850e-003	2.9271e-003
tblVehicleEF	LDT2	5.0900e-004	7.3296e-004
tblVehicleEF	LDT2	0.03	0.16
tblVehicleEF	LDT2	0.06	0.04
tblVehicleEF	LDT2	0.03	0.00
tblVehicleEF	LDT2	6.9400e-003	7.4942e-003
tblVehicleEF	LDT2	0.05	0.12
tblVehicleEF	LDT2	0.17	0.24
tblVehicleEF	LHD1	3.9860e-003	4.1003e-003
tblVehicleEF	LHD1	4.4850e-003	2.8899e-003
tblVehicleEF	LHD1	7.3910e-003	0.01
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	0.40	0.47
tblVehicleEF	LHD1	0.86	2.16
tblVehicleEF	LHD1	8.08	7.48
tblVehicleEF	LHD1	689.79	647.78
tblVehicleEF	LHD1	9.94	16.36
tblVehicleEF	LHD1	7.0800e-004	5.3190e-004
tblVehicleEF	LHD1	0.04	0.03

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tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.04	0.03
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	0.20	0.30
tblVehicleEF	LHD1	9.1600e-004	6.1676e-004
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	9.8940e-003	9.2636e-003
tblVehicleEF	LHD1	5.8960e-003	6.6482e-003
tblVehicleEF	LHD1	2.0100e-004	1.0406e-004
tblVehicleEF	LHD1	8.7600e-004	5.9008e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4740e-003	2.3159e-003
tblVehicleEF	LHD1	5.5970e-003	6.3311e-003
tblVehicleEF	LHD1	1.8500e-004	9.5700e-005
tblVehicleEF	LHD1	8.5500e-004	0.06
tblVehicleEF	LHD1	0.04	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	5.9000e-004	0.00
tblVehicleEF	LHD1	0.07	0.04
tblVehicleEF	LHD1	0.14	0.08
tblVehicleEF	LHD1	0.03	0.07
tblVehicleEF	LHD1	7.8000e-005	7.2900e-005
tblVehicleEF	LHD1	6.7280e-003	6.3248e-003
tblVehicleEF	LHD1	9.8000e-005	1.6178e-004
tblVehicleEF	LHD1	8.5500e-004	0.06
tblVehicleEF	LHD1	0.04	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	5.9000e-004	0.00
tblVehicleEF	LHD1	0.08	0.04

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tblVehicleEF	LHD1	0.14	0.08
tblVehicleEF	LHD1	0.04	0.07
tblVehicleEF	LHD2	2.4420e-003	2.3113e-003
tblVehicleEF	LHD2	4.9160e-003	3.5822e-003
tblVehicleEF	LHD2	4.1310e-003	7.5520e-003
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.44	0.32
tblVehicleEF	LHD2	0.49	1.19
tblVehicleEF	LHD2	12.62	12.88
tblVehicleEF	LHD2	670.16	684.09
tblVehicleEF	LHD2	6.49	8.64
tblVehicleEF	LHD2	1.6020e-003	1.5975e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.21	0.28
tblVehicleEF	LHD2	0.12	0.16
tblVehicleEF	LHD2	1.4740e-003	1.4286e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.0700e-004	4.9700e-005
tblVehicleEF	LHD2	1.4100e-003	1.3668e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7060e-003	2.6174e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.9000e-005	4.5700e-005
tblVehicleEF	LHD2	4.2300e-004	0.03
tblVehicleEF	LHD2	0.02	8.3390e-003

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tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.0400e-004	0.00
tblVehicleEF	LHD2	0.09	0.07
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.04
tblVehicleEF	LHD2	1.2100e-004	1.2327e-004
tblVehicleEF	LHD2	6.4670e-003	6.5820e-003
tblVehicleEF	LHD2	6.4000e-005	8.5400e-005
tblVehicleEF	LHD2	4.2300e-004	0.03
tblVehicleEF	LHD2	0.02	8.3390e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.0400e-004	0.00
tblVehicleEF	LHD2	0.11	0.08
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.04
tblVehicleEF	MCY	0.32	0.13
tblVehicleEF	MCY	0.25	0.14
tblVehicleEF	MCY	17.76	9.71
tblVehicleEF	MCY	9.39	7.58
tblVehicleEF	MCY	212.58	185.26
tblVehicleEF	MCY	58.78	39.68
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	5.5836e-003
tblVehicleEF	MCY	1.14	0.47
tblVehicleEF	MCY	0.27	0.09
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	2.2180e-003	2.0694e-003
tblVehicleEF	MCY	3.0130e-003	3.6392e-003

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tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	2.0680e-003	1.9303e-003
tblVehicleEF	MCY	2.8140e-003	3.4018e-003
tblVehicleEF	MCY	0.61	2.69
tblVehicleEF	MCY	0.49	3.54
tblVehicleEF	MCY	0.36	0.00
tblVehicleEF	MCY	2.13	0.79
tblVehicleEF	MCY	0.39	3.67
tblVehicleEF	MCY	1.89	1.03
tblVehicleEF	MCY	2.1040e-003	1.8314e-003
tblVehicleEF	MCY	5.8200e-004	3.9228e-004
tblVehicleEF	MCY	0.61	0.07
tblVehicleEF	MCY	0.49	3.54
tblVehicleEF	MCY	0.36	0.00
tblVehicleEF	MCY	2.68	0.98
tblVehicleEF	MCY	0.39	3.67
tblVehicleEF	MCY	2.06	1.12
tblVehicleEF	MDV	1.2400e-003	1.4656e-003
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.45	0.52
tblVehicleEF	MDV	2.21	2.46
tblVehicleEF	MDV	289.25	352.66
tblVehicleEF	MDV	60.44	87.77
tblVehicleEF	MDV	4.5060e-003	4.1698e-003
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	0.15	0.22
tblVehicleEF	MDV	0.04	7.7869e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

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tblVehicleEF	MDV	9.5700e-004	8.5844e-004
tblVehicleEF	MDV	1.2840e-003	1.4694e-003
tblVehicleEF	MDV	0.02	2.7254e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	8.8200e-004	7.9018e-004
tblVehicleEF	MDV	1.1810e-003	1.3510e-003
tblVehicleEF	MDV	0.03	0.17
tblVehicleEF	MDV	0.07	0.05
tblVehicleEF	MDV	0.04	0.00
tblVehicleEF	MDV	4.5430e-003	5.3027e-003
tblVehicleEF	MDV	0.05	0.13
tblVehicleEF	MDV	0.16	0.24
tblVehicleEF	MDV	2.8580e-003	3.4847e-003
tblVehicleEF	MDV	5.9800e-004	8.6768e-004
tblVehicleEF	MDV	0.03	0.17
tblVehicleEF	MDV	0.07	0.05
tblVehicleEF	MDV	0.04	0.00
tblVehicleEF	MDV	6.5690e-003	7.7166e-003
tblVehicleEF	MDV	0.05	0.13
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MH	4.0670e-003	4.8173e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.22	0.26
tblVehicleEF	MH	1.59	1.85
tblVehicleEF	MH	1,315.39	1,657.15
tblVehicleEF	MH	15.06	19.91
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.84	1.00

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tblVehicleEF	MH	0.22	0.25
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	9.1290e-003	0.01
tblVehicleEF	MH	2.2300e-004	2.4830e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2890e-003	3.3356e-003
tblVehicleEF	MH	8.6970e-003	0.01
tblVehicleEF	MH	2.0500e-004	2.2830e-004
tblVehicleEF	MH	0.16	10.82
tblVehicleEF	MH	0.01	2.82
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.03	0.04
tblVehicleEF	MH	2.9870e-003	0.07
tblVehicleEF	MH	0.07	0.08
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.4900e-004	1.9688e-004
tblVehicleEF	MH	0.16	10.82
tblVehicleEF	MH	0.01	2.82
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	2.9870e-003	0.07
tblVehicleEF	MH	0.08	0.09
tblVehicleEF	MHD	3.9010e-003	0.02
tblVehicleEF	MHD	9.3700e-004	9.6237e-003
tblVehicleEF	MHD	8.5280e-003	9.1353e-003
tblVehicleEF	MHD	0.38	0.63
tblVehicleEF	MHD	0.14	0.16
tblVehicleEF	MHD	0.87	0.98

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tblVehicleEF	MHD	55.53	130.08
tblVehicleEF	MHD	958.82	1,103.52
tblVehicleEF	MHD	8.66	9.48
tblVehicleEF	MHD	7.8550e-003	0.02
tblVehicleEF	MHD	0.12	0.13
tblVehicleEF	MHD	8.0480e-003	6.8926e-003
tblVehicleEF	MHD	0.29	0.66
tblVehicleEF	MHD	1.31	0.56
tblVehicleEF	MHD	1.67	1.12
tblVehicleEF	MHD	1.1600e-004	6.3620e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.3200e-003	5.3910e-003
tblVehicleEF	MHD	1.1300e-004	1.1806e-004
tblVehicleEF	MHD	1.1100e-004	6.0805e-004
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	6.0400e-003	5.1468e-003
tblVehicleEF	MHD	1.0400e-004	1.0855e-004
tblVehicleEF	MHD	2.1500e-004	0.02
tblVehicleEF	MHD	0.01	3.9097e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.5500e-004	0.00
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	5.2700e-004	1.1953e-003
tblVehicleEF	MHD	9.1510e-003	0.01
tblVehicleEF	MHD	8.6000e-005	9.3700e-005

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

tblVehicleEF	MHD	2.1500e-004	0.02
tblVehicleEF	MHD	0.01	3.9097e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	1.5500e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	OBUS	6.7860e-003	6.9137e-003
tblVehicleEF	OBUS	1.7360e-003	0.01
tblVehicleEF	OBUS	0.01	8.2387e-003
tblVehicleEF	OBUS	0.67	0.50
tblVehicleEF	OBUS	0.22	0.16
tblVehicleEF	OBUS	1.34	0.83
tblVehicleEF	OBUS	104.99	88.87
tblVehicleEF	OBUS	1,195.47	1,192.98
tblVehicleEF	OBUS	11.93	7.62
tblVehicleEF	OBUS	0.02	0.01
tblVehicleEF	OBUS	0.12	0.16
tblVehicleEF	OBUS	0.01	7.5267e-003
tblVehicleEF	OBUS	0.47	0.34
tblVehicleEF	OBUS	1.49	0.65
tblVehicleEF	OBUS	1.22	1.02
tblVehicleEF	OBUS	1.5600e-004	2.0740e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0770e-003	7.6204e-003
tblVehicleEF	OBUS	1.4600e-004	8.4000e-005
tblVehicleEF	OBUS	1.4900e-004	1.9826e-004
tblVehicleEF	OBUS	0.06	0.02

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tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	7.7140e-003	7.2847e-003
tblVehicleEF	OBUS	1.3400e-004	7.7200e-005
tblVehicleEF	OBUS	6.9700e-004	0.03
tblVehicleEF	OBUS	0.01	6.5604e-003
tblVehicleEF	OBUS	0.05	0.03
tblVehicleEF	OBUS	3.8500e-004	0.00
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.07	0.04
tblVehicleEF	OBUS	9.9600e-004	8.3410e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.1800e-004	7.5400e-005
tblVehicleEF	OBUS	6.9700e-004	0.03
tblVehicleEF	OBUS	0.01	6.5604e-003
tblVehicleEF	OBUS	0.06	0.04
tblVehicleEF	OBUS	3.8500e-004	0.00
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.07	0.05
tblVehicleEF	SBUS	0.16	0.11
tblVehicleEF	SBUS	5.7190e-003	0.07
tblVehicleEF	SBUS	0.01	8.9857e-003
tblVehicleEF	SBUS	5.81	2.80
tblVehicleEF	SBUS	0.52	0.91
tblVehicleEF	SBUS	2.02	1.22
tblVehicleEF	SBUS	372.76	200.53
tblVehicleEF	SBUS	883.04	857.53
tblVehicleEF	SBUS	11.09	6.59

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tblVehicleEF	SBUS	0.04	0.02
tblVehicleEF	SBUS	0.08	0.09
tblVehicleEF	SBUS	0.01	6.2855e-003
tblVehicleEF	SBUS	2.28	1.04
tblVehicleEF	SBUS	2.37	1.45
tblVehicleEF	SBUS	0.99	0.50
tblVehicleEF	SBUS	1.7990e-003	7.5758e-004
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	9.6950e-003	9.8789e-003
tblVehicleEF	SBUS	0.01	7.0923e-003
tblVehicleEF	SBUS	1.8900e-004	9.3600e-005
tblVehicleEF	SBUS	1.7210e-003	7.2343e-004
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.4240e-003	2.4697e-003
tblVehicleEF	SBUS	0.01	6.7618e-003
tblVehicleEF	SBUS	1.7400e-004	8.6100e-005
tblVehicleEF	SBUS	1.0240e-003	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.71	0.33
tblVehicleEF	SBUS	5.6900e-004	0.00
tblVehicleEF	SBUS	0.06	0.05
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.08	0.05
tblVehicleEF	SBUS	3.5870e-003	1.8277e-003
tblVehicleEF	SBUS	8.5360e-003	8.0269e-003
tblVehicleEF	SBUS	1.1000e-004	6.5100e-005
tblVehicleEF	SBUS	1.0240e-003	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.03	0.51

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

tblVehicleEF	SBUS	5.6900e-004	0.00
tblVehicleEF	SBUS	0.07	0.13
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.09	0.06
tblVehicleEF	UBUS	1.75	0.64
tblVehicleEF	UBUS	8.0630e-003	4.5116e-003
tblVehicleEF	UBUS	13.25	7.38
tblVehicleEF	UBUS	0.82	0.83
tblVehicleEF	UBUS	1,616.16	954.90
tblVehicleEF	UBUS	7.49	5.22
tblVehicleEF	UBUS	0.27	0.14
tblVehicleEF	UBUS	5.7250e-003	6.8378e-003
tblVehicleEF	UBUS	0.67	0.21
tblVehicleEF	UBUS	0.07	0.04
tblVehicleEF	UBUS	0.08	0.16
tblVehicleEF	UBUS	0.03	0.06
tblVehicleEF	UBUS	4.9300e-003	3.9497e-003
tblVehicleEF	UBUS	9.1000e-005	2.4900e-005
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	7.8010e-003	0.02
tblVehicleEF	UBUS	4.7140e-003	3.7729e-003
tblVehicleEF	UBUS	8.3000e-005	2.2900e-005
tblVehicleEF	UBUS	1.3500e-004	0.01
tblVehicleEF	UBUS	1.6730e-003	3.4246e-003
tblVehicleEF	UBUS	8.4000e-005	0.00
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	5.1800e-004	0.01
tblVehicleEF	UBUS	0.04	0.02
tblVehicleEF	UBUS	0.01	7.2302e-003

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tblVehicleEF	UBUS	7.4000e-005	5.1600e-005
tblVehicleEF	UBUS	1.3500e-004	0.01
tblVehicleEF	UBUS	1.6730e-003	3.4246e-003
tblVehicleEF	UBUS	8.4000e-005	0.00
tblVehicleEF	UBUS	1.79	0.69
tblVehicleEF	UBUS	5.1800e-004	0.01
tblVehicleEF	UBUS	0.04	0.02
tblVehicleTrips	ST_TR	4.91	4.23
tblVehicleTrips	SU_TR	4.09	3.57
tblVehicleTrips	WD_TR	5.44	4.75
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	NumberCatalytic	3.78	0.00
tblWoodstoves	NumberNoncatalytic	3.78	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9230	0.0227	1.4041	1.2000e-004		8.3200e-003	8.3200e-003		8.3200e-003	8.3200e-003	0.0000	9.8458	9.8458	2.3400e-003	1.4000e-004	9.9455
Energy	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
Mobile	0.3514	0.2047	2.3919	6.6500e-003	0.6601	3.2800e-003	0.6634	0.1645	3.0500e-003	0.1676	0.0000	613.6968	613.6968	0.0263	0.0235	621.3525
Waste						0.0000	0.0000		0.0000	0.0000	17.6480	0.0000	17.6480	1.0430	0.0000	43.7223
Water						0.0000	0.0000		0.0000	0.0000	4.3568	0.0000	4.3568	0.0150	9.4700e-003	7.555
Total	**1.2831**	**0.3009**	**3.8272**	**7.2400e-003**	**0.6601**	**0.0175**	**0.6776**	**0.1645**	**0.0173**	**0.1819**	**22.0048**	**708.6968**	**730.7015**	**1.0883**	**0.0347**	**768.2355**

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Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9230	0.0227	1.4041	1.2000e-004		8.3200e-003	8.3200e-003		8.3200e-003	8.3200e-003	0.0000	9.8458	9.8458	2.3400e-003	1.4000e-004	9.9455
Energy	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
Mobile	0.3514	0.2047	2.3919	6.6500e-003	0.6601	3.2800e-003	0.6634	0.1645	3.0500e-003	0.1676	0.0000	613.6968	613.6968	0.0263	0.0235	621.3525
Waste						0.0000	0.0000		0.0000	0.0000	17.6480	0.0000	17.6480	1.0430	0.0000	43.7223
Water						0.0000	0.0000		0.0000	0.0000	4.3568	0.0000	4.3568	0.0150	9.4700e-003	7.5550
Total	**1.2831**	**0.3009**	**3.8272**	**7.2400e-003**	**0.6601**	**0.0175**	**0.6776**	**0.1645**	**0.0173**	**0.1819**	**22.0048**	**708.6968**	**730.7015**	**1.0883**	**0.0347**	**768.2355**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3514	0.2047	2.3919	6.6500e-003	0.6601	3.2800e-003	0.6634	0.1645	3.0500e-003	0.1676	0.0000	613.6968	613.6968	0.0263	0.0235	621.3525
Unmitigated	0.3514	0.2047	2.3919	6.6500e-003	0.6601	3.2800e-003	0.6634	0.1645	3.0500e-003	0.1676	0.0000	613.6968	613.6968	0.0263	0.0235	621.3525

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	897.75	799.47	674.73	1,967,439	1,967,439
Enclosed Parking with Elevator	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	897.75	799.47	674.73	1,967,439	1,967,439

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.392609	0.040642	0.308969	0.177896	0.031644	0.007414	0.008262	0.002362	0.002204	0.000645	0.024811	0.000394	0.002146
Enclosed Parking with Elevator	0.392609	0.040642	0.308969	0.177896	0.031644	0.007414	0.008262	0.002362	0.002204	0.000645	0.024811	0.000394	0.002146

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

Parking Lot	0.392609	0.040642	0.308969	0.177896	0.031644	0.007414	0.008262	0.002362	0.002204	0.000645	0.024811	0.000394	0.002146

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	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
NaturalGas Unmitigated	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602

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					

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Apartments Mid Rise	1.59573e+006	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.6000e-003**	**0.0735**	**0.0313**	**4.7000e-004**		**5.9400e-003**	**5.9400e-003**		**5.9400e-003**	**5.9400e-003**	**0.0000**	**85.1542**	**85.1542**	**1.6300e-003**	**1.5600e-003**	**85.6602**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.59573e+006	8.6000e-003	0.0735	0.0313	4.7000e-004		5.9400e-003	5.9400e-003		5.9400e-003	5.9400e-003	0.0000	85.1542	85.1542	1.6300e-003	1.5600e-003	85.6602
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.6000e-003**	**0.0735**	**0.0313**	**4.7000e-004**		**5.9400e-003**	**5.9400e-003**		**5.9400e-003**	**5.9400e-003**	**0.0000**	**85.1542**	**85.1542**	**1.6300e-003**	**1.5600e-003**	**85.6602**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

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

Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	734524	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	217600	0.0000	0.0000	0.0000	0.0000
Parking Lot	4200	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			
Apartments Mid Rise	734524	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	217600	0.0000	0.0000	0.0000	0.0000
Parking Lot	4200	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

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9230	0.0227	1.4041	1.2000e-004		8.3200e-003	8.3200e-003		8.3200e-003	8.3200e-003	0.0000	9.8458	9.8458	2.3400e-003	1.4000e-004	9.9455
Unmitigated	0.9230	0.0227	1.4041	1.2000e-004		8.3200e-003	8.3200e-003		8.3200e-003	8.3200e-003	0.0000	9.8458	9.8458	2.3400e-003	1.4000e-004	9.9455

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	0.1348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7454					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	7.5503	7.5503	1.4000e-004	1.4000e-004	7.5952
Landscaping	0.0420	0.0162	1.4013	7.0000e-005		7.7900e-003	7.7900e-003		7.7900e-003	7.7900e-003	0.0000	2.2955	2.2955	2.1900e-003	0.0000	2.3504
Total	**0.9230**	**0.0227**	**1.4040**	**1.1000e-004**		**8.3200e-003**	**8.3200e-003**		**8.3200e-003**	**8.3200e-003**	**0.0000**	**9.8458**	**9.8458**	**2.3300e-003**	**1.4000e-004**	**9.9455**

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

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	0.1348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7454					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	7.5503	7.5503	1.4000e-004	1.4000e-004	7.5952
Landscaping	0.0420	0.0162	1.4013	7.0000e-005		7.7900e-003	7.7900e-003		7.7900e-003	7.7900e-003	0.0000	2.2955	2.2955	2.1900e-003	0.0000	2.3504
Total	**0.9230**	**0.0227**	**1.4040**	**1.1000e-004**		**8.3200e-003**	**8.3200e-003**		**8.3200e-003**	**8.3200e-003**	**0.0000**	**9.8458**	**9.8458**	**2.3300e-003**	**1.4000e-004**	**9.9455**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.3568	0.0150	9.4700e-003	7.5550
Unmitigated	4.3568	0.0150	9.4700e-003	7.5550

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	12.3141 / 7.76324	4.3568	0.0150	9.4700e-003	7.5550
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.3568**	**0.0150**	**9.4700e-003**	**7.5550**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	12.3141 / 7.76324	4.3568	0.0150	9.4700e-003	7.5550
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000

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

Total	**4.3568**	**0.0150**	**9.4700e-003**	**7.5550**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	17.6480	1.0430	0.0000	43.7223
Unmitigated	17.6480	1.0430	0.0000	43.7223

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	86.94	17.6480	1.0430	0.0000	43.7223
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000

