

APPENDIX A

Air Quality Assessment

Muslim Community Association School Expansion

MUSLIM COMMUNITY ASSOCIATION SCHOOL EXPANSION HEALTH RISK ASSESSMENT

Santa Clara, California

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Introduction

The purpose of this report is to address community health risk impacts associated with the expansion of the Muslim Community Academy (MCA) school at 3033 Scott Boulevard in the City of Santa Clara. The expansion portion of the project site is currently developed with a one-story office building approximately 32,700 square feet and a large surface parking lot. The air quality impacts would be associated with the renovation of the existing building and operation of the expanded school. The Project would include sensitive receptors that include children attending the newly expanded school. The expansion of the school would replace existing office activity with school activities. Community risk to school attendees (i.e., children and high school students) is assessed in this report. The change in GHG emissions associated with operation of the project were also predicted. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).¹

Project Description

The project applicant proposes to expand its existing school and facilities at 3003 Scott Boulevard into the adjacent 35,000 square foot office building at 3100 Alfred Street. The project site (i.e., 3003 Scott Boulevard and 3100 Alfred Street) is bordered by an industrial and commercial building to the north, Alfred Street to the east, Scott Boulevard to the south and industrial/commercial office buildings to the west. The existing 90,000 square foot building includes a pre-Kindergarten through grade 8th grade school with an allowed student capacity of 400, prayer rooms with capacity for up to 1,800 persons, and various ancillary offices and meeting rooms. The project site is designated *Low Intensity Office/R&D* under the adopted General Plan and is zoned Light Industrial.

The project would expand the existing facilities into the adjacent 32,700-sf office building, including classrooms for grades 9 through 12, gymnasiums, lounges, and game rooms. The proposed student capacity for the two buildings is 900, with approximately 350 additional students in grades pre-K through 8th and 150 high school students. The school would operate from 7:00 am to 4:00 pm. The new building would add parking spaces to serve the combined facilities.

The MCA expansion would require an amended Conditional Use Permit from the City of Santa Clara to expand the MCA school and community facilities into the new building. This project would require some construction during renovation, but this would only be interior tenant improvements to the buildings and minor exterior improvements to facilitate site access. The proposed project would renovate and reuse an existing office building. These renovations include façade improvements, including installation of new windows and decorative metal. The project would enclose the existing roof covered entrance areas into the interior floor area of the building which would increase the square footage of the MCA-3 building by 900 square feet (to a total of 35,800 square feet). The existing building elevation would be raised from 18 to 32 feet above the ground surface to accommodate the interior basketball court's raised ceiling. A new five-foot wide pedestrian sidewalk would be constructed along Alfred Street, in front of the MCA-3 building, which would connect with the existing sidewalk fronting the MCA-1 building. The proposed project would

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

relocate utilities along the MCA-3 project frontage on Alfred Street to accommodate the new five-foot wide sidewalk. The project would require some trenching to a depth of three to five feet below ground surface to access underground utilities.

This report analyzed the health risk impact to proposed future sensitive receptors (Students or users of the project) from nearby permitted stationary sources and local roadways that emit toxic air contaminants (TACs) and changes in GHG emissions that would occur due to the project.

Setting

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

Air Pollutants of Concern

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

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM₁₀) and fine particulate matter where particles have a diameter of 2.5 micrometers or less (PM_{2.5}). Elevated concentrations of PM₁₀ and PM_{2.5} are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

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

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors,

and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015.² See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The MCA project, though not a source of TAC emissions, will include sensitive receptors by attracting new school children to the project site.

Regulatory Setting

Federal Regulations

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

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

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

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

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 Vehicles⁴. In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the Federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

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

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

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

off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO_x.

Bay Area Air Quality Management District (BAAQMD)

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

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

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.⁵ The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement 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 implemented by OEHHA, as having an overall CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.⁶ The 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 nor within a BAAQMD overburdened area as identified by CalEnviroScreen. The CalEnviroScreen v4.0 score at the Project site is 60.

The BAAQMD *California Environmental Quality Act (CEQA) Air Quality Guidelines*⁷ were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the

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

⁶ See BAAQMD: https://www.baaqmd.gov/~/_media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofverburdenedcommunities-pdf.pdf?la=en , accessed 11/23/2021.

⁷ Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May. (Updated May 2017)

Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of their *CEQA Guidelines*. In May 2011, the updated BAAQMD *CEQA Air Quality Guidelines* were amended to include a risk and hazards threshold for new receptors and modify procedures for assessing impacts related to risk and hazard impacts.