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

Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**17.6480**	**1.0430**	**0.0000**	**43.7223**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	86.94	17.6480	1.0430	0.0000	43.7223
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**17.6480**	**1.0430**	**0.0000**	**43.7223**

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment 3: EMFAC2021 Calculations

CalEEMod EMFAC2021 Emission Factors Input - 2023

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.005573	0.003332	0.013936	0.278522301	0.006284	0	0	0.088007	0
A	CH4_RUNEX	0.002042	0.00542	0.002328	0.002759	0.006439	0.00595	0.011071	0.273724732	0.005918	0.163653424	0.151085	0.082802	0.011046
A	CH4_STREX	0.066893	0.099431	0.074804	0.086436	0.022278	0.01295	0.011534	6.66723E-07	0.010995	0.007456787	0.181429	0.00802	0.026761
A	CO_IDLEX	0	0	0	0	0.204255	0.149372	0.675976	4.66197648	0.480919	0	0	2.136755	0
A	CO_RUNEX	0.612869	1.21176	0.682079	0.726549	0.79348	0.510335	0.470888	1.681435155	0.258207	2.088615529	11.57445	1.602782	1.111365
A	CO_STREX	3.117514	5.071041	3.428206	3.625871	2.429878	1.411136	1.402911	0.03440512	1.147404	0.819611326	7.838613	1.186878	2.558707
A	CO2_NBIO_IDLEX	0	0	0	0	8.540421	13.25203	152.1411	795.3133847	89.98895	0	0	202.0247	0
A	CO2_NBIO_RUNEX	253.5626	324.5861	334.841	401.9887	783.5071	825.4073	1279.466	1818.951405	1332.429	1394.900942	187.6396	988.5214	1672.208
A	CO2_NBIO_STREX	65.8725	85.42972	85.19617	101.6461	19.75562	10.94484	10.90044	0.308859713	10.03959	5.740883342	47.90752	5.567058	22.39856
A	NOX_IDLEX	0	0	0	0	0.039224	0.077423	0.893587	4.116333656	0.394425	0	0	1.481261	0
A	NOX_RUNEX	0.038446	0.115966	0.053182	0.06703	0.470521	0.618225	1.221181	2.793411545	0.750902	2.44476338	0.537143	3.00661	1.286254
A	NOX_STREX	0.239433	0.363029	0.292661	0.351791	0.437807	0.258766	1.311224	2.656554716	1.125315	0.080496456	0.136291	0.44215	0.284353
A	PM10_IDLEX	0	0	0	0	0.000599	0.001278	0.002649	0.003512441	0.000242	0	0	0.001665	0
A	PM10_PMBW	0.006448	0.008061	0.007697	0.007737	0.078	0.091	0.04553	0.094820144	0.048816	0.108488777	0.012	0.044916	0.044943
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009256	0.010564	0.012	0.034495892	0.012	0.029352334	0.004	0.010145	0.013276
A	PM10_RUNEX	0.00122	0.001819	0.00131	0.001352	0.01002	0.0164	0.01575	0.024465121	0.008459	0.006843821	0.002012	0.013568	0.019766
A	PM10_STREX	0.002059	0.002817	0.002095	0.002192	0.000201	0.000105	0.000139	5.13937E-06	0.000103	1.92834E-05	0.003894	7E-05	0.000333
A	PM25_IDLEX	0	0	0	0	0.000573	0.001223	0.002534	0.003355378	0.000231	0	0	0.001592	0
A	PM25_PMBW	0.002257	0.002821	0.002694	0.002708	0.0273	0.03185	0.015936	0.03318705	0.017086	0.037971072	0.0042	0.01572	0.01573
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002314	0.002641	0.003	0.008623973	0.003	0.007338083	0.001	0.002536	0.003319
A	PM25_RUNEX	0.001123	0.001674	0.001206	0.001245	0.009547	0.01567	0.015057	0.023400252	0.008086	0.006542835	0.001883	0.012956	0.018863
A	PM25_STREX	0.001893	0.00259	0.001927	0.002016	0.000185	9.67E-05	0.000127	4.72546E-06	9.51E-05	1.77304E-05	0.003663	6.44E-05	0.000306
A	ROG_DIURN	0.258413	0.501477	0.206644	0.241613	0.099015	0.059843	0.030519	0.000832758	0.031527	0.024141068	3.435381	0.046787	27.39923
A	ROG_HTSK	0.07997	0.144923	0.062676	0.07021	0.02704	0.01657	0.007887	0.00023717	0.008781	0.009826807	3.555217	0.01243	7.805064
A	ROG_IDLEX	0	0	0	0	0.02212	0.016322	0.029384	0.291216194	0.032868	0	0	0.24798	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.008034	0.024199	0.008991	0.011364	0.066481	0.093639	0.049825	0.034918023	0.024556	0.135489385	0.98245	0.086256	0.071866
A	ROG_RUNLS	0.202722	0.414467	0.158051	0.188398	0.145674	0.08743	0.064534	0.001901993	0.037586	0.015947294	3.717102	0.036353	0.183955
A	ROG_STREX	0.31454	0.51176	0.343059	0.42459	0.108664	0.063655	0.063571	3.61673E-06	0.05434	0.028716626	1.347169	0.046563	0.11408
A	SO2_IDLEX	0	0	0	0	8.33E-05	0.000127	0.001414	0.006697195	0.00085	0	0	0.001853	0
A	SO2_RUNEX	0.002507	0.003209	0.00331	0.003972	0.007664	0.007963	0.012189	0.016055594	0.012694	0.012816928	0.001855	0.009266	0.016389
A	SO2_STREX	0.000651	0.000845	0.000842	0.001005	0.000195	0.000108	0.000108	3.05339E-06	9.93E-05	5.67545E-05	0.000474	5.5E-05	0.000221
A	TOG_DIURN	0.258413	0.501477	0.206644	0.241613	0.099015	0.059843	0.030519	0.000832758	0.031527	0.024141068	0.077945	0.046787	27.39923
A	TOG_HTSK	0.07997	0.144923	0.062676	0.07021	0.02704	0.01657	0.007887	0.00023717	0.008781	0.009826807	3.555217	0.01243	7.805064
A	TOG_IDLEX	0	0	0	0	0.031528	0.022215	0.047368	0.597867815	0.043319	0	0	0.391227	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.011703	0.03529	0.013103	0.016526	0.082486	0.109639	0.068101	0.313769797	0.033939	0.312407908	1.181139	0.18539	0.095222
A	TOG_RUNLS	0.202722	0.414467	0.158051	0.188398	0.145674	0.08743	0.064534	0.001901993	0.037586	0.015947294	3.717102	0.036353	0.183955
A	TOG_STREX	0.344381	0.560312	0.375607	0.464871	0.118973	0.069694	0.069602	3.95986E-06	0.059496	0.031441091	1.464498	0.050981	0.124904
A	N2O_IDLEX	0	0	0	0	0.00058	0.001551	0.02322	0.129380016	0.013324	0	0	0.025169	0
A	N2O_RUNEX	0.004141	0.008462	0.005052	0.006393	0.036104	0.078616	0.149681	0.291377186	0.166931	0.202740826	0.037735	0.118062	0.070738
A	N2O_STREX	0.029868	0.036875	0.034247	0.036267	0.036624	0.020758	0.008091	7.62714E-07	0.010576	0.010724673	0.008068	0.005055	0.029867

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Demolition	8	0	160	0	204	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1728	0	4080
Site Preparation	5	0	50	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	540	0	0
Grading	13	0	260	0	1250	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2808	0	25000
Trenching - Wet Utilities	8	0	120	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1296	0	0
Trenching - dry utilities	5	0	25	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	270	0	0
Building Construction	158	29	36340	6670	540	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	392472	48691	3942
Architectural Coating	32	0	640	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	6912	0	0
Paving	23	0	460	0	126	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT			

Number of Days Per Year					
2021	10/2/23	12/31/23	91	65	
2022	1/1/24	11/22/24	327	234	
			418	**300**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	10/2/2023	10/27/2023	5	20
Site Preparation	10/28/2023	11/10/2023	5	10
Grading	11/11/2023	12/8/2023	5	20
Trenching - Wet Utilities	11/11/2023	12/1/2023	5	15
Trenching - dry utilities	12/2/2023	12/8/2023	5	5
Building Construction	12/9/2023	10/25/2024	5	230
Architectural Coating	10/26/2024	11/22/2024	5	20
Paving	11/23/2024	12/20/2024	5	20

Summary of Construction Traffic Emissions (EMFAC2021)

CATEGORY	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
						Grams								
Hauling	1776.75	106602.56	65480.681	544.392	9873.58	5085.62	14959.2	1485.66	2160.53	3646.19	61752132.47	9629.407	9896.145	64941919
Vendor	3697.56	127677.88	74994.9	715.039	14558.61	5548.95	20107.6	2190.61	2435.24	4625.85	78629654.47	7947.312	11273.69	82187896
Worker	43571.96	35768.46	456835.5	1198.971	121401.77	6807.98	128209.8	18267.11	2429.33	20696.44	121289318	4131.476	3457.352	122422896
Total (g)	49046.26	270048.8994	597311.09	2458.40226	145833.961	17442.54308	163276.5	21943.37761	7025.104973	28968.48258	261671105	21708.19	24627.18	269552710
Total (lbs)	108.13	595.36	1316.85	5.42	321.51	38.5	359.96	48.38	15.49	63.86	576886.0375	47.85838	54.29364	594262
Total (tons)	0.0541	0.298	0.658	0.003	0.161	0.0192	0.1800	0.0242	0.008	0.032	288.44	0.02	0.03	297.131
Total (MT)											261.67	0.02	0.02	269.55271

YEAR														
							Tons							
2023	0.0118	0.0648	0.1433	0.0006	0.0350	0.0042	0.0392	0.0053	0.0017	0.0070	56.9667	0.004726	0.005361	58.682528
2024	0.0423	0.2329	0.5151	0.0021	0.1258	0.0150	0.1408	0.0189	0.0061	0.0250	204.7044	0.016982	0.019266	210.87018

CalEEMod Construction Inputs - Onsite

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Demolition	8	0	160	0	204	0.5	0.5	0.5	LD_Mix	HDT_Mix	HHDT	80	0	102
Site Preparation	5	0	50	0	0	0.5	0.5	0.5	LD_Mix	HDT_Mix	HHDT	25	0	0
Grading	13	0	260	0	1250	0.5	0.5	0.5	LD_Mix	HDT_Mix	HHDT	130	0	625
Trenching - Wet Utilities	8	0	120	0	0	0.5	0.5	0.5	LD_Mix	HDT_Mix	HHDT	60	0	0
Trenching - dry utilities	5	0	25	0	0	0.5	0.5	0.5	LD_Mix	HDT_Mix	HHDT	12.5	0	0
Building Construction	158	29	36340	6670	540	0.5	0.5	0.5	LD_Mix	HDT_Mix	HHDT	18170	3335	270
Architectural Coating	32	0	640	0	0	0.5	0.5	0.5	LD_Mix	HDT_Mix	HHDT	320	0	0
Paving	23	0	460	0	126	0.5	0.5	0.5	LD_Mix	HDT_Mix	HHDT			

Number of Days Per Year					
2021	10/2/23	12/31/23	91	65	
2022	1/1/24	11/22/24	327	234	
			418	**300**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	10/2/2023	10/27/2023	5	20
Site Preparation	10/28/2023	11/10/2023	5	10
Grading	11/11/2023	12/8/2023	5	20
Trenching - Wet Utilities	11/11/2023	12/1/2023	5	15
Trenching - dry utilities	12/2/2023	12/8/2023	5	5
Building Construction	12/9/2023	10/25/2024	5	230
Architectural Coating	10/26/2024	11/22/2024	5	20
Paving	11/23/2024	12/20/2024	5	20

Summary of Construction Traffic Emissions (EMFAC2021) - Onsite

CATEGORY	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
						Grams								
Hauling	658.50	17143.55	11632.72	30.212	298.10	160.78	458.9	44.86	72.14	116.99	3500213.709	863.3722	564.7903	3690105.5
Vendor	1775.75	36634.96	26184.5	74.516	997.17	399.65	1396.8	150.04	185.50	335.54	8363753.941	1488.713	1271.372	8779840.6
Worker	38803.54	11950.11	154838.3	82.630	5620.45	397.11	6017.6	845.70	187.80	1033.50	8358747.573	2986.032	1347.368	8834914.1
Total (g)	41237.79	65728.62602	192655.5	187.3585192	6915.7205	957.5389614	7873.2595	1040.596205	445.4410332	1486.037238	20222715.22	5338.117	3183.53	21304860
Total (lbs)	90.91	144.91	424.73	0.41	15.25	2.1	17.36	2.29	0.98	3.28	44583.45546	11.76853	7.018483	46969.177
Total (tons)	0.0455	0.072	0.212	0.000	0.008	0.0011	0.0087	0.0011	0.000	0.002	22.29	0.01	0.00	23.484588
Total (MT)											20.22	0.01	0.00	21.30486

YEAR														
							Tons							
2023	0.0099	0.0158	0.0462	0.0000	0.0017	0.0002	0.0019	0.0002	0.0001	0.0004	4.4026	0.001162	0.000693	4.6381394
2024	0.0356	0.0567	0.1661	0.0002	0.0060	0.0008	0.0068	0.0009	0.0004	0.0013	15.8202	0.004176	0.00249	16.666721

CalEEMod EMFAC2021 Fleet Mix Input - 2025

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

SBUS	MH
0.000418	0.00204

CalEEMod EMFAC2021 Emission Factors Input - 2025

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

CalEEMod EMFAC2021 Fleet Mix Input - 2030

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

SBUS	MH
0.000394	0.002146

CalEEMod EMFAC2021 Emission Factors Input - 2030

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

Attachment 4: Project Construction Emissions and Health Risk Calculations

Hayward Park Residential

DPM Emissions and Modeling Emission Rates - With Proposed Controls

Construction Year	Activity	Area Source	DPM Emissions (ton/year)	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2023	Construction	DPM_CONST	0.0019	3.7	0.00099	1.24E-04	12097.4	1.03E-08
2024	Construction	DPM_CONST	0.0103	20.5	0.0054	0.00068	12097.4	5.634E-08
		Construction Hours						
		Weekday hr/day =	12	(7am - 7pm)				
		days/yr =	Varies					
		hours/year =	Varies					

Hayward Park Residential

PM2.5 Fugitive Dust Emissions for Modeling - With Proposed Controls

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 $g/s/m^2$
2023	Construction	PM25_CONST	0.0104	20.9	0.00551	6.94E-04	12097.4	5.74E-08
2024	Construction	PM25_CONST	0.0009	1.8	0.0005	0.000060	12097.4	4.93E-09
		Construction Hours						
		Weekday hr/day =	12		(7am - 7pm)			
		days/yr =	Varies					
		hours/year =	Varies					

Haward Park Residential Project , San Mateo - Construction Impacts
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site Residential Receptors - 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

		Exposure Information				Infant/Child	Adult			Adult		Maximum	
	Exposure		DPM Conc (ug/m3)		Age	Cancer	Modeled DPM Conc (ug/m3)		Age	Cancer		Fugitive	Total
Exposure Year	Duration (years)	Age	Year	Annual	Sensitivity Factor	Risk (per million)	Year	Annual	Sensitivity Factor	Risk (per million)	HI	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2023	0.0029	10	0.04							
1	1	0 - 1	2023	0.0029	10	0.48	2023	0.0029	1	0.01	0.001	0.0339	0.037
2	1	1 - 2	2024	0.0159	10	2.61	2024	0.0159	1	0.05	0.003	0.0029	0.019
3	1	2 - 3	2025	0.0000	3	0.00	2025	0.0000	1	0.00			
4	1	3 - 4	2026	0.0000	3	0.00	2026	0.0000	1	0.00			
5	1	4 - 5	2027	0.0000	3	0.00	2027	0.0000	1	0.00			
6	1	5 - 6	2028	0.0000	3	0.00	2028	0.0000	1	0.00			
7	1	6 - 7	2029	0.0000	3	0.00	2029	0.0000	1	0.00			
8	1	7 - 8	2030	0.0000	3	0.00	2030	0.0000	1	0.00			
9	1	8 - 9	2031	0.0000	3	0.00	2031	0.0000	1	0.00			
10	1	9 - 10	2032	0.0000	3	0.00	2032	0.0000	1	0.00			
11	1	10 - 11	2033	0.0000	3	0.00	2033	0.0000	1	0.00			
12	1	11 - 12	2034	0.0000	3	0.00	2034	0.0000	1	0.00			
13	1	12 - 13	2035	0.0000	3	0.00	2035	0.0000	1	0.00			
14	1	13 - 14	2036	0.0000	3	0.00	2036	0.0000	1	0.00			
15	1	14 - 15	2037	0.0000	3	0.00	2037	0.0000	1	0.00			
16	1	15 - 16	2038	0.0000	3	0.00	2038	0.0000	1	0.00			
17	1	16-17	2039	0.0000	1	0.00	2039	0.0000	1	0.00			
18	1	17-18	2040	0.0000	1	0.00	2040	0.0000	1	0.00			
19	1	18-19	2041	0.0000	1	0.00	2041	0.0000	1	0.00			
20	1	19-20	2042	0.0000	1	0.00	2042	0.0000	1	0.00			
21	1	20-21	2043	0.0000	1	0.00	2043	0.0000	1	0.00			
22	1	21-22	2044	0.0000	1	0.00	2044	0.0000	1	0.00			
23	1	22-23	2045	0.0000	1	0.00	2045	0.0000	1	0.00			
24	1	23-24	2046	0.0000	1	0.00	2046	0.0000	1	0.00			
25	1	24-25	2047	0.0000	1	0.00	2047	0.0000	1	0.00			
26	1	25-26	2048	0.0000	1	0.00	2048	0.0000	1	0.00			
27	1	26-27	2049	0.0000	1	0.00	2049	0.0000	1	0.00			
28	1	27-28	2050	0.0000	1	0.00	2050	0.0000	1	0.00			
29	1	28-29	2051	0.0000	1	0.00	2051	0.0000	1	0.00			
30	1	29-30	2052	0.0000	1	0.00	2052	0.0000	1	0.00			
Total Increased Cancer Risk						**3.13**				**0.05**			

A+ Imersion Preeschool & Pre-K, San Mateo
Maximum Child Cancer Risk - Indoor Exposure
Construction Exposures (1.0 meter receptor heights)
2-Year Preeschool & Pre-K Child Exposure (Ages 3 - 5 years)

Cancer Risk Calculation Method

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 DAF x 8hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DAF = Daycare Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (DEHR/8 hrs)
SHR = Hours of emission source operation
DEHR = Daycare activity exposure hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
DHR = Daycare operation hours
A = Inhalation absorption factor
EF = Days per Year
10^{-6} = Conversion factor

Values

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

	Infant	Child
Age -->	0 - <2	2 - <5
Parameter		
ASF	10	3
8-Hr BR* =	1200	520
DEHR** =	9.67	9.67
DHR =	11	11
SHR =	24	24
A =	1	1
EF =	260	260
AT =	70	70
DAF =	1.21	1.21

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

** DEHR based on 12 hours - 80 minutes of indoor exposure

Construction Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information				Maximum	
Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	Annual Conc (ug/m3) DPM	Cancer Risk (per million) DPM	HI	Fugitive PM2.5	Total PM2.5
1	2023	1	2 - 5	3	0.0001	0.00211	0.000	0.0006	0.001
2	2024	1	2 - 5	3	0.0006	0.01224	0.000	0.0001	0.001
Total Increased Cancer Risk						0.014			

Haward Park Residential Project , San Mateo - Construction Impacts
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction Impacts at Off-Site Residential Receptors - 4.5 meter receptor height

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

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

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

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

Values

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

		Exposure Information				Infant/Child	Adult			Adult			
	Exposure		DPM Conc (ug/m3)		Age	Cancer	Modeled DPM Conc (ug/m3)		Age	Cancer		Maximum	
Exposure	Duration				Sensitivity	Risk			Sensitivity	Risk			
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	HI	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.0030	10	0.04							
1	1	0 - 1	2023	0.0030	10	0.49	2023	0.0030	1	0.01	0.001	0.0226	0.026
2	1	1 - 2	2024	0.0165	10	2.71	2024	0.0165	1	0.05	0.003	0.0019	0.018
3	1	2 - 3	2025	0.0000	3	0.00	2025	0.0000	1	0.00			
4	1	3 - 4	2026	0.0000	3	0.00	2026	0.0000	1	0.00			
5	1	4 - 5	2027	0.0000	3	0.00	2027	0.0000	1	0.00			
6	1	5 - 6	2028	0.0000	3	0.00	2028	0.0000	1	0.00			
7	1	6 - 7	2029	0.0000	3	0.00	2029	0.0000	1	0.00			
8	1	7 - 8	2030	0.0000	3	0.00	2030	0.0000	1	0.00			
9	1	8 - 9	2031	0.0000	3	0.00	2031	0.0000	1	0.00			
10	1	9 - 10	2032	0.0000	3	0.00	2032	0.0000	1	0.00			
11	1	10 - 11	2033	0.0000	3	0.00	2033	0.0000	1	0.00			
12	1	11 - 12	2034	0.0000	3	0.00	2034	0.0000	1	0.00			
13	1	12 - 13	2035	0.0000	3	0.00	2035	0.0000	1	0.00			
14	1	13 - 14	2036	0.0000	3	0.00	2036	0.0000	1	0.00			
15	1	14 - 15	2037	0.0000	3	0.00	2037	0.0000	1	0.00			
16	1	15 - 16	2038	0.0000	3	0.00	2038	0.0000	1	0.00			
17	1	16-17	2039	0.0000	1	0.00	2039	0.0000	1	0.00			
18	1	17-18	2040	0.0000	1	0.00	2040	0.0000	1	0.00			
19	1	18-19	2041	0.0000	1	0.00	2041	0.0000	1	0.00			
20	1	19-20	2042	0.0000	1	0.00	2042	0.0000	1	0.00			
21	1	20-21	2043	0.0000	1	0.00	2043	0.0000	1	0.00			
22	1	21-22	2044	0.0000	1	0.00	2044	0.0000	1	0.00			
23	1	22-23	2045	0.0000	1	0.00	2045	0.0000	1	0.00			
24	1	23-24	2046	0.0000	1	0.00	2046	0.0000	1	0.00			
25	1	24-25	2047	0.0000	1	0.00	2047	0.0000	1	0.00			
26	1	25-26	2048	0.0000	1	0.00	2048	0.0000	1	0.00			
27	1	26-27	2049	0.0000	1	0.00	2049	0.0000	1	0.00			
28	1	27-28	2050	0.0000	1	0.00	2050	0.0000	1	0.00			
29	1	28-29	2051	0.0000	1	0.00	2051	0.0000	1	0.00			
30	1	29-30	2052	0.0000	1	0.00	2052	0.0000	1	0.00			
Total Increased Cancer Risk						**3.25**				**0.06**			

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Construction Impacts
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction Impacts at Off-Site Residential Receptors - 7.6 meter receptor height

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

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
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

		Exposure Information				Infant/Child	Adult			Adult			
	Exposure		DPM Conc (ug/m3)		Age	Cancer	Modeled DPM Conc (ug/m3)		Age	Cancer		Maximum	
Exposure Year	Duration (years)	Age	Year	Annual	Sensitivity Factor	Risk (per million)	Year	Annual	Sensitivity Factor	Risk (per million)	HI	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.0026	10	0.04							
1	1	0 - 1	2023	0.0026	10	0.43	2023	0.0026	1	0.01	0.001	0.0090	0.012
2	1	1 - 2	2024	0.0145	10	2.37	2024	0.0145	1	0.04	0.003	0.0008	0.015
3	1	2 - 3	2025	0.0000	3	0.00	2025	0.0000	1	0.00			
4	1	3 - 4	2026	0.0000	3	0.00	2026	0.0000	1	0.00			
5	1	4 - 5	2027	0.0000	3	0.00	2027	0.0000	1	0.00			
6	1	5 - 6	2028	0.0000	3	0.00	2028	0.0000	1	0.00			
7	1	6 - 7	2029	0.0000	3	0.00	2029	0.0000	1	0.00			
8	1	7 - 8	2030	0.0000	3	0.00	2030	0.0000	1	0.00			
9	1	8 - 9	2031	0.0000	3	0.00	2031	0.0000	1	0.00			
10	1	9 - 10	2032	0.0000	3	0.00	2032	0.0000	1	0.00			
11	1	10 - 11	2033	0.0000	3	0.00	2033	0.0000	1	0.00			
12	1	11 - 12	2034	0.0000	3	0.00	2034	0.0000	1	0.00			
13	1	12 - 13	2035	0.0000	3	0.00	2035	0.0000	1	0.00			
14	1	13 - 14	2036	0.0000	3	0.00	2036	0.0000	1	0.00			
15	1	14 - 15	2037	0.0000	3	0.00	2037	0.0000	1	0.00			
16	1	15 - 16	2038	0.0000	3	0.00	2038	0.0000	1	0.00			
17	1	16-17	2039	0.0000	1	0.00	2039	0.0000	1	0.00			
18	1	17-18	2040	0.0000	1	0.00	2040	0.0000	1	0.00			
19	1	18-19	2041	0.0000	1	0.00	2041	0.0000	1	0.00			
20	1	19-20	2042	0.0000	1	0.00	2042	0.0000	1	0.00			
21	1	20-21	2043	0.0000	1	0.00	2043	0.0000	1	0.00			
22	1	21-22	2044	0.0000	1	0.00	2044	0.0000	1	0.00			
23	1	22-23	2045	0.0000	1	0.00	2045	0.0000	1	0.00			
24	1	23-24	2046	0.0000	1	0.00	2046	0.0000	1	0.00			
25	1	24-25	2047	0.0000	1	0.00	2047	0.0000	1	0.00			
26	1	25-26	2048	0.0000	1	0.00	2048	0.0000	1	0.00			
27	1	26-27	2049	0.0000	1	0.00	2049	0.0000	1	0.00			
28	1	27-28	2050	0.0000	1	0.00	2050	0.0000	1	0.00			
29	1	28-29	2051	0.0000	1	0.00	2051	0.0000	1	0.00			
30	1	29-30	2052	0.0000	1	0.00	2052	0.0000	1	0.00			
Total Increased Cancer Risk						**2.84**				**0.05**			

* Third trimester of pregnancy

Attachment 5: Emissions Calculations, Modeling Results, and Health Risk Calculations from Existing TAC Sources; Off-Site MEI.

Hayward Park, San Mateo, CA
DPM Modeling - Rail Line Information and DPM and PM2.5 Emission Rates
Caltrain Electrification and Diesel-Powered Freight Trains

Year	Description	No. Lines	Link Width (ft)	Link Width (m)	Link Length (ft)	Link Length (miles)	Link Length (m)	Release Height (m)	No. Trains per Day	Train Travel Speed (mph)	DPM Emission Rates			
											Average Daily Emission Rate (g/mi/day)	Average Daily Emission Rate (g/day)	Link Emission Rate (g/s)	Link Emission Rate (lb/hr)
2023-2024	Caltrain North of Station	1	12	3.7	1,453	0.28	443	5.0	83	30	248.3	68.3	7.91E-04	6.27E-03
	Caltrain at Station	1	12	3.7	715	0.14	218	5.0	42	5	150.0	20.3	2.35E-04	1.87E-03
	Caltrain South of Station	1	12	3.7	896	0.17	273	5.0	83	30	248.3	42.1	4.87E-04	3.87E-03
	Caltrain - Skip Station	1	12	3.7	3,063	0.58	934	5.0	41	40	92.5	53.6	6.21E-04	4.93E-03
	Freight Trains	1	12	3.7	3,063	0.58	934	5.0	4	40	16.7	9.7	1.12E-04	8.91E-04
	Total	**1**	-	-	-	-	-	-	-	-	**755.7**	**194.1**	**2.25E-03**	**1.78E-02**
2025+	Caltrain North of Station	1	12	3.7	1,453	0.28	443	5.0	17	30	18.2	5.0	5.78E-05	4.59E-04
	Caltrain at Station	1	12	3.7	715	0.14	218	5.0	0	5	0.0	0.0	0.00E+00	0.00E+00
	Caltrain South of Station	1	12	3.7	896	0.17	273	5.0	17	30	18.2	3.1	3.56E-05	2.83E-04
	Caltrain - Skip Station	1	12	3.7	3,063	0.58	934	5.0	17	40	13.6	7.9	9.14E-05	7.26E-04
	Freight Trains	1	12	3.7	3,063	0.58	934	5.0	4	40	6.5	3.8	4.38E-05	3.47E-04
	Total	**1**	-	-	-	-	-	-	-	-	**56.5**	**19.8**	**2.29E-04**	**1.82E-03**

Notes: Emission based on Emission Factors for Locomotives, USEPA 2009 (EPA-420-F-09-025)
Average emissions calculated for periods 2023-2024 and 2025 on.
Fuel correction factors from Offroad Modeling Change Technical memo, Changes to the Locomotive Inventory, CARB July 2006.
PM2.5 calculated as 92% of PM emissions (CARB CEIDERS PM2.5 fractions)
While at the station trains assumed to operate at a load factor of 0.1 during low speed travel and idle.
Nine Caltrain trains assumed to be diesel in 2025. These will be operated only during weekday peak periods.
Passenger trains assumed to operate for 24 hours per day
Freight trains assumed to operate for 24 hours per day

Caltrain Diesel Trains	***before electrification*** 2023-2024			***with electrification*** 2025+		
Arrive/Depart Station	***Stop at Station***	***Skip Station***	***Total***	***Stop at Station***	***Skip Station***	***Total***
Passenger trains - weekday =	46	58	104	0	24	24
Passenger trains - weekend =	32	0	32	0	0	0
Passenger trains - Sat only =	0	0	0	0	0	0
Total Trains =	78	58	136	0	24	24
Annual average daily trains =	42	41	83	0	17	17
Locomotive horsepower =	3283	(before 2025)		3283	(before 2025)	
	3467	(2025 and later)		3467	(2025 and later)	
Locomotives per train =	1			1		
Locomotive engine load =	0.5			0.5		
Freight						
Freight trains per day =	4	7 days/week		4	7 days/week	
Locomotive horsepower =	2300			2300		
Locomotives per train =	2			2		
Total horsepower =	4600			4600		
Locomotive engine load =	0.5			0.5		

Locomotive DPM Emission Factors (g/hp-hr)

Train Type	2023-2024	2025+
Passenger	0.077	0.0259
Freight	0.087	0.033

* average emissions for period.

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

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

Hayward Park Residential - San Mateo, CA
AERMOD Railroad DPM Risk Modeling - Construction MEI Cancer Risk
Rail Impacts at Off-Site Receptors (2nd Floor)
Caltrain and Diesel-Powered Freight Trains

Cancer Risk Calculation Method

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

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

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

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

Values

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

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age --> Parameter	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Rail Cancer Risk by Year - Construction MEI Receptor Location (2nd Floor)

Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)	Maximum Hazard Index	Maximum PM2.5 (ug/m3)
0	2023	0.25	-0.25 - 0*	10	0.0484	0.658	0.010	0.044
1	2024	1	1	10	0.0484	7.943	0.010	0.044
2	2025	1	2	10	0.0043	0.706	0.001	0.004
3	2026	1	3	3	0.0043	0.111	0.001	0.004
4	2027	1	4	3	0.0043	0.111	0.001	0.004
5	2028	1	5	3	0.0043	0.111	0.001	0.004
6	2029	1	6	3	0.0043	0.111	0.001	0.004
7	2030	1	7	3	0.0043	0.111	0.001	0.004
8	2031	1	8	3	0.0043	0.111	0.001	0.004
9	2032	1	9	3	0.0043	0.111	0.001	0.004
10	2033	1	10	3	0.0043	0.111	0.001	0.004
11	2034	1	11	3	0.0043	0.111	0.001	0.004
12	2035	1	12	3	0.0043	0.111	0.001	0.004
13	2036	1	13	3	0.0043	0.111	0.001	0.004
14	2037	1	14	3	0.0043	0.111	0.001	0.004
15	2038	1	15	3	0.0043	0.111	0.001	0.004
16	2039	1	16	3	0.0043	0.111	0.001	0.004
17	2040	1	17	1	0.0043	0.012	0.001	0.004
18	2041	1	18	1	0.0043	0.012	0.001	0.004
19	2042	1	19	1	0.0043	0.012	0.001	0.004
20	2043	1	20	1	0.0043	0.012	0.001	0.004
21	2044	1	21	1	0.0043	0.012	0.001	0.004
22	2045	1	22	1	0.0043	0.012	0.001	0.004
23	2046	1	23	1	0.0043	0.012	0.001	0.004
24	2047	1	24	1	0.0043	0.012	0.001	0.004
25	2048	1	25	1	0.0043	0.012	0.001	0.004
26	2049	1	26	1	0.0043	0.012	0.001	0.004
27	2050	1	27	1	0.0043	0.012	0.001	0.004
28	2051	1	28	1	0.0043	0.012	0.001	0.004
29	2052	1	29	1	0.0043	0.012	0.001	0.004
30	2053	1	30	1	0.0043	0.012	0.001	0.004
Total Increased Cancer Risk						**11.04**		

* Third trimester of pregnancy

Concar Dr	Concar W/o Ramps		Concar E/o Ramps		Concar E/o Del	
	In	Out	In	Out	In	Out
AM	93	137	725	1013	478	525
PM	194	99	839	735	795	555
	1435	1180	7820	8740	6365	5400

	Concar W/o Ramps	Concar E/o Ramps	Concar E/o Del
2025 with	**2615**	**16560**	**11765**

Delaware St.	Del N/o Concar		Del S/o Concar	
	In	Out	In	Out
AM	901	736	794	951
PM	824	1040	1020	978
	8625	8880	9070	9645

	Del N/o Concar	Del S/o Concar
2025 with	**17505**	**18715**

SR 92	2019	2025
RAMPS		
EB Off	8029	**8270**
WB OFF	11632	**11981**
WB On	7000	**7210**
WB	38137	39281
EB	43863	45179
Total	**82000**	**84460**

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.014	0.482	0.518
Truck 2	0.011	0.87	0.113
Non-Truck	0.975	0.017	0.96

	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph
PM2_5 Ex														
Dsl														
NonTruck	0.000406789	0.000329361	0.000244361	0.000186226	0.00015515	0.00013738	0.000127942	0.000126	0.00013	0.000141	0.000159	0.000181	0.000207	0.000213
Truck1	0.028428967	0.023185451	0.019082894	0.015786155	0.01310628	0.01093415	0.009205843	0.007884	0.006948	0.006389	0.006207	0.006411	0.007023	0.007873
Truck2	0.04699206	0.038554917	0.025447896	0.016711985	0.01312187	0.01130764	0.01035265	0.010258	0.011026	0.012666	0.015187	0.017927	0.02053	0.02053
Gas														
NonTruck	0.008498728	0.005360669	0.003566757	0.002503073	0.00185257	0.00144589	0.001189945	0.001033	0.000945	0.000912	0.000927	0.000995	0.001125	0.001221
Truck1	0.001706591	0.001261953	0.000971246	0.000772203	0.00063237	0.00053426	0.000468184	0.000429	0.000413	0.000419	0.000447	0.000496	0.000569	0.000654
Truck2	0.000800533	0.000504783	0.000335796	0.000235655	0.00017446	0.00013624	0.000112228	9.75E-05	8.94E-05	8.64E-05	8.81E-05	9.47E-05	0.000107	0.000117
PM2.5 Running Exh	**0.009630496**	**0.006319699**	**0.004280218**	**0.003040308**	**0.00229612**	**0.00183012**	**0.00153549**	**0.00136**	**0.001274**	**0.001262**	**0.00132**	**0.001441**	**0.001633**	**0.001745**
DPM Running Exha	**0.00063908**	**0.000537565**	**0.000421277**	**0.000335848**	**0.00028743**	**0.00026018**	**0.000247409**	**0.000249**	**0.000261**	**0.000285**	**0.000322**	**0.000368**	**0.000419**	**0.000419**
TOG Ex														
Dsl														
NonTruck	0.005603038	0.004178568	0.002469579	0.001485574	0.00107491	0.00082886	0.0006521	0.000525	0.000437	0.000378	0.000343	0.00034	0.000356	0.000363
Truck1	0.162207823	0.134728085	0.113371141	0.096117314	0.0818279	0.06984532	0.059784313	0.05142	0.044628	0.039354	0.035598	0.033419	0.032944	0.033151
Truck2	0.277522048	0.19613643	0.102242705	0.052126127	0.03718177	0.02943529	0.023625839	0.019682	0.017541	0.017146	0.018439	0.020356	0.021914	0.021938
Gas														
NonTruck	0.131601175	0.084013631	0.056555954	0.040129604	0.03000096	0.02362298	0.01958575	0.017095	0.015705	0.015188	0.01546	0.016568	0.018696	0.020251
Truck1	0.067982292	0.046087044	0.032645849	0.024052551	0.01838303	0.01457774	0.012038992	0.010426	0.009551	0.009322	0.009719	0.010792	0.012667	0.014306
Truck2	0.06808207	0.043167777	0.028876247	0.02037624	0.01516538	0.01190338	0.009851915	0.008597	0.007909	0.007669	0.007838	0.008443	0.009584	0.010414
TOG Running Exha	**0.140798415**	**0.091151152**	**0.06103644**	**0.043054703**	**0.03227775**	**0.0254772**	**0.021105685**	**0.018357**	**0.016777**	**0.016131**	**0.016332**	**0.017421**	**0.019561**	**0.021118**
DEOG Running Exh	**0.006381159**	**0.004684134**	**0.002481629**	**0.00122348**	**0.00082958**	**0.00064073**	**0.000512504**	**0.000425**	**0.000367**	**0.000331**	**0.000315**	**0.000318**	**0.000331**	**0.000344**
PM2_5 BW														
Dsl														
NonTruck	0.000301328	0.000305794	0.000309726	0.000311322	0.0002878	0.00027478	0.000262376	0.000254	0.000243	0.000232	0.000227	0.000225	0.000223	0.000223
Truck1	0.013821243	0.013821243	0.013821243	0.013821243	0.01382124	0.01382124	0.013821243	0.013821	0.013821	0.013821	0.013821	0.013821	0.013821	0.013821
Truck2	0.028334347	0.028334347	0.028131654	0.027648336	0.0253665	0.02418635	0.021494809	0.019913	0.018331	0.017192	0.017192	0.017192	0.017192	0.017192
Gas														
NonTruck	0.002385294	0.002945831	0.003506735	0.004066798	0.00438507	0.00447089	0.004556825	0.004094	0.003082	0.002068	0.001406	0.001095	0.000783	0.000783
Truck1	0.014376775	0.014376775	0.014376775	0.014376775	0.01437677	0.01437677	0.014376775	0.014377	0.014377	0.014377	0.014377	0.014377	0.014377	0.014377
Truck2	0.002471104	0.002471104	0.002470176	0.002434877	0.00201086	0.00179867	0.001678819	0.001672	0.001664	0.001659	0.001659	0.001659	0.001659	0.001659
PM2.5 BW (grams/	**0.003353088**	**0.003903966**	**0.004452441**	**0.004994355**	**0.00525197**	**0.00530763**	**0.005348403**	**0.004872**	**0.003856**	**0.002845**	**0.002195**	**0.001889**	**0.001583**	**0.001583**

TOG Running Loss Emissions Factor (grams/veh-hour)	
Gas	
NonTruck	0.948058459
Truck1	0.025835796
Truck2	0.026591481
TOG Running Loss	**1.000485737**
HFC Running Loss	**0.015019223**
CH4 Running Loss	**0.151394742**

ROG Running Loss Emissions Factor (grams/veh-hour)	
Gas	
NonTruck	0
Truck1	0
Truck2	0
ROG Running L	**0**

PM2_5 TW	
Dsl	
NonTruck	5.71742E-05
Truck1	0.001446
Truck2	0.004595872
Gas	
NonTruck	0.001916943
Truck1	0.001036
Truck2	0.000341878
PM2_5 TW	**0.002013828**

PM10 TW	
Dsl	
NonTruck	0
Truck1	0
Truck2	0
Gas	
NonTruck	0
Truck1	0
Truck2	0
PM10 TW	**0**

File Name: San Mateo (SF) - 2023 - Annual.EF
EMFAC2021/CT-EMFAC2017:
Run Date: 1/25/2022 16:12
Area: San Mateo (SF)
Analysis Year: 2023
Season: Annual

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Vehicle Category	VMT Fraction Across Category	Diesel VMT Within Cat	Gas VMT Fraction Within Category
Truck 1	0.014	0.482	0.518
Truck 2	0.011	0.87	0.113
Non-Truck	0.975	0.017	0.96

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Road Type:		Freeway	Major/Collector
Silt Loading Factor:	CARB	0.015 g/m2	0.032 g/m2
Precipitation Correction:	CARB	P = 60 days	N = 365 days

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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	55 mph	60 mph	65 mph	70 mph
PM2.5	0.009630496	0.00632	0.00428	0.00304	0.002296	0.00183	0.001535	0.00136	0.001274	0.001262	0.00132	0.001441	0.001633	0.001745
PM10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOx	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO														
HC														
TOG	0.140798415	0.091151	0.061036	0.043055	0.032278	0.025477	0.021106	0.018357	0.016777	0.016131	0.016332	0.017421	0.019561	0.021118
ROG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,3-Butadiene														
Acetaldehyde														
Acrolein														
Benzene														
Diesel PM	0.000639082	0.000538	0.000421	0.000336	0.000287	0.00026	0.000247	0.000249	0.000261	0.000285	0.000322	0.000368	0.000419	0.000419
Ethylbenzene														
Formaldehyde														
Naphthalene														
POM														
DEOG	0.006381159	0.004684	0.002482	0.001223	0.00083	0.000641	0.000513	0.000425	0.000367	0.000331	0.000315	0.000318	0.000331	0.000344
CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N2O														
CH4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BC														

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph
Gasoline	0.074234	0.060034	0.049124	0.040865	0.034934	0.031008	0.028719	0.027786	0.027897	0.028696	0.029898	0.031	0.031925	0.031925
Diesel	0.007686	0.006432	0.004914	0.004206	0.003682	0.003262	0.002995	0.002791	0.002666	0.002665	0.002747	0.00288	0.003095	0.003095

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

Pollutant Name	Emission Factor
HC	
TOG	1.000485737
ROG	0
1,3-Butadiene	
Benzene	
Ethylbenzene	
Naphthalene	
CH4	0.151394742
HFC	0.015019223

==========

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

Pollutant Name	
PM2.5	0.002013828
PM10	0

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Fleet Average Brake Wear 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	55 mph	60 mph	65 mph	70 mph
PM2.5	0.003353088	0.003904	0.004452	0.004994	0.005252	0.005308	0.005348	0.004872	0.003856	0.002845	0.002195	0.001889	0.001583	0.001583
PM10	0	0	0	0	0	0	0	0	0	0	0	0	0	0

==========

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

Pollutant Name	FW Emission Factor	MC Emissions Factor
PM2.5	0.007318	0.014582
PM10	0.048786	0.097216

==========END==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.007	0.482	0.518
Truck 2	0.005	0.87	0.113
Non-Truck	0.988	0.017	0.96