City of Santa Clara 2010 – 2035 General Plan.

On November 16, 2010, the City of Santa Clara adopted the *City of Santa Clara 2010 – 2035 General Plan*.⁸ The general plan includes goals, policies, and actions to reduce air pollutants and exposure to toxic air containments. The following goals, policies, and actions are applicable to the proposed project and this assessment:

5.10.2 Air Quality Goals

- 5.10.2-G1 Improved air quality in Santa Clara and the region.
- 5.10.2-G2 Reduced greenhouse gas emissions that meet the State and regional goals and requirements to combat climate change.

5.10.2 Air Quality Policies

- 5.10.2-P3 Encourage implementation of technological advances that minimize public health hazards and reduce the generation of air pollutants.
- 5.10.2-P4 Encourage measures to reduce greenhouse gas emissions to reach 30 percent below 1990 levels by 2020.
- 5.10.2-P6 Require “Best Management Practices” for construction dust abatement.

Significance Thresholds

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

⁸ City of Santa Clara, 2010. *City of Santa Clara 2010 – 2035 General Plan*. November. Web: <https://www.santaclaraca.gov/home/showdocument?id=56139>

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	
Note: ROG = reactive organic gases, NO _x = nitrogen oxides, PM ₁₀ = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, PM _{2.5} = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less.			

AIR QUALITY IMPACTS AND MITIGATION MEASURES

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

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

The proposed project would renovate and reuse an existing office building. These renovations include façade improvements, including installation of new windows and decorative metal. The project would enclose the existing roof covered entrance areas into the interior floor area of the

building which would increase the square footage of the MCA-3 building by 900 square feet (to a total of 35,800 square feet). The existing building elevation would be raised from 18 to 32 feet above the ground surface to accommodate the interior basketball court's raised ceiling. A new five-foot wide pedestrian sidewalk would be constructed along Alfred Street, in front of the MCA-3 building, which would connect with the existing sidewalk fronting the MCA-1 building. The proposed project would relocate utilities along the MCA-3 project frontage on Alfred Street to accommodate the new five-foot wide sidewalk. The project would require trenching to a depth of three to five feet below ground surface to access underground utilities. These activities are not anticipated to use substantial diesel-powered equipment over extended periods of time that could result in substantial air pollutant emissions or TAC exposure. Therefore, emissions modeling of these activities was not necessary to demonstrate that emissions would be below significance thresholds. Note that the BAAQMD CEQA Air Quality Guidelines screening size for conducting emission modeling of construction activities is 277,000 square feet of new construction or 271,000 square feet of operation⁹. The proposed Project is much smaller than those screening sizes.

Construction activities for renovation, could temporarily generate fugitive dust in the form of PM₁₀ and PM_{2.5}. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less-than-significant if best management practices are implemented to reduce these emissions. *Mitigation Measure AQ-1 would implement BAAQMD-recommended best management practices.*

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

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

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

⁹ See BAAQMD CEQA Air Quality Guidelines Table 3-1, p3-2.

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

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

Impacts of Project

Project impacts related to increased community risk can occur 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 minor sources of TACs during construction. Construction activities would include renovation of an existing building that would not result in construction activities that involve diesel equipment use that would result in substantial emissions. The risk of TAC and air pollution exposure from this activity is low, and therefore, health risks were not quantified.

Impacts to Project Sensitive Receptors

The proposed Project would expand a school in at a location that is near several sources of air pollutant and TAC emissions. A health risk assessment was completed to assess the impact existing TAC sources would have on the new proposed sensitive receptors (students attending the school) that that project would introduce.¹⁰