	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph
PM2_5 Ex														
Dsl														
NonTruck	0.000406789	0.000329361	0.000244361	0.000186226	0.00015515	0.00013738	0.000127942	0.000126	0.00013	0.000141	0.000159	0.000181	0.000207	0.000213
Truck1	0.028428967	0.023185451	0.019082894	0.015786155	0.01310628	0.01093415	0.009205843	0.007884	0.006948	0.006389	0.006207	0.006411	0.007023	0.007873
Truck2	0.04699206	0.038554917	0.025447896	0.016711985	0.01312187	0.01130764	0.01035265	0.010258	0.011026	0.012666	0.015187	0.017927	0.02053	0.02053
Gas														
NonTruck	0.008498728	0.005360669	0.003566757	0.002503073	0.00185257	0.00144589	0.001189945	0.001033	0.000945	0.000912	0.000927	0.000995	0.001125	0.001221
Truck1	0.001706591	0.001261953	0.000971246	0.000772203	0.00063237	0.00053426	0.000468184	0.000429	0.000413	0.000419	0.000447	0.000496	0.000569	0.000654
Truck2	0.000800533	0.000504783	0.000335796	0.000235655	0.00017446	0.00013624	0.000112228	9.75E-05	8.94E-05	8.64E-05	8.81E-05	9.47E-05	0.000107	0.000117
PM2.5 Running Exh	**0.009248563**	**0.005988179**	**0.004034681**	**0.002857674**	**0.00214628**	**0.00170176**	**0.001422115**	**0.001254**	**0.001169**	**0.001152**	**0.001196**	**0.0013**	**0.001473**	**0.00158**
DPM Running Exha	**0.00045161**	**0.000377566**	**0.000294703**	**0.00023434**	**0.00019889**	**0.00017913**	**0.000169502**	**0.000168**	**0.000176**	**0.000191**	**0.000213**	**0.000241**	**0.000274**	**0.000274**
TOG Ex														
Dsl														
NonTruck	0.005603038	0.004178568	0.002469579	0.001485574	0.00107491	0.00082886	0.0006521	0.000525	0.000437	0.000378	0.000343	0.00034	0.000356	0.000363
Truck1	0.162207823	0.134728085	0.113371141	0.096117314	0.0818279	0.06984532	0.059784313	0.05142	0.044628	0.039354	0.035598	0.033419	0.032944	0.033151
Truck2	0.277522048	0.19613643	0.102242705	0.052126127	0.03718177	0.02943529	0.023625839	0.019682	0.017541	0.017146	0.018439	0.020356	0.021914	0.021938
Gas														
NonTruck	0.131601175	0.084013631	0.056555954	0.040129604	0.03000096	0.02362298	0.01958575	0.017095	0.015705	0.015188	0.01546	0.016568	0.018696	0.020251
Truck1	0.067982292	0.046087044	0.032645849	0.024052551	0.01838303	0.01457774	0.012038992	0.010426	0.009551	0.009322	0.009719	0.010792	0.012667	0.014306
Truck2	0.06808207	0.043167777	0.028876247	0.02037624	0.01516538	0.01190338	0.009851915	0.008597	0.007909	0.007669	0.007838	0.008443	0.009584	0.010414
TOG Running Exha	**0.138897114**	**0.08959612**	**0.05999494**	**0.042319497**	**0.03166617**	**0.02495608**	**0.020665147**	**0.017983**	**0.016455**	**0.015843**	**0.016062**	**0.017158**	**0.019301**	**0.02086**
DEOG Running Exh	**0.00441084**	**0.003254543**	**0.001731876**	**0.000860681**	**0.00058307**	**0.00044687**	**0.000354732**	**0.000291**	**0.000248**	**0.000221**	**0.000207**	**0.000207**	**0.000216**	**0.000222**
PM2_5 BW														
Dsl														
NonTruck	0.000301328	0.000305794	0.000309726	0.000311322	0.0002878	0.00027478	0.000262376	0.000254	0.000243	0.000232	0.000227	0.000225	0.000223	0.000223
Truck1	0.013821243	0.013821243	0.013821243	0.013821243	0.01382124	0.01382124	0.013821243	0.013821	0.013821	0.013821	0.013821	0.013821	0.013821	0.013821
Truck2	0.028334347	0.028334347	0.028131654	0.027648336	0.0253665	0.02418635	0.021494809	0.019913	0.018331	0.017192	0.017192	0.017192	0.017192	0.017192
Gas														
NonTruck	0.002385294	0.002945831	0.003506735	0.004066798	0.00438507	0.00447089	0.004556825	0.004094	0.003082	0.002068	0.001406	0.001095	0.000783	0.000783
Truck1	0.014376775	0.014376775	0.014376775	0.014376775	0.01437677	0.01437677	0.014376775	0.014377	0.014377	0.014377	0.014377	0.014377	0.014377	0.014377
Truck2	0.002471104	0.002471104	0.002470176	0.002434877	0.00201086	0.00179867	0.001678819	0.001672	0.001664	0.001659	0.001659	0.001659	0.001659	0.001659
PM2.5 BW (grams/	**0.003005795**	**0.003564019**	**0.004121058**	**0.004673385**	**0.00495106**	**0.00501603**	**0.005074625**	**0.004602**	**0.003582**	**0.002564**	**0.001905**	**0.001595**	**0.001285**	**0.001285**

TOG Running Loss Emissions Factor (grams/veh-hour)	
Gas	
NonTruck	0.960699239
Truck1	0.012917898
Truck2	0.012087037
TOG Running Loss	**0.985704174**
HFC Running Loss	**0.014797323**
CH4 Running Loss	**0.149157978**

ROG Running Loss Emissions Factor (grams/veh-hour)	
Gas	
NonTruck	0
Truck1	0
Truck2	0
ROG Running L	**0**

PM2_5 TW	
Dsl	
NonTruck	5.71742E-05
Truck1	0.001446
Truck2	0.004595872
Gas	
NonTruck	0.001916943
Truck1	0.001036
Truck2	0.000341878
PM2_5 TW	**0.001992491**

PM10 TW	
Dsl	
NonTruck	0
Truck1	0
Truck2	0
Gas	
NonTruck	0
Truck1	0
Truck2	0
PM10 TW	**0**

File Name: San Mateo (SF) - 2023 - Annual.EF
EMFAC2021/CT-EMFAC2017:
Run Date: 1/25/2022 16:49
Area: San Mateo (SF)
Analysis Year: 2023
Season: Annual

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Vehicle Category	VMT Fraction Across Category	Diesel VMT Within Cat	Gas VMT Fraction Within Category
Truck 1	0.007	0.482	0.518
Truck 2	0.005	0.87	0.113
Non-Truck	0.988	0.017	0.96

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

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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	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.009248563	0.005988	0.004035	0.002858	0.002146	0.001702	0.001422	0.001254	0.001169	0.001152	0.001196	0.0013	0.001473	0.00158	0
PM10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO															
HC															
TOG	0.138897114	0.089596	0.059995	0.042319	0.031666	0.024956	0.020665	0.017983	0.016455	0.015843	0.016062	0.017158	0.019301	0.02086	0
ROG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,3-Butadiene															
Acetaldehyde															
Acrolein															
Benzene															
Diesel PM	0.000451608	0.000378	0.000295	0.000234	0.000199	0.000179	0.00017	0.000168	0.000176	0.000191	0.000213	0.000241	0.000274	0.000274	0
Ethylbenzene															
Formaldehyde															
Naphthalene															
POM															
DEOG	0.00441084	0.003255	0.001732	0.000861	0.000583	0.000447	0.000355	0.000291	0.000248	0.000221	0.000207	0.000207	0.000216	0.000222	0
CO2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N2O															
CH4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BC															

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Gasoline	0.075504	0.061274	0.050176	0.041721	0.035645	0.031649	0.029329	0.028371	0.028455	0.029271	0.03047	0.031727	0.032672	0.032672	0.032672
Diesel	0.003439	0.002894	0.002286	0.001947	0.001699	0.001506	0.001378	0.001285	0.001229	0.001221	0.001252	0.001316	0.001421	0.001421	0.001421

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

Pollutant Name	Emission Factor
HC	
TOG	0.985704174
ROG	0
1,3-Butadiene	
Benzene	
Ethylbenzene	
Naphthalene	
CH4	0.149157978
HFC	0.014797323

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

Pollutant Name	
PM2.5	0.001992491
PM10	0

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Fleet Average Brake Wear 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	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.003005795	0.003564	0.004121	0.004673	0.004951	0.005016	0.005075	0.004602	0.003582	0.002564	0.001905	0.001595	0.001285	0.001285	0
PM10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

Pollutant Name	Emission Factor
PM2.5	0.016326
PM10	0.038094

==========END==========

Road Link	Description	Direction	No. Lanes	Link Length (miles)	Link Width (ft)	Link Width (m)	Release Height (ft)	Release Height (m)	Initial Vertical Dimention (m)	Initial Vertical Dispersion (m)	Average Speed (mph)	Average Vehicles per Day
WB_92_DPM	Westbound SR-92 DPM	W	2	0.38	24	7.32	11.15	3.4	6.8	3.16	65mph off peak, 55mph 7am - 9am, 60mph 10am - 7pm	39,281
EB_92_DPM	Eastbound SR-92 DPM	E	2	0.38	24	7.32	11.15	3.4	6.8	3.16	60mph off peak, 55mph 8am - 3pm, 50mph 3pm - 6pm, 55mph 6pm -8pm	45,179
WB_92_XXX	Westbound SR-92 XXX	W	2	0.38	24	7.32	4.27	1.3	2.71	1.26	65mph off peak, 55mph 7am - 9am, 60mph 10am - 7pm	39,281
EB_92_XXX	Eastbound SR-92 XXX	E	2	0.38	24	7.32	4.27	1.3	2.71	1.26	60mph off peak, 55mph 8am - 3pm, 50mph 3pm - 6pm, 55mph 6pm -8pm	45,179
Concar_W_DPM	Concar west of Del DPM	E/W	5	0.01	60	18.29	11.15	3.4	6.8	3.16	25mph	16,560
Concar_E_DPM	Concar east of Del DPM	E/W	5	0.01	60	18.29	11.15	3.4	6.8	3.16	25 mph	11,765
Concar_W_XXX	Concar west of Del XXX	E/W	5	0.01	60	18.29	4.27	1.3	2.71	1.26	25mph	16,560
Concar_E_XXX	Concar east of Del XXX	E/W	5	0.01	60	18.29	4.27	1.3	2.71	1.26	25 mph	11,765
Del_N_DPM	Delaware North of Concar DPM	N/S	3	0.34	36	10.97	11.15	3.4	6.8	3.16	25 mph	17,505
Del_S_DPM	Delaware South of Concar DPM	N/S	5	0.17	60	18.29	11.15	3.4	6.8	3.16	35 mph	18,715
Del_N_XXX	Delaware North of Concar XXX	N/S	3	0.34	36	10.97	4.27	1.3	2.71	1.26	25 mph	17,505
Del_S_XXX	Delaware South of Concar XXX	N/S	5	0.17	60	18.29	4.27	1.3	2.71	1.26	35mph	18,715
EB_OFF_DPM	EB SR92 Off Ramp DPM	EB Off	1	0.17	12	3.66	11.15	3.4	6.8	3.16	35mph	8,270
WB_Off_DPM	WB SR92 Off Ramp DPM	WB Off	1	0.12	12	3.66	11.15	3.4	6.8	3.16	35mph	11,981
WB_On_DPM	WB SR92 On Ramp DPM	WB On	1	0.14	12	3.66	11.15	3.4	6.8	3.16	45mph	7,210
EB_OFF_XXX	EB SR92 Off Ramp XXX	EB Off	1	0.17	12	3.66	4.27	1.3	2.71	1.26	35mph	8,270
WB_Off_XXX	WB SR92 Off Ramp XXX	WB Off	1	0.12	12	3.66	4.27	1.3	2.71	1.26	35mph	11,981
WB_On_XXX	WB SR92 On Ramp XXX	WB On	1	0.14	12	3.66	4.27	1.3	2.71	1.26	45mph	7,210

2023 Emission Factors		Local		Ramps		SR92			
	Speed Category	1	2	3	4	5	6	7	8
	Travel Speed (mph)	25	35	35	45	50	55	60	65
Emisions per vehicle (g/VMT)	DPM	0.00020	0.00017	0.00025	0.0002609	0.000285	0.000322	0.0003678	0.0004192
	PM2.5	0.00215	0.00142	0.00154	0.0012736	0.001262	0.00132	0.0014411	0.0016326
	TOG Exhaust	0.03108	0.02031	0.02059	0.0164103	0.0158	0.016017	0.0171026	0.01923
	TOG Evap	0.03943	0.02816	0.02859	0.022233	0.02001	0.018191	0.0166748	0.0153921
	Fugitive PM2.5 - Freeway	0.01458	0.01468	0.01468	0.0131879	0.012177	0.011526	0.0112206	0.0109147
	Fugitive PM2.5 - Major	0.02327	0.023393	0.02339	0.0219005				

		WB SR92	**EB SR92**	**Concar W**	**Concar E**	**Delaware N**	**Delaware S**	**EB Off Ramp**	**WB Off Ramp**	**WB On Ramp**
Vehicle Type	Truck 1 (MDT)	550	633	116	82	123	123	116	168	101
	Truck 2 (HDT)	432	497	83	59	88	88	91	132	79
	Non-Truck	38,299	44,050	16,361	11,624	17,295	17,295	8063	11681	7030
Total	2025 Volumes	39,281	45,179	16,560	11,765	17,505	18,715	8,270	11,981	7,210
	Directional Volume	**39,281**	**45,179**	**16,560**	**11,765**	**17505**	**18715**	**8270**	**11981**	**7210**
	Average Veh/Hour/Dir	1,637	1,882	690	490	729	780	345	499	300

DPM

2025 Hourly Traffic Volumes and DPM Emisssions - Westbound SR-92 DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	562	0.000025	8	0.0679387	2669	9.06816E-05	16	0.06204185	2437	9.45969E-05
1	0.01244877	489	2.1634E-05	9	0.0625645	2458	8.35084E-05	17	0.06561264	2577	0.000100041
2	0.01213625	477	2.1091E-05	10	0.0546159	2145	8.32744E-05	18	0.05594492	2198	8.53008E-05
3	0.01267517	498	2.2028E-05	11	0.0525147	2063	8.00707E-05	19	0.04357882	1712	7.57344E-05
4	0.01471813	578	2.5578E-05	12	0.0545107	2141	8.3114E-05	20	0.03694046	1451	6.41977E-05
5	0.02329454	915	4.0483E-05	13	0.0529979	2082	8.08074E-05	21	0.03119676	1225	5.42159E-05
6	0.04046397	1589	7.0321E-05	14	0.0564528	2218	8.60752E-05	22	0.02517373	989	4.37487E-05
7	0.07050866	2770	9.4112E-05	15	0.0585822	2301	8.93219E-05	23	0.01879089	738	3.26561E-05
									TOTAL	39,281	

2025 Hourly Traffic Volumes and DPM Emisssions - Eastbound SR-92 DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	514	1.9698E-05	8	0.0670797	3031	0.000101699	16	0.07622572	3444	0.000102387
1	0.00961102	434	1.6645E-05	9	0.0547052	2472	8.29381E-05	17	0.07505497	3391	0.000100815
2	0.00946808	428	1.6397E-05	10	0.0551272	2491	8.35779E-05	18	0.06125104	2767	9.28621E-05
3	0.00974034	440	1.6869E-05	11	0.0608857	2751	9.23082E-05	19	0.04006869	1810	6.07478E-05
4	0.0114284	516	1.9793E-05	12	0.0644728	2913	9.77466E-05	20	0.03358874	1518	5.81713E-05
5	0.01715961	775	2.9718E-05	13	0.0640461	2894	9.70998E-05	21	0.02592878	1171	4.49053E-05
6	0.02534123	1145	4.3888E-05	14	0.0682483	3083	0.000103471	22	0.01984825	897	3.43746E-05
7	0.04514183	2039	7.818E-05	15	0.0780679	3527	0.000104862	23	0.01613644	729	2.79462E-05
									TOTAL	45,179	

2025 Hourly Traffic Volumes and DPM Emisssions - Concar west of Del DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	213	0.0000001	8	0.0675092	1118	4.81638E-07	16	0.06913378	1145	4.93229E-07
1	0.01102989	183	7.8692E-08	9	0.0586348	971	4.18325E-07	17	0.07033381	1165	5.0179E-07
2	0.01080216	179	7.7067E-08	10	0.0548716	909	3.91476E-07	18	0.05859798	970	4.18062E-07
3	0.01120776	186	7.9961E-08	11	0.0567002	939	4.04522E-07	19	0.04182375	693	2.98388E-07
4	0.01307326	216	9.327E-08	12	0.0594917	985	4.24438E-07	20	0.0352646	584	2.51592E-07
5	0.02022708	335	1.4431E-07	13	0.058522	969	4.1752E-07	21	0.02856277	473	2.03779E-07
6	0.0329026	545	2.3474E-07	14	0.0623506	1033	4.44835E-07	22	0.02251099	373	1.60603E-07
7	0.05782525	958	4.1255E-07	15	0.068325	1131	4.87459E-07	23	0.01746366	289	1.24593E-07
									TOTAL	16,560	

2025 Hourly Traffic Volumes and DPM Emisssions - Concar east of Del DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	151	4.9222E-08	8	0.0675092	794	2.58887E-07	16	0.06913378	813	2.65117E-07
1	0.01102989	130	4.2298E-08	9	0.0586348	690	2.24855E-07	17	0.07033381	827	2.69719E-07
2	0.01080216	127	4.1425E-08	10	0.0548716	646	2.10424E-07	18	0.05859798	689	2.24714E-07
3	0.01120776	132	4.298E-08	11	0.0567002	667	2.17436E-07	19	0.04182375	492	1.60387E-07
4	0.01307326	154	5.0134E-08	12	0.0594917	700	2.28141E-07	20	0.0352646	415	1.35234E-07
5	0.02022708	238	7.7568E-08	13	0.058522	689	2.24423E-07	21	0.02856277	336	1.09534E-07
6	0.0329026	387	1.2618E-07	14	0.0623506	734	2.39104E-07	22	0.02251099	265	8.6326E-08
7	0.05782525	680	2.2175E-07	15	0.068325	804	2.62016E-07	23	0.01746366	205	6.69704E-08
									TOTAL	11,765	

2025 Hourly Traffic Volumes and DPM Emisssions - Delaware North of Concar DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	225	0.000004	8	0.0675092	1182	2.18973E-05	16	0.06913378	1210	2.24243E-05
1	0.01102989	193	3.5777E-06	9	0.0586348	1026	1.90189E-05	17	0.07033381	1231	2.28135E-05
2	0.01080216	189	3.5038E-06	10	0.0548716	961	1.77982E-05	18	0.05859798	1026	1.90069E-05
3	0.01120776	196	3.6354E-06	11	0.0567002	993	1.83913E-05	19	0.04182375	732	1.3566E-05
4	0.01307326	229	4.2405E-06	12	0.0594917	1041	1.92968E-05	20	0.0352646	617	1.14385E-05
5	0.02022708	354	6.5609E-06	13	0.058522	1024	1.89823E-05	21	0.02856277	500	9.26465E-06
6	0.0329026	576	1.0672E-05	14	0.0623506	1091	2.02241E-05	22	0.02251099	394	7.30168E-06
7	0.05782525	1012	1.8756E-05	15	0.068325	1196	2.2162E-05	23	0.01746366	306	5.66453E-06
									TOTAL	17,505	

2025 Hourly Traffic Volumes and DPM Emisssions - Delaware South of Concar DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	240	1.8989E-06	8	0.0675092	1263	9.98761E-06	16	0.06913378	1294	1.0228E-05
1	0.01102989	206	1.6318E-06	9	0.0586348	1097	8.6747E-06	17	0.07033381	1316	1.04055E-05
2	0.01080216	202	1.5981E-06	10	0.0548716	1027	8.11794E-06	18	0.05859798	1097	8.66924E-06
3	0.01120776	210	1.6581E-06	11	0.0567002	1061	8.38848E-06	19	0.04182375	783	6.18759E-06
4	0.01307326	245	1.9341E-06	12	0.0594917	1113	8.80147E-06	20	0.0352646	660	5.2172E-06
5	0.02022708	379	2.9925E-06	13	0.058522	1095	8.65801E-06	21	0.02856277	535	4.2257E-06
6	0.0329026	616	4.8678E-06	14	0.0623506	1167	9.22442E-06	22	0.02251099	421	3.33037E-06
7	0.05782525	1082	8.5549E-06	15	0.068325	1279	1.01083E-05	23	0.01746366	327	2.58365E-06
									TOTAL	18,715	

2025 Hourly Traffic Volumes and DPM Emisssions - EB SR92 Off Ramp DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	94	0.000001	8	0.0670797	555	6.6663E-06	16	0.07622572	630	7.57522E-06
1	0.00961102	79	9.5513E-07	9	0.0547052	452	5.43654E-06	17	0.07505497	621	7.45887E-06
2	0.00946808	78	9.4093E-07	10	0.0551272	456	5.47848E-06	18	0.06125104	507	6.08706E-06
3	0.00974034	81	9.6798E-07	11	0.0608857	504	6.05075E-06	19	0.04006869	331	3.98198E-06
4	0.0114284	95	1.1357E-06	12	0.0644728	533	6.40723E-06	20	0.03358874	278	3.33801E-06
5	0.01715961	142	1.7053E-06	13	0.0640461	530	6.36483E-06	21	0.02592878	214	2.57677E-06
6	0.02534123	210	2.5184E-06	14	0.0682483	564	6.78244E-06	22	0.01984825	164	1.9725E-06
7	0.04514183	373	4.4861E-06	15	0.0780679	646	7.75829E-06	23	0.01613644	133	1.60362E-06
									TOTAL	8,270	

2025 Hourly Traffic Volumes and DPM Emisssions - WB SR92 Off Ramp DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	171	1.3891E-06	8	0.0679387	814	6.60082E-06	16	0.06204185	743	6.0279E-06
1	0.01244877	149	1.2095E-06	9	0.0625645	750	6.07867E-06	17	0.06561264	786	6.37483E-06
2	0.01213625	145	1.1791E-06	10	0.0546159	654	5.3064E-06	18	0.05594492	670	5.43553E-06
3	0.01267517	152	1.2315E-06	11	0.0525147	629	5.10225E-06	19	0.04357882	522	4.23405E-06
4	0.01471813	176	1.43E-06	12	0.0545107	653	5.29618E-06	20	0.03694046	443	3.58908E-06
5	0.02329454	279	2.2633E-06	13	0.0529979	635	5.1492E-06	21	0.03119676	374	3.03103E-06
6	0.04046397	485	3.9314E-06	14	0.0564528	676	5.48488E-06	22	0.02517373	302	2.44584E-06
7	0.07050866	845	6.8505E-06	15	0.0585822	702	5.69176E-06	23	0.01879089	225	1.8257E-06
									TOTAL	11,981	