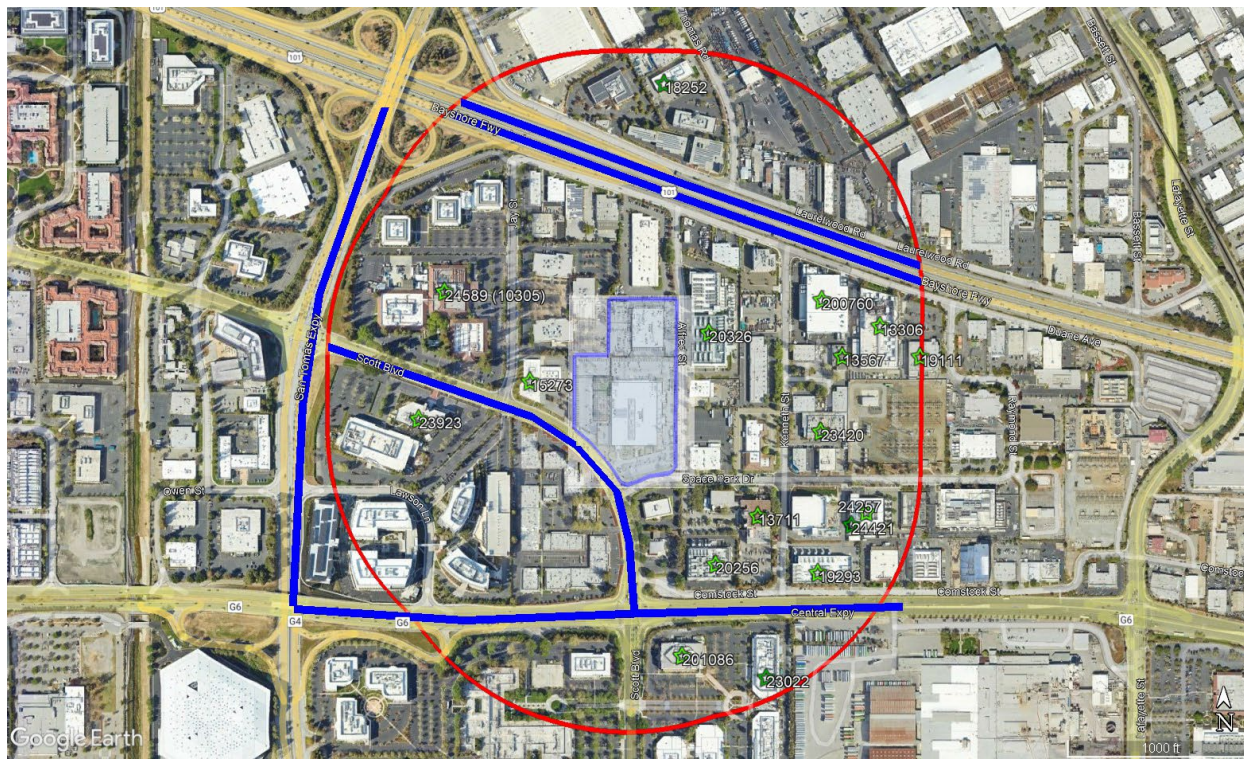
Modeled Sensitive Receptors

Receptors for this assessment included locations where school students would be present for extended periods of time (i.e., chronic exposures). The school site and modeled receptors are shown in Figure 1. Student exposures were assumed from kindergarten age (5 years old) through high school (17 years old), with exposure conditions assumed that are consistent with BAAQMD's application of OEHHHA guidance (see Attachment 1). Where screening data from BAAQMD were

¹⁰ 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.

applied, lifetime exposure parameters were assumed. Application of these screening levels overpredict exposures and associated cancer risk because of the greater exposure duration (lifetime vs. school period) and greater sensitivity of residential receptors that assume infant exposure.

Figure 1. Project Site and Nearby TAC and PM_{2.5} Sources



Roadway Impacts

A refined analysis of potential health impacts from vehicle traffic was conducted for nearby roadways estimated to have average daily traffic (ADT) exceeding 10,000 vehicles. The refined analysis involved predicting emissions for the traffic volume and mix of vehicle types on both roadways near the project site and using an atmospheric dispersion model to predict exposure to TACs.

US 101

A review of the AADT information provided by California Department of Transportation (Caltrans) indicates this portion of the US-101 mainline had an average annual daily traffic (AADT) volume of 171,500 vehicles per day based on 2020 traffic census data.¹¹ These traffic volumes were increased by three percent (or 0.5 percent each year) to obtain year 2024 estimates. 2024 represents a conservative traffic volume for analyzing traffic emissions in the future. Caltrans census data also indicates that the segment of US-101 nearest the project site had an average truck

¹¹ Caltrans Traffic Census Program, Traffic Volumes: Annual Average Daily Traffic (AADT), 2020-AADT (XLSX), accessed February 2022. <https://dot.ca.gov/programs/traffic-operations/census>

percentage of 4.6 percent, with 2.7 percent considered heavy duty trucks and 1.9 percent considered medium duty trucks.¹²

Analysis of US-101 involved developing emissions estimates of DPM, organic TACs (as TOG), and PM_{2.5}. 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, estimates were developed using emissions factors for 2023 because the earlier the year analyzed, the higher the emission rates produced. Year 2023 emissions were also conservatively assumed as being representative of future conditions over the period that cancer risks are evaluated for the project (i.e., 14 years attending the school).