DPM

2025 Hourly Traffic Volumes and DPM Emisssions - WB SR92 On Ramp DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	103	1.0119E-06	8	0.0679387	490	4.8084E-06	16	0.06204185	447	4.39105E-06
1	0.01244877	90	8.8107E-07	9	0.0625645	451	4.42804E-06	17	0.06561264	786	7.71665E-06
2	0.01213625	88	8.5895E-07	10	0.0546159	394	3.86547E-06	18	0.05594492	670	6.57964E-06
3	0.01267517	91	8.9709E-07	11	0.0525147	379	3.71676E-06	19	0.04357882	522	5.12527E-06
4	0.01471813	106	1.0417E-06	12	0.0545107	393	3.85803E-06	20	0.03694046	443	4.34454E-06
5	0.02329454	168	1.6487E-06	13	0.0529979	382	3.75096E-06	21	0.03119676	374	3.66903E-06
6	0.04046397	292	2.8639E-06	14	0.0564528	407	3.99548E-06	22	0.02517373	302	2.96066E-06
7	0.07050866	508	4.9903E-06	15	0.0585822	422	4.14619E-06	23	0.01879089	225	2.20998E-06
									TOTAL	7,210	

2025 Hourly Traffic Volumes and PM2.5 Emisssions - Westbound SR-92 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	562	0.000097	8	0.0679387	2669	0.000371763	16	0.06204185	2437	0.000370695
1	0.01244877	489	8.426E-05	9	0.0625645	2458	0.000342356	17	0.06561264	2577	0.00039203
2	0.01213625	477	8.214E-05	10	0.0546159	2145	0.000326325	18	0.05594492	2198	0.000334266
3	0.01267517	498	8.579E-05	11	0.0525147	2063	0.000313771	19	0.04357882	1712	0.000294965
4	0.01471813	578	9.962E-05	12	0.0545107	2141	0.000325697	20	0.03694046	1451	0.000250033
5	0.02329454	915	0.0001577	13	0.0529979	2082	0.000316658	21	0.03119676	1225	0.000211157
6	0.04046397	1589	0.0002739	14	0.0564528	2218	0.000337301	22	0.02517373	989	0.00017039
7	0.07050866	2770	0.0003858	15	0.0585822	2301	0.000350024	23	0.01879089	738	0.000127187
									TOTAL	39,281	

2025 Hourly Traffic Volumes and PM2.5 Emisssions - Eastbound SR-92 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	514	7.719E-05	8	0.0670797	3031	0.000416931	16	0.07622572	3444	0.000453034
1	0.00961102	434	6.523E-05	9	0.0547052	2472	0.000340018	17	0.07505497	3391	0.000446076
2	0.00946808	428	6.426E-05	10	0.0551272	2491	0.000342641	18	0.06125104	2767	0.000380703
3	0.00974034	440	6.61E-05	11	0.0608857	2751	0.000378432	19	0.04006869	1810	0.000249045
4	0.0114284	516	7.756E-05	12	0.0644728	2913	0.000400727	20	0.03358874	1518	0.000227955
5	0.01715961	775	0.0001165	13	0.0640461	2894	0.000398076	21	0.02592878	1171	0.000175969
6	0.02534123	1145	0.000172	14	0.0682483	3083	0.000424194	22	0.01984825	897	0.000134703
7	0.04514183	2039	0.0003064	15	0.0780679	3527	0.000463983	23	0.01613644	729	0.000109512
									TOTAL	45,179	

2025 Hourly Traffic Volumes and PM2.5 Emisssions - Concar west of Del XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	213	0.000001	8	0.0675092	1118	5.19757E-06	16	0.06913378	1145	5.32265E-06
1	0.01102989	183	8.492E-07	9	0.0586348	971	4.51433E-06	17	0.07033381	1165	5.41504E-06
2	0.01080216	179	8.317E-07	10	0.0548716	909	4.22459E-06	18	0.05859798	970	4.51149E-06
3	0.01120776	186	8.629E-07	11	0.0567002	939	4.36538E-06	19	0.04182375	693	3.22004E-06
4	0.01307326	216	1.007E-06	12	0.0594917	985	4.5803E-06	20	0.0352646	584	2.71504E-06
5	0.02022708	335	1.557E-06	13	0.058522	969	4.50564E-06	21	0.02856277	473	2.19906E-06
6	0.0329026	545	2.533E-06	14	0.0623506	1033	4.80041E-06	22	0.02251099	373	1.73313E-06
7	0.05782525	958	4.452E-06	15	0.068325	1131	5.26039E-06	23	0.01746366	289	1.34454E-06
									TOTAL	16,560	

2025 Hourly Traffic Volumes and PM2.5 Emisssions - Concar east of Del XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	151	5.312E-07	8	0.0675092	794	2.79376E-06	16	0.06913378	813	2.861E-06
1	0.01102989	130	4.565E-07	9	0.0586348	690	2.42651E-06	17	0.07033381	827	2.91066E-06
2	0.01080216	127	4.47E-07	10	0.0548716	646	2.27078E-06	18	0.05859798	689	2.42499E-06
3	0.01120776	132	4.638E-07	11	0.0567002	667	2.34645E-06	19	0.04182375	492	1.73081E-06
4	0.01307326	154	5.41E-07	12	0.0594917	700	2.46197E-06	20	0.0352646	415	1.45937E-06
5	0.02022708	238	8.371E-07	13	0.058522	689	2.42184E-06	21	0.02856277	336	1.18203E-06
6	0.0329026	387	1.362E-06	14	0.0623506	734	2.58028E-06	22	0.02251099	265	9.31583E-07
7	0.05782525	680	2.393E-06	15	0.068325	804	2.82753E-06	23	0.01746366	205	7.22707E-07
									TOTAL	11,765	

2025 Hourly Traffic Volumes and PM2.5 Emisssions - Delaware North of Concar XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	225	0.000045	8	0.0675092	1182	0.000236304	16	0.06913378	1210	0.000241991
1	0.01102989	193	3.861E-05	9	0.0586348	1026	0.000205241	17	0.07033381	1231	0.000246191
2	0.01080216	189	3.781E-05	10	0.0548716	961	0.000192068	18	0.05859798	1026	0.000205112
3	0.01120776	196	3.923E-05	11	0.0567002	993	0.000198469	19	0.04182375	732	0.000146397
4	0.01307326	229	4.576E-05	12	0.0594917	1041	0.00020824	20	0.0352646	617	0.000123437
5	0.02022708	354	7.08E-05	13	0.058522	1024	0.000204846	21	0.02856277	500	9.99789E-05
6	0.0329026	576	0.0001152	14	0.0623506	1091	0.000218247	22	0.02251099	394	7.87957E-05
7	0.05782525	1012	0.0002024	15	0.068325	1196	0.00023916	23	0.01746366	306	6.11285E-05
									TOTAL	17,505	

2025 Hourly Traffic Volumes and PM2.5 Emisssions - Delaware South of Concar XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	240	1.593E-05	8	0.0675092	1263	8.37954E-05	16	0.06913378	1294	8.58119E-05
1	0.01102989	206	1.369E-05	9	0.0586348	1097	7.27802E-05	17	0.07033381	1316	8.73014E-05
2	0.01080216	202	1.341E-05	10	0.0548716	1027	6.8109E-05	18	0.05859798	1097	7.27344E-05
3	0.01120776	210	1.391E-05	11	0.0567002	1061	7.03788E-05	19	0.04182375	783	5.19135E-05
4	0.01307326	245	1.623E-05	12	0.0594917	1113	7.38438E-05	20	0.0352646	660	4.3772E-05
5	0.02022708	379	2.511E-05	13	0.058522	1095	7.26401E-05	21	0.02856277	535	3.54534E-05
6	0.0329026	616	4.084E-05	14	0.0623506	1167	7.73923E-05	22	0.02251099	421	2.79416E-05
7	0.05782525	1082	7.178E-05	15	0.068325	1279	8.48081E-05	23	0.01746366	327	2.16767E-05
									TOTAL	18,715	

2025 Hourly Traffic Volumes and PM2.5 Emisssions - EB SR92 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	94	0.000007	8	0.0670797	555	4.13729E-05	16	0.07622572	630	4.70139E-05
1	0.00961102	79	5.928E-06	9	0.0547052	452	3.37407E-05	17	0.07505497	621	4.62918E-05
2	0.00946808	78	5.84E-06	10	0.0551272	456	3.4001E-05	18	0.06125104	507	3.7778E-05
3	0.00974034	81	6.008E-06	11	0.0608857	504	3.75526E-05	19	0.04006869	331	2.47133E-05
4	0.0114284	95	7.049E-06	12	0.0644728	533	3.9765E-05	20	0.03358874	278	2.07166E-05
5	0.01715961	142	1.058E-05	13	0.0640461	530	3.95019E-05	21	0.02592878	214	1.59922E-05
6	0.02534123	210	1.563E-05	14	0.0682483	564	4.20937E-05	22	0.01984825	164	1.22419E-05
7	0.04514183	373	2.784E-05	15	0.0780679	646	4.81501E-05	23	0.01613644	133	9.95251E-06
									TOTAL	8,270	

2025 Hourly Traffic Volumes and PM2.5 Emisssions - WB SR92 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	171	8.621E-06	8	0.0679387	814	4.09665E-05	16	0.06204185	743	3.74108E-05
1	0.01244877	149	7.507E-06	9	0.0625645	750	3.77259E-05	17	0.06561264	786	3.9564E-05
2	0.01213625	145	7.318E-06	10	0.0546159	654	3.2933E-05	18	0.05594492	670	3.37344E-05
3	0.01267517	152	7.643E-06	11	0.0525147	629	3.1666E-05	19	0.04357882	522	2.62777E-05
4	0.01471813	176	8.875E-06	12	0.0545107	653	3.28696E-05	20	0.03694046	443	2.22748E-05
5	0.02329454	279	1.405E-05	13	0.0529979	635	3.19574E-05	21	0.03119676	374	1.88114E-05
6	0.04046397	485	2.44E-05	14	0.0564528	676	3.40407E-05	22	0.02517373	302	1.51796E-05
7	0.07050866	845	4.252E-05	15	0.0585822	702	3.53247E-05	23	0.01879089	225	1.13308E-05

TOTAL 11,981

2025 Hourly Traffic Volumes and DPM Emisssions - WB SR92 On Ramp DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	103	4.94E-06	8	0.0679387	490	2.34739E-05	16	0.06204185	447	2.14365E-05
1	0.01244877	90	4.301E-06	9	0.0625645	451	2.1617E-05	17	0.06561264	786	3.76716E-05
2	0.01213625	88	4.193E-06	10	0.0546159	394	1.88707E-05	18	0.05594492	670	3.21208E-05
3	0.01267517	91	4.379E-06	11	0.0525147	379	1.81447E-05	19	0.04357882	522	2.50208E-05
4	0.01471813	106	5.085E-06	12	0.0545107	393	1.88343E-05	20	0.03694046	443	2.12094E-05
5	0.02329454	168	8.049E-06	13	0.0529979	382	1.83116E-05	21	0.03119676	374	1.79117E-05
6	0.04046397	292	1.398E-05	14	0.0564528	407	1.95054E-05	22	0.02517373	302	1.44535E-05
7	0.07050866	508	2.436E-05	15	0.0585822	422	2.02411E-05	23	0.01879089	225	1.07888E-05
									TOTAL	7,210	

2025 Hourly Traffic Volumes and TOG Exhaust Emisssions - Westbound SR-92 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	562	0.001140	8	0.0679387	2669	0.004511518	16	0.06204185	2437	0.004399209
1	0.01244877	489	0.0009925	9	0.0625645	2458	0.004154641	17	0.06561264	2577	0.004652404
2	0.01213625	477	0.0009676	10	0.0546159	2145	0.003872658	18	0.05594492	2198	0.003966893
3	0.01267517	498	0.0010106	11	0.0525147	2063	0.003723668	19	0.04357882	1712	0.003474419
4	0.01471813	578	0.0011734	12	0.0545107	2141	0.003865198	20	0.03694046	1451	0.002945161
5	0.02329454	915	0.0018572	13	0.0529979	2082	0.003757929	21	0.03119676	1225	0.002487231
6	0.04046397	1589	0.0032261	14	0.0564528	2218	0.004002908	22	0.02517373	989	0.002007031
7	0.07050866	2770	0.0046822	15	0.0585822	2301	0.004153897	23	0.01879089	738	0.001498146
									TOTAL	39,281	

2025 Hourly Traffic Volumes and TOG Exhaust Emisssions - Eastbound SR-92 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	514	0.0009161	8	0.0670797	3031	0.005059645	16	0.07622572	3444	0.005671491
1	0.00961102	434	0.0007741	9	0.0547052	2472	0.004126268	17	0.07505497	3391	0.005584383
2	0.00946808	428	0.0007626	10	0.0551272	2491	0.004158099	18	0.06125104	2767	0.004620003
3	0.00974034	440	0.0007845	11	0.0608857	2751	0.004592443	19	0.04006869	1810	0.003022274
4	0.0114284	516	0.0009204	12	0.0644728	2913	0.004863009	20	0.03358874	1518	0.002705245
5	0.01715961	775	0.001382	13	0.0640461	2894	0.004830829	21	0.02592878	1171	0.002088311
6	0.02534123	1145	0.002041	14	0.0682483	3083	0.005147787	22	0.01984825	897	0.001598583
7	0.04514183	2039	0.0036357	15	0.0780679	3527	0.005808555	23	0.01613644	729	0.001299633
									TOTAL	45,179	

2025 Hourly Traffic Volumes and TOG Exhaust Emisssions - Concar west of Del XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	213	0.000014	8	0.0675092	1118	7.52731E-05	16	0.06913378	1145	7.70845E-05
1	0.01102989	183	1.23E-05	9	0.0586348	971	6.53781E-05	17	0.07033381	1165	7.84225E-05
2	0.01080216	179	1.204E-05	10	0.0548716	909	6.1182E-05	18	0.05859798	970	6.5337E-05
3	0.01120776	186	1.25E-05	11	0.0567002	939	6.3221E-05	19	0.04182375	693	4.66337E-05
4	0.01307326	216	1.458E-05	12	0.0594917	985	6.63336E-05	20	0.0352646	584	3.93202E-05
5	0.02022708	335	2.255E-05	13	0.058522	969	6.52523E-05	21	0.02856277	473	3.18476E-05
6	0.0329026	545	3.669E-05	14	0.0623506	1033	6.95212E-05	22	0.02251099	373	2.50998E-05
7	0.05782525	958	6.448E-05	15	0.068325	1131	7.61827E-05	23	0.01746366	289	1.94721E-05
									TOTAL	16,560	

2025 Hourly Traffic Volumes and TOG Exhaust Emisssions - Concar east of Del XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	151	7.693E-06	8	0.0675092	794	4.04603E-05	16	0.06913378	813	4.14339E-05
1	0.01102989	130	6.611E-06	9	0.0586348	690	3.51416E-05	17	0.07033381	827	4.21531E-05
2	0.01080216	127	6.474E-06	10	0.0548716	646	3.28862E-05	18	0.05859798	689	3.51195E-05
3	0.01120776	132	6.717E-06	11	0.0567002	667	3.39821E-05	19	0.04182375	492	2.50662E-05
4	0.01307326	154	7.835E-06	12	0.0594917	700	3.56552E-05	20	0.0352646	415	2.11351E-05
5	0.02022708	238	1.212E-05	13	0.058522	689	3.5074E-05	21	0.02856277	336	1.71185E-05
6	0.0329026	387	1.972E-05	14	0.0623506	734	3.73686E-05	22	0.02251099	265	1.34915E-05
7	0.05782525	680	3.466E-05	15	0.068325	804	4.09492E-05	23	0.01746366	205	1.04665E-05
									TOTAL	11,765	

2025 Hourly Traffic Volumes and TOG Exhaust Emisssi Delaware North of Concar XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	225	0.000651	8	0.0675092	1182	0.003422237	16	0.06913378	1210	0.003504591
1	0.01102989	193	0.0005591	9	0.0586348	1026	0.00297237	17	0.07033381	1231	0.003565424
2	0.01080216	189	0.0005476	10	0.0548716	961	0.002781599	18	0.05859798	1026	0.002970501
3	0.01120776	196	0.0005682	11	0.0567002	993	0.002874297	19	0.04182375	732	0.002120167
4	0.01307326	229	0.0006627	12	0.0594917	1041	0.003015809	20	0.0352646	617	0.001787664
5	0.02022708	354	0.0010254	13	0.058522	1024	0.00296665	21	0.02856277	500	0.001447929
6	0.0329026	576	0.0016679	14	0.0623506	1091	0.003160731	22	0.02251099	394	0.001141147
7	0.05782525	1012	0.0029313	15	0.068325	1196	0.003463594	23	0.01746366	306	0.000885284
									TOTAL	17,505	

2025 Hourly Traffic Volumes and TOG Exhaust Emisssi Delaware South of Concar XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	240	0.0002275	8	0.0675092	1263	0.001196752	16	0.06913378	1294	0.001225552
1	0.01102989	206	0.0001955	9	0.0586348	1097	0.001039434	17	0.07033381	1316	0.001246825
2	0.01080216	202	0.0001915	10	0.0548716	1027	0.000972722	18	0.05859798	1097	0.001038781
3	0.01120776	210	0.0001987	11	0.0567002	1061	0.001005138	19	0.04182375	783	0.00074142
4	0.01307326	245	0.0002318	12	0.0594917	1113	0.001054625	20	0.0352646	660	0.000625144
5	0.02022708	379	0.0003586	13	0.058522	1095	0.001037434	21	0.02856277	535	0.000506339
6	0.0329026	616	0.0005833	14	0.0623506	1167	0.001105304	22	0.02251099	421	0.000399058
7	0.05782525	1082	0.0010251	15	0.068325	1279	0.001211215	23	0.01746366	327	0.000309583
									TOTAL	18,715	

2025 Hourly Traffic Volumes and TOG Exhaust Emisssi EB SR92 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	94	0.000094	8	0.0670797	555	0.000554872	16	0.07622572	630	0.000630526
1	0.00961102	79	7.95E-05	9	0.0547052	452	0.000452512	17	0.07505497	621	0.000620842
2	0.00946808	78	7.832E-05	10	0.0551272	456	0.000456003	18	0.06125104	507	0.000506658
3	0.00974034	81	8.057E-05	11	0.0608857	504	0.000503636	19	0.04006869	331	0.000331441
4	0.0114284	95	9.453E-05	12	0.0644728	533	0.000533308	20	0.03358874	278	0.00027784
5	0.01715961	142	0.0001419	13	0.0640461	530	0.000529779	21	0.02592878	214	0.000214478
6	0.02534123	210	0.0002096	14	0.0682483	564	0.000564538	22	0.01984825	164	0.000164181
7	0.04514183	373	0.0003734	15	0.0780679	646	0.000645764	23	0.01613644	133	0.000133478
									TOTAL	8,270	

2025 Hourly Traffic Volumes and TOG Exhaust Emisssi WB SR92 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	171	0.0001156	8	0.0679387	814	0.000549422	16	0.06204185	743	0.000501734
1	0.01244877	149	0.0001007	9	0.0625645	750	0.00050596	17	0.06561264	786	0.000530611
2	0.01213625	145	9.815E-05	10	0.0546159	654	0.00044168	18	0.05594492	670	0.000452428
3	0.01267517	152	0.0001025	11	0.0525147	629	0.000424688	19	0.04357882	522	0.000352423
4	0.01471813	176	0.000119	12	0.0545107	653	0.000440829	20	0.03694046	443	0.000298738
5	0.02329454	279	0.0001884	13	0.0529979	635	0.000428595	21	0.03119676	374	0.000252289
6	0.04046397	485	0.0003272	14	0.0564528	676	0.000456535	22	0.02517373	302	0.00020358
7	0.07050866	845	0.0005702	15	0.0585822	702	0.000473756	23	0.01879089	225	0.000151962
									TOTAL	11,981	

2025 Hourly Traffic Volumes and DPM Emisssions - WB SR92 On Ramp DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	103	6.365E-05	8	0.0679387	490	0.000302464	16	0.06204185	447	0.000276211
1	0.01244877	90	5.542E-05	9	0.0625645	451	0.000278538	17	0.06561264	786	0.000485403
2	0.01213625	88	5.403E-05	10	0.0546159	394	0.000243151	18	0.05594492	670	0.000413881
3	0.01267517	91	5.643E-05	11	0.0525147	379	0.000233797	19	0.04357882	522	0.000322396
4	0.01471813	106	6.553E-05	12	0.0545107	393	0.000242683	20	0.03694046	443	0.000273286
5	0.02329454	168	0.0001037	13	0.0529979	382	0.000235948	21	0.03119676	374	0.000230794
6	0.04046397	292	0.0001801	14	0.0564528	407	0.000251329	22	0.02517373	302	0.000186235
7	0.07050866	508	0.0003139	15	0.0585822	422	0.000260809	23	0.01879089	225	0.000139015
								TOTAL		7,210	

2025 Hourly Traffic Volumes and TOG Evaporative Emisssions - Westbound SR-92 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	562	0.000912	8	0.0679387	2669	0.005123803	16	0.06204185	2437	0.004289152
1	0.01244877	489	0.0007944	9	0.0625645	2458	0.004718491	17	0.06561264	2577	0.004536012
2	0.01213625	477	0.0007745	10	0.0546159	2145	0.003775774	18	0.05594492	2198	0.003867652
3	0.01267517	498	0.0008089	11	0.0525147	2063	0.003630511	19	0.04357882	1712	0.002780994
4	0.01471813	578	0.0009392	12	0.0545107	2141	0.0037685	20	0.03694046	1451	0.002357365
5	0.02329454	915	0.0014865	13	0.0529979	2082	0.003663915	21	0.03119676	1225	0.001990829
6	0.04046397	1589	0.0025822	14	0.0564528	2218	0.003902766	22	0.02517373	989	0.001606468
7	0.07050866	2770	0.0053176	15	0.0585822	2301	0.004049977	23	0.01879089	738	0.001199146
								TOTAL		39,281	

2025 Hourly Traffic Volumes and TOG Evaporative Emisssions - Eastbound SR-92 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	514	0.0008931	8	0.0670797	3031	0.005746319	16	0.07622572	3444	0.007182781
1	0.00961102	434	0.0007547	9	0.0547052	2472	0.004686267	17	0.07505497	3391	0.007072461
2	0.00946808	428	0.0007435	10	0.0551272	2491	0.004722419	18	0.06125104	2767	0.00524701
3	0.00974034	440	0.0007649	11	0.0608857	2751	0.00521571	19	0.04006869	1810	0.003432444
4	0.0114284	516	0.0008974	12	0.0644728	2913	0.005522997	20	0.03358874	1518	0.002637567
5	0.01715961	775	0.0013475	13	0.0640461	2894	0.005486449	21	0.02592878	1171	0.002036067
6	0.02534123	1145	0.0019899	14	0.0682483	3083	0.005846423	22	0.01984825	897	0.001558591
7	0.04514183	2039	0.0035448	15	0.0780679	3527	0.007356368	23	0.01613644	729	0.001267119
								TOTAL		45,179	

2025 Hourly Traffic Volumes and TOG Evaporative Emisssions - Concar west of Del XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	213	0.000018	8	0.0675092	1118	9.54821E-05	16	0.06913378	1145	9.77798E-05
1	0.01102989	183	1.56E-05	9	0.0586348	971	8.29306E-05	17	0.07033381	1165	9.94771E-05
2	0.01080216	179	1.528E-05	10	0.0548716	909	7.76079E-05	18	0.05859798	970	8.28784E-05
3	0.01120776	186	1.585E-05	11	0.0567002	939	8.01943E-05	19	0.04182375	693	5.91537E-05
4	0.01307326	216	1.849E-05	12	0.0594917	985	8.41425E-05	20	0.0352646	584	4.98767E-05
5	0.02022708	335	2.861E-05	13	0.058522	969	8.2771E-05	21	0.02856277	473	4.03979E-05
6	0.0329026	545	4.654E-05	14	0.0623506	1033	8.81859E-05	22	0.02251099	373	3.18386E-05
7	0.05782525	958	8.179E-05	15	0.068325	1131	9.6636E-05	23	0.01746366	289	2.46998E-05
								TOTAL		16,560	

2025 Hourly Traffic Volumes and TOG Evaporative Emisssions - Concar east of Del XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	151	9.758E-06	8	0.0675092	794	5.13229E-05	16	0.06913378	813	5.25579E-05
1	0.01102989	130	8.385E-06	9	0.0586348	690	4.45763E-05	17	0.07033381	827	5.34702E-05
2	0.01080216	127	8.212E-06	10	0.0548716	646	4.17153E-05	18	0.05859798	689	4.45483E-05
3	0.01120776	132	8.521E-06	11	0.0567002	667	4.31055E-05	19	0.04182375	492	3.17959E-05
4	0.01307326	154	9.939E-06	12	0.0594917	700	4.52277E-05	20	0.0352646	415	2.68094E-05
5	0.02022708	238	1.538E-05	13	0.058522	689	4.44905E-05	21	0.02856277	336	2.17144E-05
6	0.0329026	387	2.501E-05	14	0.0623506	734	4.74011E-05	22	0.02251099	265	1.71136E-05
7	0.05782525	680	4.396E-05	15	0.068325	804	5.19431E-05	23	0.01746366	205	1.32765E-05
								TOTAL		11,765	

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emisssions - Westbound SR-92 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	562	0.000647	8	0.0679387	2669	0.003246695	16	0.06204185	2437	0.002886209
1	0.01244877	489	0.0005633	9	0.0625645	2458	0.00298987	17	0.06561264	2577	0.003052324
2	0.01213625	477	0.0005492	10	0.0546159	2145	0.002540753	18	0.05594492	2198	0.002602578
3	0.01267517	498	0.0005736	11	0.0525147	2063	0.002443004	19	0.04357882	1712	0.001972034
4	0.01471813	578	0.000666	12	0.0545107	2141	0.002535858	20	0.03694046	1451	0.001671634
5	0.02329454	915	0.0010541	13	0.0529979	2082	0.002465482	21	0.03119676	1225	0.001411719
6	0.04046397	1589	0.0018311	14	0.0564528	2218	0.002626207	22	0.02517373	989	0.001139165
7	0.07050866	2770	0.0033695	15	0.0585822	2301	0.002725266	23	0.01879089	738	0.000850328
									TOTAL	39,281	

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emisssions - Eastbound SR-92 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	514	0.000601	8	0.0670797	3031	0.003641152	16	0.07622572	3444	0.004370989
1	0.00961102	434	0.0005079	9	0.0547052	2472	0.002969451	17	0.07505497	3391	0.004303855
2	0.00946808	428	0.0005003	10	0.0551272	2491	0.002992358	18	0.06125104	2767	0.003324765
3	0.00974034	440	0.0005147	11	0.0608857	2751	0.003304932	19	0.04006869	1810	0.002174967
4	0.0114284	516	0.0006039	12	0.0644728	2913	0.003499644	20	0.03358874	1518	0.001774843
5	0.01715961	775	0.0009067	13	0.0640461	2894	0.003476485	21	0.02592878	1171	0.001370088
6	0.02534123	1145	0.001339	14	0.0682483	3083	0.003704583	22	0.01984825	897	0.00104879
7	0.04514183	2039	0.0023853	15	0.0780679	3527	0.004476623	23	0.01613644	729	0.000852656
									TOTAL	45,179	

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emisssions - Concar west of Del XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	213	0.000011	8	0.0675092	1118	5.63512E-05	16	0.06913378	1145	5.77073E-05
1	0.01102989	183	9.207E-06	9	0.0586348	971	4.89436E-05	17	0.07033381	1165	5.8709E-05
2	0.01080216	179	9.017E-06	10	0.0548716	909	4.58023E-05	18	0.05859798	970	4.89128E-05
3	0.01120776	186	9.355E-06	11	0.0567002	939	4.73287E-05	19	0.04182375	693	3.49111E-05
4	0.01307326	216	1.091E-05	12	0.0594917	985	4.96589E-05	20	0.0352646	584	2.9436E-05
5	0.02022708	335	1.688E-05	13	0.058522	969	4.88494E-05	21	0.02856277	473	2.38419E-05
6	0.0329026	545	2.746E-05	14	0.0623506	1033	5.20452E-05	22	0.02251099	373	1.87903E-05
7	0.05782525	958	4.827E-05	15	0.068325	1131	5.70322E-05	23	0.01746366	289	1.45773E-05
									TOTAL	16,560	

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emisssions - Concar east of Del XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	151	5.759E-06	8	0.0675092	794	3.02895E-05	16	0.06913378	813	3.10184E-05
1	0.01102989	130	4.949E-06	9	0.0586348	690	2.63078E-05	17	0.07033381	827	3.15568E-05
2	0.01080216	127	4.847E-06	10	0.0548716	646	2.46194E-05	18	0.05859798	689	2.62913E-05
3	0.01120776	132	5.029E-06	11	0.0567002	667	2.54398E-05	19	0.04182375	492	1.87652E-05
4	0.01307326	154	5.866E-06	12	0.0594917	700	2.66923E-05	20	0.0352646	415	1.58223E-05
5	0.02022708	238	9.075E-06	13	0.058522	689	2.62572E-05	21	0.02856277	336	1.28153E-05
6	0.0329026	387	1.476E-05	14	0.0623506	734	2.7975E-05	22	0.02251099	265	1.01001E-05
7	0.05782525	680	2.594E-05	15	0.068325	804	3.06556E-05	23	0.01746366	205	7.83547E-06
									TOTAL	11,765	

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emis Delaware North of Concar XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	225	0.000487	8	0.0675092	1182	0.002561968	16	0.06913378	1210	0.002623621
1	0.01102989	193	0.0004186	9	0.0586348	1026	0.002225187	17	0.07033381	1231	0.002669162
2	0.01080216	189	0.0004099	10	0.0548716	961	0.002082371	18	0.05859798	1026	0.002223788
3	0.01120776	196	0.0004253	11	0.0567002	993	0.002151767	19	0.04182375	732	0.001587208
4	0.01307326	229	0.0004961	12	0.0594917	1041	0.002257706	20	0.0352646	617	0.001338288
5	0.02022708	354	0.0007676	13	0.058522	1024	0.002220905	21	0.02856277	500	0.001083954
6	0.0329026	576	0.0012487	14	0.0623506	1091	0.002366198	22	0.02251099	394	0.00085429
7	0.05782525	1012	0.0021945	15	0.068325	1196	0.002592929	23	0.01746366	306	0.000662744
									TOTAL	17,505	

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emis Delaware South of Concar XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	240	0.0002621	8	0.0675092	1263	0.001378395	16	0.06913378	1294	0.001411565
1	0.01102989	206	0.0002252	9	0.0586348	1097	0.001197199	17	0.07033381	1316	0.001436067
2	0.01080216	202	0.0002206	10	0.0548716	1027	0.001120361	18	0.05859798	1097	0.001196446
3	0.01120776	210	0.0002288	11	0.0567002	1061	0.001157698	19	0.04182375	783	0.000853952
4	0.01307326	245	0.0002669	12	0.0594917	1113	0.001214695	20	0.0352646	660	0.000720028
5	0.02022708	379	0.000413	13	0.058522	1095	0.001194895	21	0.02856277	535	0.000583191
6	0.0329026	616	0.0006718	14	0.0623506	1167	0.001273066	22	0.02251099	421	0.000459627
7	0.05782525	1082	0.0011807	15	0.068325	1279	0.001395052	23	0.01746366	327	0.000356571
									TOTAL	18,715	

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emis EB SR92 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	94	0.000107	8	0.0670797	555	0.000630315	16	0.07622572	630	0.000716255
1	0.00961102	79	9.031E-05	9	0.0547052	452	0.000514038	17	0.07505497	621	0.000705254
2	0.00946808	78	8.897E-05	10	0.0551272	456	0.000518003	18	0.06125104	507	0.000575545
3	0.00974034	81	9.153E-05	11	0.0608857	504	0.000572112	19	0.04006869	331	0.000376505
4	0.0114284	95	0.0001074	12	0.0644728	533	0.000605819	20	0.03358874	278	0.000315617
5	0.01715961	142	0.0001612	13	0.0640461	530	0.00060181	21	0.02592878	214	0.00024364
6	0.02534123	210	0.0002381	14	0.0682483	564	0.000641295	22	0.01984825	164	0.000186504
7	0.04514183	373	0.0004242	15	0.0780679	646	0.000733565	23	0.01613644	133	0.000151626
									TOTAL	8,270	

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emis WB SR92 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	171	0.0001313	8	0.0679387	814	0.000624123	16	0.06204185	743	0.000569952
1	0.01244877	149	0.0001144	9	0.0625645	750	0.000574753	17	0.06561264	786	0.000602755
2	0.01213625	145	0.0001115	10	0.0546159	654	0.000501733	18	0.05594492	670	0.000513942
3	0.01267517	152	0.0001164	11	0.0525147	629	0.00048243	19	0.04357882	522	0.00040034
4	0.01471813	176	0.0001352	12	0.0545107	653	0.000500766	20	0.03694046	443	0.000339356
5	0.02329454	279	0.000214	13	0.0529979	635	0.000486869	21	0.03119676	374	0.000286591
6	0.04046397	485	0.0003717	14	0.0564528	676	0.000518608	22	0.02517373	302	0.00023126
7	0.07050866	845	0.0006477	15	0.0585822	702	0.00053817	23	0.01879089	225	0.000172624
									TOTAL	11,981	

2025 Hourly Traffic Volumes and DPM Emisssions - WB SR92 On Ramp DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	103	8.494E-05	8	0.0679387	490	0.000403655	16	0.06204185	447	0.00036862
1	0.01244877	90	7.396E-05	9	0.0625645	451	0.000371725	17	0.06561264	786	0.000647797
2	0.01213625	88	7.211E-05	10	0.0546159	394	0.000324499	18	0.05594492	670	0.000552347
3	0.01267517	91	7.531E-05	11	0.0525147	379	0.000312014	19	0.04357882	522	0.000430256
4	0.01471813	106	8.745E-05	12	0.0545107	393	0.000323874	20	0.03694046	443	0.000364715
5	0.02329454	168	0.0001384	13	0.0529979	382	0.000314885	21	0.03119676	374	0.000308007
6	0.04046397	292	0.0002404	14	0.0564528	407	0.000335413	22	0.02517373	302	0.000248541
7	0.07050866	508	0.0004189	15	0.0585822	422	0.000348064	23	0.01879089	225	0.000185523
									TOTAL	7,210	

2025 Hourly Traffic Volumes and TOG Evaporative Em Delaware North of Concar XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	225	0.000825	8	0.0675092	1182	0.004341025	16	0.06913378	1210	0.004445489
1	0.01102989	193	0.0007093	9	0.0586348	1026	0.003770379	17	0.07033381	1231	0.004522654
2	0.01080216	189	0.0006946	10	0.0548716	961	0.003528391	18	0.05859798	1026	0.003768009
3	0.01120776	196	0.0007207	11	0.0567002	993	0.003645976	19	0.04182375	732	0.002689381
4	0.01307326	229	0.0008406	12	0.0594917	1041	0.00382548	20	0.0352646	617	0.002267609
5	0.02022708	354	0.0013007	13	0.058522	1024	0.003763124	21	0.02856277	500	0.001836663
6	0.0329026	576	0.0021157	14	0.0623506	1091	0.00400931	22	0.02251099	394	0.001447517
7	0.05782525	1012	0.0037183	15	0.068325	1196	0.004393486	23	0.01746366	306	0.001122961
									TOTAL	17,505	

2025 Hourly Traffic Volumes and TOG Evaporative Em Delaware South of Concar XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01283545	240	0.0003155	8	0.0675092	1263	0.00165945	16	0.06913378	1294	0.001699383
1	0.01102989	206	0.0002711	9	0.0586348	1097	0.001441308	17	0.07033381	1316	0.001728881
2	0.01080216	202	0.0002655	10	0.0548716	1027	0.001348803	18	0.05859798	1097	0.001440402
3	0.01120776	210	0.0002755	11	0.0567002	1061	0.001393752	19	0.04182375	783	0.001028073
4	0.01307326	245	0.0003214	12	0.0594917	1113	0.001462372	20	0.0352646	660	0.000866842
5	0.02022708	379	0.0004972	13	0.058522	1095	0.001438535	21	0.02856277	535	0.000702104
6	0.0329026	616	0.0008088	14	0.0623506	1167	0.001532645	22	0.02251099	421	0.000553345
7	0.05782525	1082	0.0014214	15	0.068325	1279	0.001679504	23	0.01746366	327	0.000429276
									TOTAL	18,715	

2025 Hourly Traffic Volumes and TOG Evaporative Em EB SR92 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01137395	94	0.000131	8	0.0670797	555	0.000770216	16	0.07622572	630	0.000875231
1	0.00961102	79	0.0001104	9	0.0547052	452	0.00062813	17	0.07505497	621	0.000861788
2	0.00946808	78	0.0001087	10	0.0551272	456	0.000632976	18	0.06125104	507	0.00070329
3	0.00974034	81	0.0001118	11	0.0608857	504	0.000699095	19	0.04006869	331	0.000460072
4	0.0114284	95	0.0001312	12	0.0644728	533	0.000740282	20	0.03358874	278	0.000385669
5	0.01715961	142	0.000197	13	0.0640461	530	0.000735383	21	0.02592878	214	0.000297717
6	0.02534123	210	0.000291	14	0.0682483	564	0.000783633	22	0.01984825	164	0.000227899
7	0.04514183	373	0.0005183	15	0.0780679	646	0.000896382	23	0.01613644	133	0.00018528
									TOTAL	8,270	

2025 Hourly Traffic Volumes and TOG Evaporative Em WB SR92 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	171	0.0001605	8	0.0679387	814	0.00076265	16	0.06204185	743	0.000696455
1	0.01244877	149	0.0001397	9	0.0625645	750	0.000702322	17	0.06561264	786	0.000736539
2	0.01213625	145	0.0001362	10	0.0546159	654	0.000613094	18	0.05594492	670	0.000628013
3	0.01267517	152	0.0001423	11	0.0525147	629	0.000589507	19	0.04357882	522	0.000489197
4	0.01471813	176	0.0001652	12	0.0545107	653	0.000611913	20	0.03694046	443	0.000414677
5	0.02329454	279	0.0002615	13	0.0529979	635	0.000594931	21	0.03119676	374	0.000350201
6	0.04046397	485	0.0004542	14	0.0564528	676	0.000633715	22	0.02517373	302	0.000282589
7	0.07050866	845	0.0007915	15	0.0585822	702	0.000657618	23	0.01879089	225	0.000210938
									TOTAL	11,981	

2025 Hourly Traffic Volumes and DPM Emisssions - WB SR92 On Ramp DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01429695	103	8.623E-05	8	0.0679387	490	0.000409785	16	0.06204185	447	0.000374217
1	0.01244877	90	7.509E-05	9	0.0625645	451	0.000377369	17	0.06561264	786	0.000657634
2	0.01213625	88	7.32E-05	10	0.0546159	394	0.000329426	18	0.05594492	670	0.000560734
3	0.01267517	91	7.645E-05	11	0.0525147	379	0.000316752	19	0.04357882	522	0.000436789
4	0.01471813	106	8.878E-05	12	0.0545107	393	0.000328791	20	0.03694046	443	0.000370253
5	0.02329454	168	0.0001405	13	0.0529979	382	0.000319667	21	0.03119676	374	0.000312684
6	0.04046397	292	0.0002441	14	0.0564528	407	0.000340506	22	0.02517373	302	0.000252316
7	0.07050866	508	0.0004253	15	0.0585822	422	0.00035335	23	0.01879089	225	0.000188341
								TOTAL		7,210	

Haward Park Residential Project , San Mateo - Roadway Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
1st Floor Offsite MEI Receptors

Emissions Years	2023 Efs, 2025 Traffic Volumes
Receptor Information	
Number of Receptors	
Receptor Height (in m) =	1.5 (1st Floor)
Receptor Distances =	Offsite Construction MEI Location
Meteorological Conditions	
BAAQMD SFO Met Data	2013 - 2017
Land Use Classification	urban
Wind Speed =	variable
Wind Direction =	variable

SR92 - Offsite MEI Maximum Concentrations - Floor 1

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00155	0.08152	0.08367

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.06593	0.05919	0.00674

Concar DR. - Offsite MEI Maximum Concentrations - Floor 1

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0	0.00057043	0.000717955

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.000462245	0.000422905	0.00003934

Delaware - Offsite MEI Maximum Concentrations - Floor 1

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00008141	0.0132582	0.01720077

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.01216498	0.01124621	0.00091877

Haward Park Residential Project , San Mateo - SR 92 Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
1st Floor Offsite MEI Receptors

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

Cancer Risk by Year - Construction MEI 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*	2023	10	0.0016	0.0815	0.0837	0.021	0.006	0.0004	0.03
1	1	0 - 1	2023	10	0.0016	0.0815	0.0837	0.255	0.076	0.0046	0.34
2	1	1 - 2	2024	10	0.0016	0.0815	0.0837	0.255	0.076	0.0046	0.34
3	1	2 - 3	2025	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
4	1	3 - 4	2026	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
5	1	4 - 5	2027	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
6	1	5 - 6	2028	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
7	1	6 - 7	2029	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
8	1	7 - 8	2030	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
9	1	8 - 9	2031	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
10	1	9 - 10	2032	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
11	1	10 - 11	2033	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
12	1	11 - 12	2034	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
13	1	12 - 13	2035	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
14	1	13 - 14	2036	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
15	1	14 - 15	2037	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
16	1	15 - 16	2038	3	0.0016	0.0815	0.0837	0.040	0.012	0.0007	0.05
17	1	16-17	2039	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
18	1	17-18	2040	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
19	1	18-19	2041	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
20	1	19-20	2042	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
21	1	20-21	2043	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
22	1	21-22	2044	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
23	1	22-23	2045	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
24	1	23-24	2046	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
25	1	24-25	2047	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
26	1	25-26	2048	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
27	1	26-27	2049	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
28	1	27-28	2050	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
29	1	28-29	2051	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
30	1	29-30	2052	1	0.0016	0.0815	0.0837	0.004	0.001	0.0001	0.006
Total Increased Cancer Risk								1.15	0.346	0.021	**1.5**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0003	0.066

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Concar Drive Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
1st Floor Offsite MEI Receptors

Cancer Risk Calculation Method

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

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

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

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

Cancer Risk by Year - Construction MEI 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*	2023	10	0.0000	0.0006	0.0007	0.000	0.00004	0.000003	0.00005
1	1	0 - 1	2023	10	0.0000	0.0006	0.0007	0.000	0.0005	0.00004	0.0006
2	1	1 - 2	2024	10	0.0000	0.0006	0.0007	0.000	0.0005	0.00004	0.0006
3	1	2 - 3	2025	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
4	1	3 - 4	2026	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
5	1	4 - 5	2027	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
6	1	5 - 6	2028	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
7	1	6 - 7	2029	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
8	1	7 - 8	2030	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
9	1	8 - 9	2031	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
10	1	9 - 10	2032	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
11	1	10 - 11	2033	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
12	1	11 - 12	2034	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
13	1	12 - 13	2035	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
14	1	13 - 14	2036	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
15	1	14 - 15	2037	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
16	1	15 - 16	2038	3	0.0000	0.0006	0.0007	0.000	0.0001	0.00001	0.0001
17	1	16-17	2039	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
18	1	17-18	2040	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
19	1	18-19	2041	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
20	1	19-20	2042	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
21	1	20-21	2043	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
22	1	21-22	2044	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
23	1	22-23	2045	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
24	1	23-24	2046	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
25	1	24-25	2047	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
26	1	25-26	2048	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
27	1	26-27	2049	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
28	1	27-28	2050	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
29	1	28-29	2051	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
30	1	29-30	2052	1	0.0000	0.0006	0.0007	0.000	0.00001	0.000001	0.00001
Total Increased Cancer Risk								0.000	0.0024	0.00018	**0.003**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0000	0.0005

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Delaware Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
1st Floor Offsite MEI Receptors