The fraction of traffic volume each hour on US-101 was calculated and applied to the 2024 AADTs and 2023 emissions factors to estimate hourly traffic emissions. Hourly traffic distributions specific to US-101 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.¹³

US-101 mainline hourly speeds were also obtained from weekday 2019 speed data from PeMS. The NB mainline speeds range on average between 65 mph and 30 mph over the course of a 24-hour period, while the SB speeds range between 65 mph and 15 mph.

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.

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 4.6 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 DPM 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., Santa Clara County), type of road (i.e., freeway), year of analysis (i.e., 2023), and season (i.e., annual).

¹² Estimate provided by CT-EMFAC2017 using an overall truck percentage of 4.6. Truck percentage provided by Caltrans Traffic Census Program.

¹³ <https://dot.ca.gov/programs/traffic-operations/mpr/pems-source>

Hourly emissions rates were developed for DPM, organic TACs, and PM_{2.5} using emissions factors for 2023, applied to forecasted 2024 traffic volumes along the applicable segments of US-101. 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 were then computed using modeled TAC and PM_{2.5} concentrations and the BAAQMD methods and exposure parameters described in *Attachment 1*.

Local Roadways – San Tomas Expressway, Central Expressway, and Scott Boulevard

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 data for the local roadways were obtained from Santa Clara County's on-line traffic count data map.¹⁴ Traffic count dates vary for each of the roadways. The most recent counts for San Tomas Expressway were from 2014, while the most recent counts from Central Expressway and Scott Boulevard were from 2008. Therefore, count data were grown to 2024 assuming a 1.0 percent annual traffic growth rate. This resulted in ADT estimates on San Tomas Expressway of 75,966, 18,746 on Scott Boulevard, and between 46,690 and 30,643 on Central Expressway. Truck percentages for these local roadways were estimated using the county fleet mix developed from the VMT estimates in EMFAC2021 (2.9 percent Truck 1 and 3.4 percent Truck 2). Figure 1 shows the roadway links used for the modeling and receptor locations at the project site where concentrations were calculated.

Analysis of local roadway TAC impacts also involved developing estimates of annual DPM, organic TACs (as TOG), and PM_{2.5} roadway emissions. For this analysis, annual emissions are based on 2024 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 rates were conservatively assumed as being representative of future conditions over the period that cancer risks are evaluated (14 years).

Hourly traffic distributions for San Tomas Expressway, Central Expressway, and Scott Boulevard were estimated from the average distributions of traffic on NB and SB US-101 at San Tomas Expressway Interchange. Hourly traffic distributions on US-101 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 45 mph was assumed for all vehicles on San Tomas Expressway, 40 mph for Scott Boulevard, and 50 mph for Central Expressway. These represent

¹⁴ On-line ArcGIS map, accessed February 2022.

<https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=709ef12897bc42aa8e3d87f4505641c0&layerId=0>

the posted speed limits of the roadways. Given the limited 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 US-101, 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.

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 6.3 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., Santa Clara 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 2024 daily traffic estimates along each applicable roadway segment (see Figure 1). 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*. San Tomas Expressway, Central Expressway, and Scott Boulevard emissions calculations are included in *Attachment 2*.

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. NB and SB traffic on US-101 near the project site 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 US-101 mainline. Dispersion modeling of traffic on San Tomas Expressway, Central Expressway, and Scott Boulevard 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 1 shows the roadway segments used for the modeling. The modeling used a five-year data set (2013-2017) of hourly meteorological data from the San José International Airport prepared for use with the AERMOD model by the BAAQMD. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations and heights. Receptor heights of 5 feet (1.5 meters) were used to represent the breathing height on of school students.¹⁵

Computed Cancer and Non-Cancer Health Impacts from Roadways

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

The maximum impact from each roadway upon the Project site was identified and reported in Table 2. The calculation of cancer risk impacts from roadways were developed for an individual that attends the school starting in pre-kindergarten through their senior year of high school (i.e., a 14-year period). Therefore, age-appropriate sensitivity factors were used as applicable.

Note the maximum impacts for cancer risk and non-cancer health risks is located at the northeast corner of project site, closest to US-101, while the maximum PM_{2.5} concentrations are highest at the southwest corner of the site, nearest Scott Boulevard.

Stationary Source Impacts

The BAAQMD was contacted to provide a list of air pollutant sources within 1,000 feet of the project. The District responded by providing a list of all hazardous air pollutant sources located within ½ mile and identified 14 of the sources as within ¼ mile.¹⁶ This list was reviewed and all sources within 1,300 feet (1/4 mile) of the project site were identified. The identified stationary sources are shown in Figure 1. These sources were compiled into a *Stationary Source Identification Form (SSIF)* that was submitted to the District planning staff. The District provided confirmation of the facilities that were currently in operation and provided screening risk levels and emission information.¹⁷ The District also provided screening community risk levels that were not distance-adjusted.

Emissions from generators were adjusted using the District's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines*. The District's screening risk levels along with the distance between the source and the receptor were entered to provide the screening risk levels at the specified distance. For other sources, the emissions data reported by the District were entered into the District's *Risk and Hazards Screening Emission Calculator (Beta Version)*. This tool provided the risk for various sources. This allowed the identification of the diesel engine emissions sources, where the impacts from those could then be entered to the *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines*. Almost all sources affecting the site were diesel generators.

One Stationary Source, Plant 13711 at 1700 Space Park Drive, had screening levels that exceeded BAAQMD thresholds. Therefore, refined modeling was conducted using emissions data provided by BAAQMD. The refined analysis included dispersion modeling with AERMOD to estimate on-site exposure and cancer risk calculations to predict the increased lifetime cancer risk for students attending the school.

Table 2 summarizes modeled or screening level cancer risk and PM_{2.5} concentration from each identified nearby stationary source. As indicated in Table 2, none of the identified stationary sources exceed the BAAQMD thresholds of greater than 10 in 1 million for cancer risk, greater than 0.3 µg/m³ for PM_{2.5} concentration, or HI threshold of greater than 1.0. The stationary sources calculations are contained in *Attachment 2*.

¹⁶ BAAQMD. 2022. Email from Eric Chan to : Public Record Request No. 2021-12-0132 Casey Divine (Illingworth & Rodkin, Inc.), dated January 20, 2022.

Cumulative Community Health Risk at Project Site

Community risk impacts from the combined sources upon the project site are reported in Table 2. The TAC sources are compared against the BAAQMD single-source threshold and then combined and compared against the BAAQMD cumulative-source threshold. As shown, the maximum cancer risk, and annual PM_{2.5} concentrations, and HI from the nearby sources do not exceed their single-source or cumulative-source thresholds.

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 is the on-site health risk assessment. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format. This attachment includes the cumulative community risk calculations, modeling results, and health risk calculations from sources affecting the project site.

Table 2. Impacts from Sources Affecting Project Site Receptors

Source	Cancer Risk (per million)	Annual PM _{2.5} (µg/m ³)	Hazard Index
Roadways			
U.S. 101 at 600 feet. Approximately 171,500 ADT	2.47	0.03	<0.01
San Tomas Expressway at 1,300 feet. Approximately 75,966 ADT	0.30	0.06	<0.01
Central Expressway at 1,300 feet. Approximately 46,690 ADT	0.13	0.04	<0.01
Scott Boulevard at 550 feet. Approximately 18,746 ADT	0.26	0.03	<0.01
Stationary Sources			
Plant #13306 Equinox LLC at 1350 Duane Ave, Generators, 940 feet	3.78	<0.01	<0.01
Plant #13567 Verizon Wireless Santa Clara Switch at 1503 Arbuckle Court, Generators, 815 feet	1.47	<0.01	<0.01
Plant #13711 Pacific Bell Corp dba AT&T CA at 1700 Space Park Drive, Generators, 400 feet	4.66	0.03	0.01
Plant #15273 Luxtron Corporation at 3033 Scott Boulevard, Exempt wipe cleaning, 65 feet	-	-	-
Plant #18252 Silicon Valley Animal Control Authority at 3370 Thomas Road, Generators, 1,100 feet	0.09	-	-
Plant #19293 1525 Comstock C/O Digital Realty Trust at 1525 Comstock Drive, Diesel Backup Generator, 810 feet	0.53	<0.01	<0.01
Plant #20256 Digital Realty Trust at 1725 Comstock Drive, Generators, 410 feet	0.45	-	<0.01
Plant #20326 Digital Alfred, LLC at 3105 Alfred Avenue, Generators, 85 feet	1.83	-	0.01
Plant #21465 FutureWei Technologies at 2890 Scott Boulevard, Generators, 900 feet	0.21	<0.01	<0.01
Plant #23022 Genia Technologies at 2841 Scott Boulevard, Diesel Backup Generator, 980 feet	0.03	<0.01	<0.01
Plant #23420 Harbor Electronics, Inc at 3021 Kenneth Street. Generators, 675 feet	0.32	-	<0.01
Plant #23923 SIHC Silicon Valley, LLC at 3120 Scott Boulevard, Diesel Backup Generator, 690 feet	-	-	-
Plant #24257 Digital 1500 Space Park Borrower, LLC at 1500 Space Park Boulevard, Generators, 960 feet	0.11	-	<0.01
Plant #24421 Cyxtera Communications LLC at 1500 Space Park Drive, Generators, 960 feet	0.11	-	<0.01
Plant #24589(10305) Applied Materials at 3101 Scott Boulevard, Semiconductor Fab, Diesel Backup Generator, Wipe Cleaning, 460 feet	0.61	<0.01	<0.01
Plant #200760 Golden Cajun, LLC at 1500 Duane Ave, Diesel Backup Generator, 660 feet	7.12	0.01	<0.01
Plant #201086 Roche Sequencing Solutions at 2861 Scott Boulevard, Generators, 980 feet	0.34	<0.01	-
BAAQMD Single-Source Threshold	>10.0	>0.3	>1.0
<i>Exceed Threshold?</i>	<i>No</i>	<i>No</i>	<i>No</i>
Cumulative Total	24.81	0.19	0.05
BAAQMD Cumulative Source Threshold	>100	>0.8	>10.0
<i>Exceed Threshold?</i>	<i>No</i>	<i>No</i>	<i>No</i>