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

Cancer Risk by Year - Construction MEI 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*	2023	10	0.0001	0.0133	0.0172	0.001	0.001	0.0001	0.002
1	1	0 - 1	2023	10	0.0001	0.0133	0.0172	0.013	0.012	0.0010	0.03
2	1	1 - 2	2024	10	0.0001	0.0133	0.0172	0.013	0.012	0.0010	0.03
3	1	2 - 3	2025	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
4	1	3 - 4	2026	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
5	1	4 - 5	2027	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
6	1	5 - 6	2028	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
7	1	6 - 7	2029	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
8	1	7 - 8	2030	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
9	1	8 - 9	2031	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
10	1	9 - 10	2032	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
11	1	10 - 11	2033	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
12	1	11 - 12	2034	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
13	1	12 - 13	2035	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
14	1	13 - 14	2036	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
15	1	14 - 15	2037	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
16	1	15 - 16	2038	3	0.0001	0.0133	0.0172	0.002	0.002	0.0001	0.004
17	1	16-17	2039	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
18	1	17-18	2040	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
19	1	18-19	2041	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
20	1	19-20	2042	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
21	1	20-21	2043	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
22	1	21-22	2044	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
23	1	22-23	2045	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
24	1	23-24	2046	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
25	1	24-25	2047	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
26	1	25-26	2048	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
27	1	26-27	2049	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
28	1	27-28	2050	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
29	1	28-29	2051	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
30	1	29-30	2052	1	0.0001	0.0133	0.0172	0.0002	0.0002	0.00002	0.0005
Total Increased Cancer Risk								0.06	0.056	0.004	**0.12**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0000	0.012

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Roadway Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
2st Floor Offsite MEI Receptors

Emissions Years	2023 Efs, 2025 Traffic Volumes
Receptor Information	
Number of Receptors	
Receptor Height (in m) =	4.5 (2nd Floor)
Receptor Distances =	Offsite Construction MEI Location
Meteorological Conditions	
BAAQMD SFO Met Data	2013 - 2017
Land Use Classification	urban
Wind Speed =	variable
Wind Direction =	variable

SR92 - Offsite MEI Maximum Concentrations - Floor 2

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00152	0.07905	0.0812

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.06394	0.0574	0.00654

Concar DR. - Offsite MEI Maximum Concentrations - Floor 2

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0	0.00053109	0.00066878

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.00043274	0.0003934	0.00003934

Delaware - Offsite MEI Maximum Concentrations - Floor 2

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00008141	0.01230454	0.01597962

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.01133925	0.01049026	0.00084899

Haward Park Residential Project , San Mateo - SR 92 Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
2nd Floor Offsite MEI Receptors

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

Cancer Risk by Year - Construction MEI 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*	2023	10	0.0015	0.0791	0.0812	0.021	0.006	0.0004	0.03
1	1	0 - 1	2023	10	0.0015	0.0791	0.0812	0.250	0.074	0.0045	0.33
2	1	1 - 2	2024	10	0.0015	0.0791	0.0812	0.250	0.074	0.0045	0.33
3	1	2 - 3	2025	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
4	1	3 - 4	2026	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
5	1	4 - 5	2027	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
6	1	5 - 6	2028	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
7	1	6 - 7	2029	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
8	1	7 - 8	2030	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
9	1	8 - 9	2031	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
10	1	9 - 10	2032	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
11	1	10 - 11	2033	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
12	1	11 - 12	2034	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
13	1	12 - 13	2035	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
14	1	13 - 14	2036	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
15	1	14 - 15	2037	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
16	1	15 - 16	2038	3	0.0015	0.0791	0.0812	0.039	0.012	0.0007	0.05
17	1	16-17	2039	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
18	1	17-18	2040	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
19	1	18-19	2041	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
20	1	19-20	2042	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
21	1	20-21	2043	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
22	1	21-22	2044	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
23	1	22-23	2045	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
24	1	23-24	2046	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
25	1	24-25	2047	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
26	1	25-26	2048	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
27	1	26-27	2049	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
28	1	27-28	2050	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
29	1	28-29	2051	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
30	1	29-30	2052	1	0.0015	0.0791	0.0812	0.004	0.001	0.0001	0.006
Total Increased Cancer Risk								1.13	0.336	0.020	**1.5**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0003	0.064

Haward Park Residential Project , San Mateo - Concar Drive Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
2nd Floor Offsite MEI Receptors

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

Cancer Risk by Year - Construction MEI 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*	2023	10	0.0000	0.0005	0.0007	0.00	0.00004	0.00000	0.0000
1	1	0 - 1	2023	10	0.0000	0.0005	0.0007	0.00	0.0005	0.00004	0.0005
2	1	1 - 2	2024	10	0.0000	0.0005	0.0007	0.00	0.0005	0.00004	0.0005
3	1	2 - 3	2025	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
4	1	3 - 4	2026	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
5	1	4 - 5	2027	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
6	1	5 - 6	2028	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
7	1	6 - 7	2029	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
8	1	7 - 8	2030	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
9	1	8 - 9	2031	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
10	1	9 - 10	2032	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
11	1	10 - 11	2033	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
12	1	11 - 12	2034	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
13	1	12 - 13	2035	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
14	1	13 - 14	2036	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
15	1	14 - 15	2037	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
16	1	15 - 16	2038	3	0.0000	0.0005	0.0007	0.00	0.0001	0.00001	0.0001
17	1	16-17	2039	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
18	1	17-18	2040	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
19	1	18-19	2041	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
20	1	19-20	2042	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
21	1	20-21	2043	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
22	1	21-22	2044	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
23	1	22-23	2045	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
24	1	23-24	2046	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
25	1	24-25	2047	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
26	1	25-26	2048	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
27	1	26-27	2049	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
28	1	27-28	2050	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
29	1	28-29	2051	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
30	1	29-30	2052	1	0.0000	0.0005	0.0007	0.00	0.0000	0.00000	0.00001
Total Increased Cancer Risk								0.00	0.002	0.0002	**0.002**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.00	0.0004

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Delaware Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
2nd Floor Offsite MEI Receptors

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

Cancer Risk by Year - Construction MEI 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*	2023	10	0.0001	0.0123	0.0160	0.001	0.001	0.0001	0.002
1	1	0 - 1	2023	10	0.0001	0.0123	0.0160	0.013	0.012	0.0009	0.03
2	1	1 - 2	2024	10	0.0001	0.0123	0.0160	0.013	0.012	0.0009	0.03
3	1	2 - 3	2025	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.004
4	1	3 - 4	2026	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
5	1	4 - 5	2027	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
6	1	5 - 6	2028	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
7	1	6 - 7	2029	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
8	1	7 - 8	2030	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
9	1	8 - 9	2031	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
10	1	9 - 10	2032	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
11	1	10 - 11	2033	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
12	1	11 - 12	2034	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
13	1	12 - 13	2035	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
14	1	13 - 14	2036	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
15	1	14 - 15	2037	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
16	1	15 - 16	2038	3	0.0001	0.0123	0.0160	0.002	0.002	0.0001	0.0041
17	1	16-17	2039	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
18	1	17-18	2040	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
19	1	18-19	2041	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
20	1	19-20	2042	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
21	1	20-21	2043	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
22	1	21-22	2044	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
23	1	22-23	2045	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
24	1	23-24	2046	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
25	1	24-25	2047	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
26	1	25-26	2048	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
27	1	26-27	2049	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
28	1	27-28	2050	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
29	1	28-29	2051	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
30	1	29-30	2052	1	0.0001	0.0123	0.0160	0.0002	0.0002	0.00002	0.0005
Total Increased Cancer Risk								0.06	0.052	0.004	**0.12**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.00002	0.011

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Roadway Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
3rd Floor Offsite MEI Receptors

Emissions Years	2023 Efs, 2025 Traffic Volumes
Receptor Information	
Number of Receptors	
Receptor Height (in m) =	7.6 (3rd Floor)
Receptor Distances =	Offsite Construction MEI Location
Meteorological Conditions	
BAAQMD SFO Met Data	2013 - 2017
Land Use Classification	urban
Wind Speed =	variable
Wind Direction =	variable

SR92 - Offsite MEI Maximum Concentrations - Floor 3

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00127	0.06606	0.06812

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.0534	0.04794	0.00546

Concar DR. - Offsite MEI Maximum Concentrations - Floor 3

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0	0.000462245	0.000580265

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.00037373	0.000344225	0.000029505

Delaware - Offsite MEI Maximum Concentrations - Floor 3

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00006978	0.01083916	0.01409556

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.01002506	0.00926911	0.00075595

Haward Park Residential Project , San Mateo - SR 92 Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
3rd Floor Offsite MEI Receptors

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

Cancer Risk by Year - Construction MEI 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*	2023	10	0.0013	0.0661	0.0681	0.017	0.005	0.0003	0.02
1	1	0 - 1	2023	10	0.0013	0.0661	0.0681	0.209	0.062	0.0038	0.27
2	1	1 - 2	2024	10	0.0013	0.0661	0.0681	0.209	0.062	0.0038	0.27
3	1	2 - 3	2025	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
4	1	3 - 4	2026	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
5	1	4 - 5	2027	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
6	1	5 - 6	2028	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
7	1	6 - 7	2029	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
8	1	7 - 8	2030	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
9	1	8 - 9	2031	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
10	1	9 - 10	2032	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
11	1	10 - 11	2033	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
12	1	11 - 12	2034	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
13	1	12 - 13	2035	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
14	1	13 - 14	2036	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
15	1	14 - 15	2037	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
16	1	15 - 16	2038	3	0.0013	0.0661	0.0681	0.033	0.010	0.0006	0.04
17	1	16-17	2039	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
18	1	17-18	2040	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
19	1	18-19	2041	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
20	1	19-20	2042	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
21	1	20-21	2043	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
22	1	21-22	2044	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
23	1	22-23	2045	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
24	1	23-24	2046	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
25	1	24-25	2047	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
26	1	25-26	2048	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
27	1	26-27	2049	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
28	1	27-28	2050	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
29	1	28-29	2051	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
30	1	29-30	2052	1	0.0013	0.0661	0.0681	0.004	0.001	0.0001	0.005
Total Increased Cancer Risk								0.95	0.281	0.017	**1.2**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0003	0.053

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Concar Drive Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
3rd Floor Offsite MEI Receptors

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air ($\mu g/m^3$)
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-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

Cancer Risk by Year - Construction MEI 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*	2023	10	0.0000	0.0005	0.0006	0.000	0.00004	0.000003	0.00004
1	1	0 - 1	2023	10	0.0000	0.0005	0.0006	0.000	0.0004	0.00003	0.0005
2	1	1 - 2	2024	10	0.0000	0.0005	0.0006	0.000	0.0004	0.00003	0.0005
3	1	2 - 3	2025	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
4	1	3 - 4	2026	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
5	1	4 - 5	2027	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
6	1	5 - 6	2028	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
7	1	6 - 7	2029	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
8	1	7 - 8	2030	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
9	1	8 - 9	2031	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
10	1	9 - 10	2032	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
11	1	10 - 11	2033	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
12	1	11 - 12	2034	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
13	1	12 - 13	2035	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
14	1	13 - 14	2036	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
15	1	14 - 15	2037	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
16	1	15 - 16	2038	3	0.0000	0.0005	0.0006	0.000	0.0001	0.00001	0.0001
17	1	16-17	2039	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
18	1	17-18	2040	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
19	1	18-19	2041	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
20	1	19-20	2042	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
21	1	20-21	2043	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
22	1	21-22	2044	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
23	1	22-23	2045	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
24	1	23-24	2046	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
25	1	24-25	2047	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
26	1	25-26	2048	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
27	1	26-27	2049	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
28	1	27-28	2050	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
29	1	28-29	2051	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
30	1	29-30	2052	1	0.0000	0.0005	0.0006	0.000	0.00001	0.000001	0.00001
Total Increased Cancer Risk								0.00	0.002	0.0001	**0.002**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0000	0.000

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Delaware Impacts to Offsite MEI
DPM Cancer Risk and PM2.5 Calculations
3rd Floor Offsite MEI Receptors

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

Cancer Risk by Year - Construction MEI 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*	2023	10	0.0001	0.0108	0.0141	0.0009	0.0008	0.0001	0.002
1	1	0 - 1	2023	10	0.0001	0.0108	0.0141	0.0115	0.0102	0.0008	0.02
2	1	1 - 2	2024	10	0.0001	0.0108	0.0141	0.0115	0.0102	0.0008	0.02
3	1	2 - 3	2025	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
4	1	3 - 4	2026	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
5	1	4 - 5	2027	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
6	1	5 - 6	2028	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
7	1	6 - 7	2029	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
8	1	7 - 8	2030	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
9	1	8 - 9	2031	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
10	1	9 - 10	2032	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
11	1	10 - 11	2033	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
12	1	11 - 12	2034	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
13	1	12 - 13	2035	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
14	1	13 - 14	2036	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
15	1	14 - 15	2037	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
16	1	15 - 16	2038	3	0.0001	0.0108	0.0141	0.0018	0.0016	0.0001	0.004
17	1	16-17	2039	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
18	1	17-18	2040	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
19	1	18-19	2041	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
20	1	19-20	2042	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
21	1	20-21	2043	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
22	1	21-22	2044	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
23	1	22-23	2045	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
24	1	23-24	2046	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
25	1	24-25	2047	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
26	1	25-26	2048	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
27	1	26-27	2049	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
28	1	27-28	2050	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
29	1	28-29	2051	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
30	1	29-30	2052	1	0.0001	0.0108	0.0141	0.0002	0.0002	0.00001	0.0004
Total Increased Cancer Risk								0.05	0.046	0.004	**0.10**

* Third trimester of pregnancy

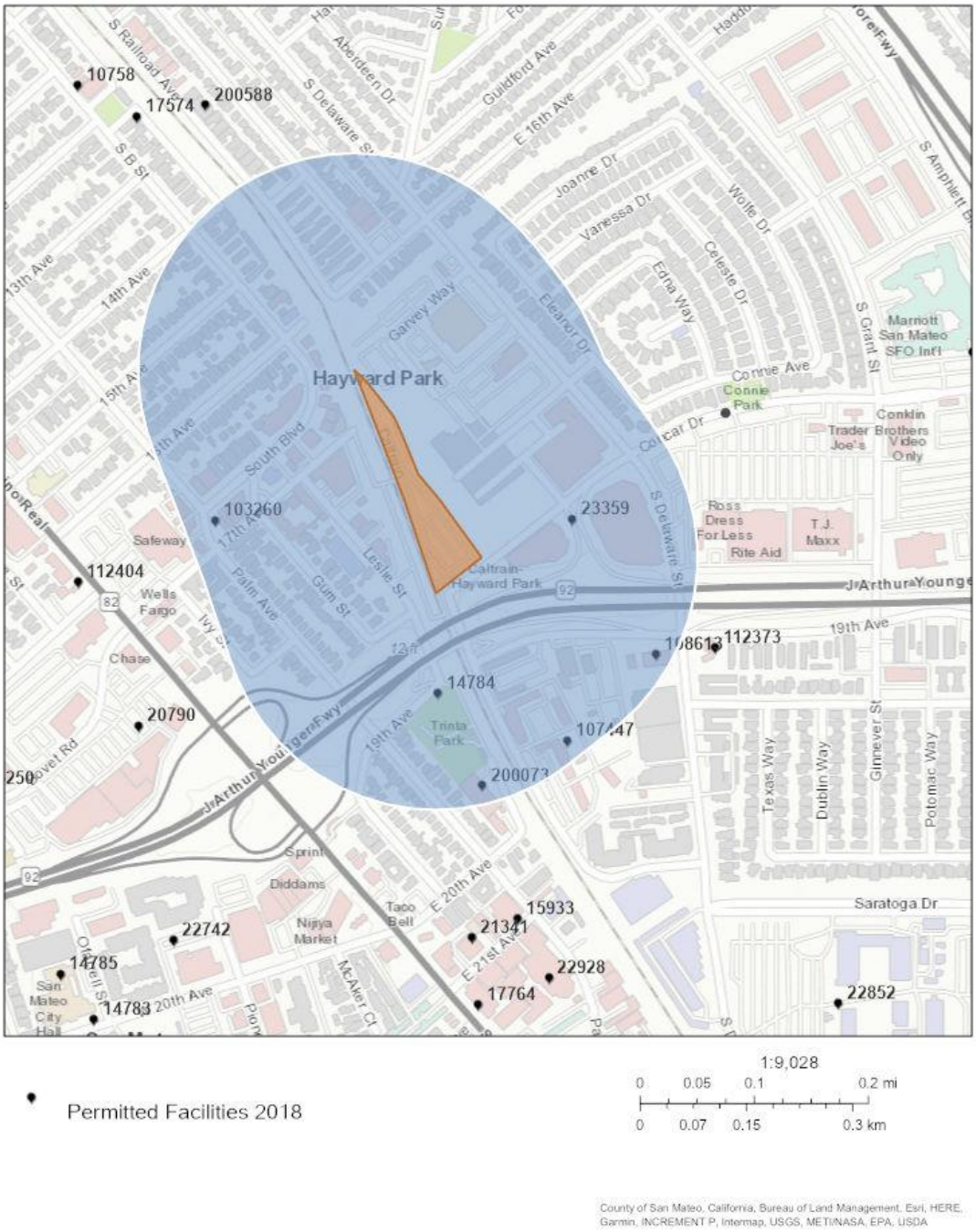
Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0000	0.010

Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 5,695,648.61 ft²

Jan 3 2022 16:20:53 Pacific Standard Time



Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	6	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	14784	City of San Mateo	1949 Pacific Boulevard	San Mateo	CA
2	23359	HGP San Mateo Owner LLC	400 Concar Drive	San Mateo	CA
3	103260	Olympic	1641 Palm Ave	San Mateo	CA
4	107447	City of San Mateo Municipal Service Cntr	1949 Pacific Blvd	San Mateo	CA
5	108613	ARCO Facility #04495	1950 S Delaware St	San Mateo	CA
6	200073	Auto Europa Inc.	1920 LESLIE ST	SAN MATEO	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	94403	San Mateo	1.020	0.000	0.000	Generators	1
2	94402	San Mateo	1.390	0.000	0.000	Generators	1
3	94402	San Mateo	11.730	0.050	0.000	Gas Dispensing Facility	1
4	94403	San Mateo	2.270	0.010	0.000	Gas Dispensing Facility	1
5	94403	San Mateo	290.250	1.280	0.000	Gas Dispensing Facility	1
6	94403	San Mateo	0.000	0.000	0.000	Contact BAAQMD	1

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

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

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Risk & Hazard Stationary Source Inquiry Form

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

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

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

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	
Contact Name	
Affiliation	
Phone	
Email	
Project Name	Hayward Park Residential
Address	
City	San Mateo
County	San Mateo
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	189 units

Comments: Construction of New Appartment Building near Caltrain Station

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

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

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

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

4. Identify stationary sources within at least 1 [illegible] of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth search box to confirm the source's address location. Please report any mapping errors to the District.

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

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

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

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

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

Table B: Google Earth data

Distance from Receptor (feet) or MEI[1]	Plant No.	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	MEI Distance Adjustment Multiplier	MEI Adjusted Cancer Risk Estimate	MEI Adjusted Hazard Risk	MEI Adjusted PM2.5
1,066	14784	City of San Mateo	1949 Pacific Boulevard	1.02255255	0.00187298	0.001296		(2) Generators			0.04	0.04	0.0001	0.0001
411	24508 (23359)	DIAMOND INVESTMENT PROPERTIES, INC	400 Concar Drive	1.39000432	0.00254686	0.001781		(2) Generators			0.16	0.22	0.0004	0.0003
1,223	103260	Olympic	1641 Palm Ave	11.7325525	0.05164405	0		Gas Dispensing Facility			0.01	0.1756	0.0008	0.00
915	107447	City of San Mateo Municipal Service Cntr	1949 Pacific Blvd	2.27387144	0.01000907	0		Gas Dispensing Facility			0.02	0.038	0.0002	0.00
971	108613	ARCO Facility #04495	1950 S Delaware St	290.253002	1.27762824	0		Gas Dispensing Facility			0.02	4.46	0.01965	0.00
1,084	200073	Auto Europa Inc.	1920 LESLIE ST	0	0.00032138	0		Auto Body Coating Operation			0.13	0.000	0.00004	0.00

Footnotes:

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

Attachment 6: Health Risk Calculations from Existing TAC Sources; On-Site MEI.