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminants (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 2015.¹⁸ 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.¹⁹ 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.²⁰ 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). However, CARB and the BAAQMD recommend the use of a residential exposure duration of 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.

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

¹⁸ 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.

¹⁹ CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

²⁰ BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

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 for moderate intensity.

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

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

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

Where:

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

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

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

Where:

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

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

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

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁻⁶ = Conversion factor

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

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

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

* Exposure Frequency can change dependent on the type of receptors (i.e. residential, worker, school, daycare). For worker exposures (adult), the exposure duration and frequency are 25 years 250 days/year and FAH is not applicable.

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 (µg/m³).

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: Health Risk Calculations

MCA School, Santa Clara, CA - Roadway Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
Onsite MEI Receptors

Emissions Years	2023 Efr, 2024 Traffic Volumes
Receptor Information	
Number of Receptors	
Receptor Height (in m) =	1 m (1st Floor - Child)
Receptor Distances =	Onsite MEI Location

Meteorological Conditions

BAAQMD San Jose Int'l Met Data	2013 - 2017
Land Use Classification	urban
Wind Speed =	variable
Wind Direction =	variable

US-101 - Onsite MEI Maximum Concentrations

Meteorological Data Years	TAC Concentrations (µg/m³)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00813	0.23664	0.24299

Meteorological Data Years	PM2.5 Concentrations (µg/m³)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.03267	0.02767	0.005

San Tomas Expressway - Onsite MEI Maximum Concentrations

Meteorological Data Years	TAC Concentrations (µg/m³)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00101	0.02771	0.03969

Meteorological Data Years	PM2.5 Concentrations (µg/m³)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.05899	0.05491	0.00408

Central Expressway - Onsite MEI Maximum Concentrations

Meteorological Data Years	TAC Concentrations (µg/m³)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00045	0.01014	0.0136

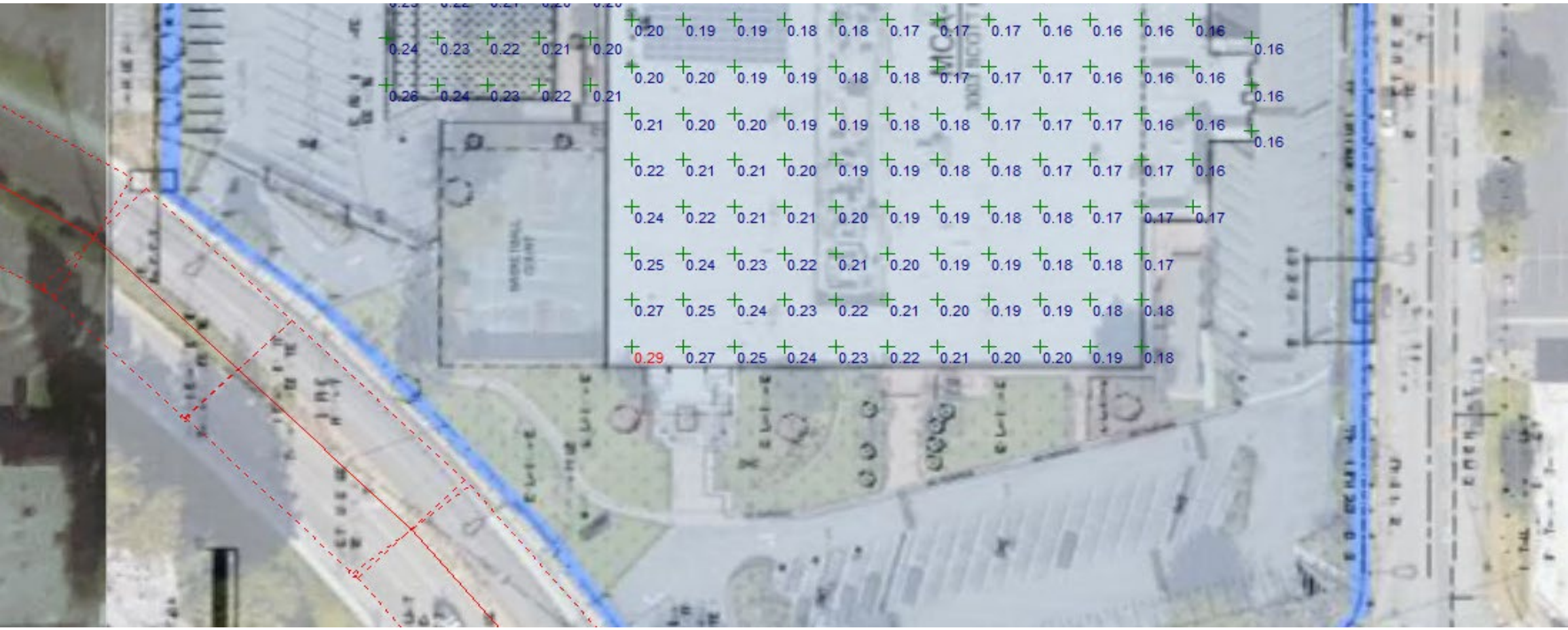
Meteorological Data Years	PM2.5 Concentrations (µg/m³)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.03887	0.036	0.00287

Scott Boulevard - Onsite MEI Maximum Concentrations

Meteorological Data Years	TAC Concentrations (µg/m³)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.0003	0.00969	0.01428

Meteorological Data Years	PM2.5 Concentrations (µg/m³)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.16118	0.15016	0.01102

Total PM



Scott DPM



0.0032

Central DPM



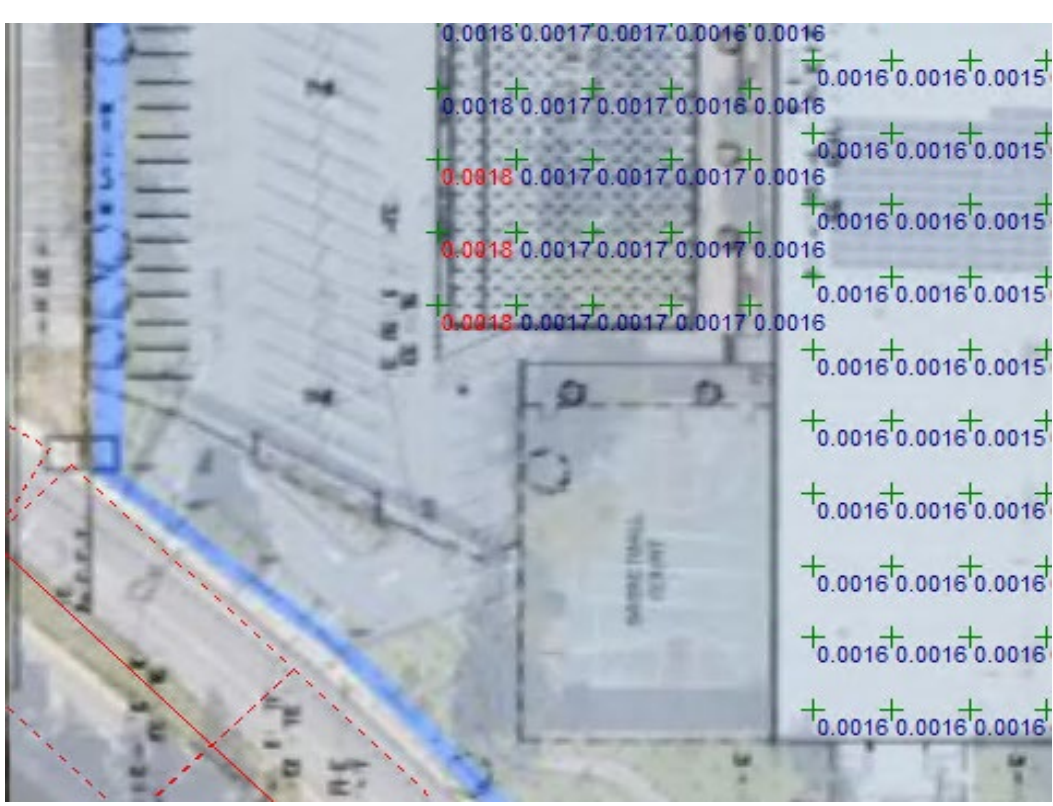
0.00162 San Tom
0.00317 Scott
0.00126 Central
0.00208 101
0.00813

US101 MEI



0.00813 US 101
0.00101 San Tom
0.0003 Scot
0.00045 Cen
0.00989

San Tomas



MCA School, Santa Clara, CA - US 101 Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
Onsite MEI Receptors

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-day)⁻¹
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SAF x 8hr BR x A x (EF/365) x 10⁻⁶

- Where: C_{air} = concentration in air (µg/m³)
SAF = School Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (SEHR/8 hrs)
SHR = Hours of emission source operation
SEHR = School activity exposure hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
OHR = Operation hours of the school
A = Inhalation absorption factor
EF = Days per 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

	Child	Adult
Age -->	4 - 16	16 - 30
Parameter		
ASF =	3	1
8-Hr BR* =	520	240
SEHR** =	1.00	1.00
OHR =	8	8
SHR =	24	24
A =	1	1
EF =	312	312
AT =	70	70
SAF=	1.00	1.00

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

** SEHR based on 7 hours - 30 minutes of exposure

Cancer Risk by Year - Onsite MEI Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure	Grade	Year	Age Sensitivity Factor				DPM	Exhaust TOG	Evaporative TOG	
	Duration (years)				DPM	Exhaust TOG	Evaporative TOG				
1	1	Pre-K	2024	3	0.0081	0.2366	0.2430	1.70E-01	0.028	0.0017	0.20
2	1	K	2025	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
3	1	1	2026	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
4	1	2	2027	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
5	1	3	2028	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
6	1	4	2029	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
7	1	5	2030	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
8	1	6	2031	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
9	1	7	2032	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
10	1	8	2033	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
11	1	9	2034	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
12	1	10	2035	3	0.0081	0.2366	0.2430	0.170	0.028	0.0017	0.20
13	1	11	2036	1	0.0081	0.2366	0.2430	0.026	0.004	0.0003	0.03
14	1	12	2037	1	0.0081	0.2366	0.2430	0.026	0.004	0.0003	0.03
Total Increased Cancer Risk								2.10	0.348	0.021	2.47

MCA School, Santa Clara, CA - San Tomas Expressway Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
Onsite MEI Receptors

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-day)⁻¹
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SAF x 8hr BR x A x (EF/365) x 10⁻⁶

- Where: C_{air} = concentration in air (µg/m³)
SAF = School Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (SEHR/8 hrs)
SHR = Hours of emission source operation
SEHR = School activity exposure hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
OHR = Operation hours of the school
A = Inhalation absorption factor
EF = Days per 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

	Child	Adult
Age -->	4 - 16	16 - 30
Parameter		
ASF =	3	1
8-Hr BR* =	520	240
SEHR** =	1.00	1.00
OHR =	8	8
SHR =	24	24
A =	1	1
EF =	312	312
AT =	70	70
SAF=	1.00	1.00

- * 95th percentile breathing rates for infants and 80th percentile for children and adults
** SEHR based on 7 hours - 30 minutes of exposure

Cancer Risk by Year - Onsite MEI Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure	Grade	Year	Age Sensitivity Factor				DPM	Exhaust TOG	Evaporative TOG	
	Duration (years)				DPM	Exhaust TOG	Evaporative TOG				
1	1	Pre-K	2024	3	0.0010	0.0277	0.0397	2.12E-02	0.003	0.0003	0.02
2	1	K	2025	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
3	1	1	2026	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
4	1	2	2027	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
5	1	3	2028	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
6	1	4	2029	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
7	1	5	2030	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
8	1	6	2031	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
9	1	7	2032	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
10	1	8	2033	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
11	1	9	2034	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
12	1	10	2035	3	0.0010	0.0277	0.0397	0.021	0.003	0.0003	0.02
13	1	11	2036	1	0.0010	0.0277	0.0397	0.003	0.001	0.0000	0.00
14	1	12	2037	1	0.0010	0.0277	0.0397	0.003	0.001	0.0000	0.00
Total Increased Cancer Risk								0.26	0.041	0.003	0.30

Maximum Hazard Index Total PM2.5 (µg/m3)
0.0002 0.059

MCA School, Santa Clara, CA - Central Expressway Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
Onsite