Hayward Park Residential - San Mateo, CA
AERMOD Railroad DPM Risk Modeling - Maximum On-Site Cancer Risk
Rail Impacts at On-Site Receptors (2nd Floor)
Caltrain Electrification and Diesel-Powered Freight Trains

Cancer Risk Calculation Method

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

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

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

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

Values

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

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age --> Parameter	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Maximum Rail Cancer Risk by Year

Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)	Maximum Hazard Index	Maximum PM2.5 (ug/m3)
0	2025	0.25	-0.25 - 0*	10	0.0053	0.072	0.001	0.005
1	2026	1	1	10	0.0053	0.874	0.001	0.005
2	2027	1	2	10	0.0053	0.874	0.001	0.005
3	2028	1	3	3	0.0053	0.138	0.001	0.005
4	2029	1	4	3	0.0053	0.138	0.001	0.005
5	2030	1	5	3	0.0053	0.138	0.001	0.005
6	2031	1	6	3	0.0053	0.138	0.001	0.005
7	2032	1	7	3	0.0053	0.138	0.001	0.005
8	2033	1	8	3	0.0053	0.138	0.001	0.005
9	2034	1	9	3	0.0053	0.138	0.001	0.005
10	2035	1	10	3	0.0053	0.138	0.001	0.005
11	2036	1	11	3	0.0053	0.138	0.001	0.005
12	2037	1	12	3	0.0053	0.138	0.001	0.005
13	2038	1	13	3	0.0053	0.138	0.001	0.005
14	2039	1	14	3	0.0053	0.138	0.001	0.005
15	2040	1	15	3	0.0053	0.138	0.001	0.005
16	2041	1	16	3	0.0053	0.138	0.001	0.005
17	2042	1	17	1	0.0053	0.015	0.001	0.005
18	2043	1	18	1	0.0053	0.015	0.001	0.005
19	2044	1	19	1	0.0053	0.015	0.001	0.005
20	2045	1	20	1	0.0053	0.015	0.001	0.005
21	2046	1	21	1	0.0053	0.015	0.001	0.005
22	2047	1	22	1	0.0053	0.015	0.001	0.005
23	2048	1	23	1	0.0053	0.015	0.001	0.005
24	2049	1	24	1	0.0053	0.015	0.001	0.005
25	2050	1	25	1	0.0053	0.015	0.001	0.005
26	2051	1	26	1	0.0053	0.015	0.001	0.005
27	2052	1	27	1	0.0053	0.015	0.001	0.005
28	2053	1	28	1	0.0053	0.015	0.001	0.005
29	2054	1	29	1	0.0053	0.015	0.001	0.005
30	2055	1	30	1	0.0053	0.015	0.001	0.005
Total Increased Cancer Risk						**3.96**		

* Third trimester of pregnancy

Hayward Park Residential - San Mateo, CA
AERMOD Railroad DPM Risk Modeling - Maximum On-Site Cancer Risk
Rail Impacts at On-Site Receptors (3rd Floor)
Caltrain Electrification and Diesel-Powered Freight Trains

Cancer Risk Calculation Method

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

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

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

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

Values

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

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age --> Parameter	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Maximum Rail Cancer Risk by Year

Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)	Maximum Hazard Index	Maximum PM2.5 (ug/m3)
0	2025	0.25	-0.25 - 0*	10	0.0035	0.048	0.001	0.003
1	2026	1	1	10	0.0035	0.577	0.001	0.003
2	2027	1	2	10	0.0035	0.577	0.001	0.003
3	2028	1	3	3	0.0035	0.091	0.001	0.003
4	2029	1	4	3	0.0035	0.091	0.001	0.003
5	2030	1	5	3	0.0035	0.091	0.001	0.003
6	2031	1	6	3	0.0035	0.091	0.001	0.003
7	2032	1	7	3	0.0035	0.091	0.001	0.003
8	2033	1	8	3	0.0035	0.091	0.001	0.003
9	2034	1	9	3	0.0035	0.091	0.001	0.003
10	2035	1	10	3	0.0035	0.091	0.001	0.003
11	2036	1	11	3	0.0035	0.091	0.001	0.003
12	2037	1	12	3	0.0035	0.091	0.001	0.003
13	2038	1	13	3	0.0035	0.091	0.001	0.003
14	2039	1	14	3	0.0035	0.091	0.001	0.003
15	2040	1	15	3	0.0035	0.091	0.001	0.003
16	2041	1	16	3	0.0035	0.091	0.001	0.003
17	2042	1	17	1	0.0035	0.010	0.001	0.003
18	2043	1	18	1	0.0035	0.010	0.001	0.003
19	2044	1	19	1	0.0035	0.010	0.001	0.003
20	2045	1	20	1	0.0035	0.010	0.001	0.003
21	2046	1	21	1	0.0035	0.010	0.001	0.003
22	2047	1	22	1	0.0035	0.010	0.001	0.003
23	2048	1	23	1	0.0035	0.010	0.001	0.003
24	2049	1	24	1	0.0035	0.010	0.001	0.003
25	2050	1	25	1	0.0035	0.010	0.001	0.003
26	2051	1	26	1	0.0035	0.010	0.001	0.003
27	2052	1	27	1	0.0035	0.010	0.001	0.003
28	2053	1	28	1	0.0035	0.010	0.001	0.003
29	2054	1	29	1	0.0035	0.010	0.001	0.003
30	2055	1	30	1	0.0035	0.010	0.001	0.003
Total Increased Cancer Risk						**2.61**		

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Roadway Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
2st Floor Onsite MEI Receptors

Emissions Years	2023 Efs, 2025 Traffic Volumes
Receptor Information	
Number of Receptors	
Receptor Height (in m) =	6.8 (2nd Floor)
Receptor Distances =	Onsite MEI Location
Meteorological Conditions	
BAAQMD SFO Met Data	2013 - 2017
Land Use Classification	urban
Wind Speed =	variable
Wind Direction =	variable

SR92 - Onsite MEI Maximum Concentrations - Floor 2

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00075	0.03881	0.03956

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.03083	0.02761	0.00322

Concar DR. - Onsite MEI Maximum Concentrations - Floor 2

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0	0.000245875	0.00031472

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.000206535	0.000186865	0.00001967

Delaware - Onsite MEI Maximum Concentrations - Floor 2

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00006978	0.0101181	0.01304886

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.00900162	0.00830382	0.0006978

Haward Park Residential Project , San Mateo - SR 92 Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
2nd Floor Onsite MEI Receptors

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

Cancer Risk by Year - Onsite MEI 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*	2025	10	0.0008	0.0388	0.0396	0.010	0.003	0.0002	0.01
1	1	0 - 1	2025	10	0.0008	0.0388	0.0396	0.123	0.036	0.0022	0.16
2	1	1 - 2	2026	10	0.0008	0.0388	0.0396	0.123	0.036	0.0022	0.16
3	1	2 - 3	2027	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
4	1	3 - 4	2028	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
5	1	4 - 5	2029	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
6	1	5 - 6	2030	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
7	1	6 - 7	2031	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
8	1	7 - 8	2032	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
9	1	8 - 9	2033	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
10	1	9 - 10	2034	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
11	1	10 - 11	2035	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
12	1	11 - 12	2036	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
13	1	12 - 13	2037	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
14	1	13 - 14	2038	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
15	1	14 - 15	2039	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
16	1	15 - 16	2040	3	0.0008	0.0388	0.0396	0.019	0.006	0.0003	0.03
17	1	16-17	2041	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
18	1	17-18	2042	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
19	1	18-19	2043	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
20	1	19-20	2044	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
21	1	20-21	2045	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
22	1	21-22	2046	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
23	1	22-23	2047	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
24	1	23-24	2048	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
25	1	24-25	2049	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
26	1	25-26	2050	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
27	1	26-27	2051	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
28	1	27-28	2052	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
29	1	28-29	2053	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
30	1	29-30	2054	1	0.0008	0.0388	0.0396	0.002	0.001	0.0000	0.003
Total Increased Cancer Risk								0.56	0.165	0.010	**0.73**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0002	0.031

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Concar Drive Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
2nd Floor Onsite MEI Receptors

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air ($\mu g/m^3$)
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-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

Cancer Risk by Year - Onsite MEI 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*	2025	10	0.0000	0.0002	0.0003	0.00	0.00002	0.00000	0.0000
1	1	0 - 1	2025	10	0.0000	0.0002	0.0003	0.00	0.0002	0.00002	0.0002
2	1	1 - 2	2026	10	0.0000	0.0002	0.0003	0.00	0.0002	0.00002	0.0002
3	1	2 - 3	2027	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
4	1	3 - 4	2028	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
5	1	4 - 5	2029	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
6	1	5 - 6	2030	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
7	1	6 - 7	2031	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
8	1	7 - 8	2032	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
9	1	8 - 9	2033	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
10	1	9 - 10	2034	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
11	1	10 - 11	2035	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
12	1	11 - 12	2036	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
13	1	12 - 13	2037	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
14	1	13 - 14	2038	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
15	1	14 - 15	2039	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
16	1	15 - 16	2040	3	0.0000	0.0002	0.0003	0.00	0.00004	0.000003	0.00004
17	1	16-17	2041	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
18	1	17-18	2042	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
19	1	18-19	2043	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
20	1	19-20	2044	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
21	1	20-21	2045	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
22	1	21-22	2046	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
23	1	22-23	2047	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
24	1	23-24	2048	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
25	1	24-25	2049	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
26	1	25-26	2050	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
27	1	26-27	2051	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
28	1	27-28	2052	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
29	1	28-29	2053	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
30	1	29-30	2054	1	0.0000	0.0002	0.0003	0.00	0.00000	0.0000003	0.000004
Total Increased Cancer Risk								0.00	0.001	0.0001	**0.001**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.00	0.0002

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Delaware Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
2nd Floor Onsite MEI Receptors

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

Cancer Risk by Year - Onsite MEI 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*	2025	10	0.0001	0.0101	0.0130	0.001	0.001	0.0001	0.002
1	1	0 - 1	2025	10	0.0001	0.0101	0.0130	0.011	0.009	0.0007	0.02
2	1	1 - 2	2026	10	0.0001	0.0101	0.0130	0.011	0.009	0.0007	0.02
3	1	2 - 3	2027	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.003
4	1	3 - 4	2028	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
5	1	4 - 5	2029	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
6	1	5 - 6	2030	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
7	1	6 - 7	2031	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
8	1	7 - 8	2032	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
9	1	8 - 9	2033	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
10	1	9 - 10	2034	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
11	1	10 - 11	2035	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
12	1	11 - 12	2036	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
13	1	12 - 13	2037	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
14	1	13 - 14	2038	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
15	1	14 - 15	2039	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
16	1	15 - 16	2040	3	0.0001	0.0101	0.0130	0.002	0.001	0.0001	0.0034
17	1	16-17	2041	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
18	1	17-18	2042	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
19	1	18-19	2043	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
20	1	19-20	2044	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
21	1	20-21	2045	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
22	1	21-22	2046	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
23	1	22-23	2047	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
24	1	23-24	2048	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
25	1	24-25	2049	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
26	1	25-26	2050	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
27	1	26-27	2051	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
28	1	27-28	2052	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
29	1	28-29	2053	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
30	1	29-30	2054	1	0.0001	0.0101	0.0130	0.0002	0.0002	0.00001	0.0004
Total Increased Cancer Risk								0.05	0.043	0.003	**0.098**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.00001	0.009

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Roadway Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
3rd Floor Onsite MEI Receptor

Emissions Years	2023 Efs, 2025 Traffic Volumes
Receptor Information	
Number of Receptors	
Receptor Height (in m) =	9.9 (3rd Floor)
Receptor Distances =	Onsite MEI Location
Meteorological Conditions	
BAAQMD SFO Met Data	2013 - 2017
Land Use Classification	urban
Wind Speed =	variable
Wind Direction =	variable

SR92 - Onsite MEI Concentrations - Floor 3

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00062	0.03192	0.03266

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.02537	0.02273	0.00264

Concar Dr. - Onsite MEI Concentrations - Floor 3

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00	0.000206535	0.000265545

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.000167195	0.00015736	0.000009835

Delaware - Onsite MEI Concentrations - Floor 3

Meteorological Data Years	TAC Concentrations (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00005815	0.0088388	0.0113974

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.00787351	0.00725712	0.00061639

Haward Park Residential Project , San Mateo - SR 92 Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
3rd Floor Onsite MEI Receptor

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

Cancer Risk by Year - Onsite MEI 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*	2025	10	0.0006	0.0319	0.0327	0.008	0.002	0.0001	0.01
1	1	0 - 1	2025	10	0.0006	0.0319	0.0327	0.102	0.030	0.0018	0.13
2	1	1 - 2	2026	10	0.0006	0.0319	0.0327	0.102	0.030	0.0018	0.13
3	1	2 - 3	2027	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
4	1	3 - 4	2028	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
5	1	4 - 5	2029	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
6	1	5 - 6	2030	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
7	1	6 - 7	2031	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
8	1	7 - 8	2032	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
9	1	8 - 9	2033	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
10	1	9 - 10	2034	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
11	1	10 - 11	2035	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
12	1	11 - 12	2036	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
13	1	12 - 13	2037	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
14	1	13 - 14	2038	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
15	1	14 - 15	2039	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
16	1	15 - 16	2040	3	0.0006	0.0319	0.0327	0.016	0.005	0.0003	0.02
17	1	16-17	2041	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
18	1	17-18	2042	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
19	1	18-19	2043	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
20	1	19-20	2044	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
21	1	20-21	2045	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
22	1	21-22	2046	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
23	1	22-23	2047	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
24	1	23-24	2048	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
25	1	24-25	2049	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
26	1	25-26	2050	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
27	1	26-27	2051	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
28	1	27-28	2052	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
29	1	28-29	2053	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
30	1	29-30	2054	1	0.0006	0.0319	0.0327	0.002	0.001	0.00003	0.002
Total Increased Cancer Risk								0.46	0.136	0.008	**0.61**

* Third trimester of pregnancy

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0001	0.025

Haward Park Residential Project , San Mateo - Concar Drive Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
3rd Floor Onsite MEI Receptor

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air ($\mu g/m^3$)
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-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

Cancer Risk by Year - Onsite MEI 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*	2025	10	0.0000	0.0002	0.0003	0.00	0.00002	0.000001	0.00002
1	1	0 - 1	2025	10	0.0000	0.0002	0.0003	0.00	0.0002	0.00001	0.0002
2	1	1 - 2	2026	10	0.0000	0.0002	0.0003	0.00	0.0002	0.00001	0.0002
3	1	2 - 3	2027	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
4	1	3 - 4	2028	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
5	1	4 - 5	2029	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
6	1	5 - 6	2030	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
7	1	6 - 7	2031	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
8	1	7 - 8	2032	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
9	1	8 - 9	2033	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
10	1	9 - 10	2034	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
11	1	10 - 11	2035	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
12	1	11 - 12	2036	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
13	1	12 - 13	2037	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
14	1	13 - 14	2038	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
15	1	14 - 15	2039	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
16	1	15 - 16	2040	3	0.0000	0.0002	0.0003	0.00	0.000030	0.000002	0.000033
17	1	16-17	2041	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
18	1	17-18	2042	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
19	1	18-19	2043	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
20	1	19-20	2044	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
21	1	20-21	2045	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
22	1	21-22	2046	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
23	1	22-23	2047	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
24	1	23-24	2048	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
25	1	24-25	2049	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
26	1	25-26	2050	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
27	1	26-27	2051	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
28	1	27-28	2052	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
29	1	28-29	2053	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
30	1	29-30	2054	1	0.0000	0.0002	0.0003	0.00	0.000003	0.0000003	0.000004
Total Increased Cancer Risk								0.00	0.001	0.0001	**0.001**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0000	0.000

* Third trimester of pregnancy

Haward Park Residential Project , San Mateo - Delaware Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
3rd Floor Onsite MEI Receptor

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air ($\mu g/m^3$)
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-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

Cancer Risk by Year - Onsite MEI 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*	2025	10	0.0001	0.0088	0.0114	0.0008	0.0007	0.0001	0.002
1	1	0 - 1	2025	10	0.0001	0.0088	0.0114	0.0096	0.0083	0.0006	0.02
2	1	1 - 2	2026	10	0.0001	0.0088	0.0114	0.0096	0.0083	0.0006	0.02
3	1	2 - 3	2027	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
4	1	3 - 4	2028	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
5	1	4 - 5	2029	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
6	1	5 - 6	2030	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
7	1	6 - 7	2031	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
8	1	7 - 8	2032	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
9	1	8 - 9	2033	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
10	1	9 - 10	2034	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
11	1	10 - 11	2035	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
12	1	11 - 12	2036	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
13	1	12 - 13	2037	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
14	1	13 - 14	2038	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
15	1	14 - 15	2039	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
16	1	15 - 16	2040	3	0.0001	0.0088	0.0114	0.0015	0.0013	0.0001	0.003
17	1	16-17	2041	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
18	1	17-18	2042	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
19	1	18-19	2043	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
20	1	19-20	2044	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
21	1	20-21	2045	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
22	1	21-22	2046	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
23	1	22-23	2047	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
24	1	23-24	2048	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
25	1	24-25	2049	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
26	1	25-26	2050	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
27	1	26-27	2051	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
28	1	27-28	2052	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
29	1	28-29	2053	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
30	1	29-30	2054	1	0.0001	0.0088	0.0114	0.0002	0.0001	0.00001	0.0003
Total Increased Cancer Risk								0.04	0.038	0.003	**0.084**

Maximum	
Hazard Index	**Total PM2.5 (µg/m3)**
0.0000	0.008

* Third trimester of pregnancy

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Risk & Hazard Stationary Source Inquiry Form

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

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

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

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	
Contact Name	
Affiliation	
Phone	
Email	
Project Name	Hayward Park Residential
Address	
City	San Mateo
County	San Mateo
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	189 units
Comments: Construction of New Appartment Building near Caltrain Station	

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

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

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

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

4. Identify stationary sources within at least a 10[illegible] project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth add[illegible]x to confirm the source's address location. Please report any mapping errors to the District.

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

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

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

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

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

Table B: Google Earth data

Distance from Receptor (feet) or MEI[1]	Plant No.	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	MEI Distance Adjustment Multiplier	MEI Adjusted Cancer Risk Estimate	MEI Adjusted Hazard Risk	MEI Adjusted PM2.5
1,424	14784	City of San Mateo	1949 Pacific Boulevard	1.02255255	0.00187298	0.001296		(2) Generators			0.04	0.04	0.0001	0.0001
714	24508 (23359)	DIAMOND INVESTMENT PROPERTIES, INC	400 Concar Drive	1.39000432	0.00254686	0.001781		(2) Generators			0.07	0.10	0.0002	0.0001
909	103260	Olympic	1641 Palm Ave	11.7325525	0.05164405	0		Gas Dispensing Facility			0.02	0.2024	0.0009	0.00
1,327	107447	City of San Mateo Municipal Service Cntr	1949 Pacific Blvd	2.27387144	0.01000907	0		Gas Dispensing Facility			0.01	0.034	0.0001	0.00
1,391	108613	ARCO Facility #04495	1950 S Delaware St	290.253002	1.27762824	0		Gas Dispensing Facility			0.01	4.34	0.01912	0.00
1,392	200073	Auto Europa Inc.	1920 LESLIE ST	0	0.00032138	0		Auto Body Coating Operation			0.13	0.000	0.00004	0.00

Footnotes:

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

Date last updated:
03/13/2018

Attachment 7: San Mateo Climate Action Plan Compliance Checklist

Appendix 3:

CAP Consistency Checklist

The following checklist assists project applicants and City staff to determine whether a proposed project complies with the City of San Mateo CAP. The CAP is an implementation tool of the General Plan, demonstrating the City's strategy to reduce greenhouse gas (GHG) emissions consistent with Section 15183.5 of the California Environmental Quality Act (CEQA) Guidelines. New projects deemed consistent with the CAP are eligible for streamlining the analysis of GHG emissions. Projects inconsistent with the CAP may refer to this checklist for informational purposes but may have to submit a separate GHG analysis for the project. Examples of projects inconsistent with the City's forecast include:

- Stationary source emissions regulated by the Bay Area Air Quality Management District.
- General Plan amendments.
- New specific plans, amendments to specific plans, or new development agreements that would increase the population and nonresidential land use expectations beyond those anticipated in the General Plan buildout scenario.

APPENDIX 3

Development Checklist

Project Description Characteristics

Please identify the applicable land uses included in the proposed project and provide a brief description of the proposed project (or the project description to be used for the associated environmental document).

1) What is the size of the project (in acres)?

2) Identify the applicable land uses:

Residential
Commercial
Industrial
Manufacturing
Other

3) If there is a residential component to the project, how many units are being proposed?

Single-family residences:	:
Multi-family residences:	:

4) Please provide a brief project description, including the square footage of conditioned space by land use:

5) Does the project require any amendments to the General Plan or specific plans?

Yes No

If yes, please explain:

6) Is the project located in a specific plan area?

   Yes No

   If so, which one? _____

7) Please complete the following table to identify project compliance with any applicable CAP measures.

Standards for CAP Consistency – New Development

Reduction Measure and Applicable Standard	Does the Project Comply?	Notes & Comments
BE 1: All new development: The project does not have natural gas connections, and does not have any natural gas appliances or other equipment installed	Yes No N/A	Additional notes:
RE 2. All new developments with residential units: The project includes an on-site renewable energy system that meets or exceeds the minimum requirements of the California State Building Code	Yes No N/A	If yes, what is the kW potential of the renewable energy system? Additional notes:
RE 2. All new developments with residential units: The project includes an on-site energy storage system, such as a battery.	Yes No N/A	If yes, how much electricity does the system store? Additional notes:
RE 3. All new developments with nonresidential space: The project includes an on-site renewable energy system that meets or exceeds the minimum requirements of the California State Building Code	Yes No N/A	If yes, what is the kW potential of the renewable energy system? Additional notes:

APPENDIX 3

Reduction Measure and Applicable Standard	Does the Project Comply?	Notes & Comments
RE 3. All new developments with nonresidential space: The project includes an on-site energy storage system, such as a battery.	Yes No N/A	If yes, how much electricity does the system store? Additional notes:
EE 3. All new developments with residential units: The project includes trees that provide shade to residences.	Yes No N/A	If yes, how many residences are shaded by newly planted trees? Additional notes:
CF 1. All new development with dedicated off-street parking: The project includes parking spaces with installed EV chargers or are pre-wired for EV chargers, consistent with state and any local regulations.	Yes No N/A	If yes, how many spaces include installed EV chargers? If yes, how many spaces are pre-wired for EV chargers? Additional notes:
CF 1. All new development with dedicated off-street parking: The project includes parking spaces with installed EV chargers that are accessible by members of the public beyond those who live and/or work at the project.	Yes No N/A	If yes, how many spaces with installed EV chargers are accessible by members of the public? If yes, how many Level 3 chargers installed as part of this project are publicly accessible? Additional notes:

Reduction Measure and Applicable Standard	Does the Project Comply?	Notes & Comments
ST 6. New developments of at least six multi-family units and/or 10,000 square feet of nonresidential space: Implement TDM strategies to comply with the appropriate trip reduction target identified in applicable area plans and San Mateo Citywide TDM Plan.	Yes No N/A	If yes, what is the trip reduction target for the project? % short-term commute trip reduction % long-term commute trip reduction What strategies will the project use to achieve these trip reduction targets? Additional notes:
ST 6. Projects of at least 20 multi-family units and/or 50,000 square feet of nonresidential space undergoing additions or alterations (as defined in San Mateo Municipal Code Section 23.06.012): Implement TDM strategies consistent with the targets in relevant area plans and the San Mateo Citywide TDM Plan.	Yes No N/A	If yes, what is the trip reduction target for the project? % short-term commute trip reduction % long-term commute trip reduction What strategies will the project use to achieve these trip reduction targets? Additional notes:
ST 7. All new development: Be located along El Camino Real, within one-half mile of any Caltrain station, or in the Rail Corridor Transit Oriented Development or Hillsdale Station Area Plan areas.	Yes No N/A	Additional notes:

APPENDIX 3

Reduction Measure and Applicable Standard	Does the Project Comply?	Notes & Comments
SW 1. All developments with multifamily units or nonresidential space: Provide an area of sufficient space to store and allow access to a compost bin.	Yes No N/A	Does the project participate in any composting programs? Does the project compost on-site? Additional notes:
WW 3. All new development: Include a greywater system.	Yes No N/A	If yes, is the greywater system "laundry-to-landscape" or another type of system? Additional notes: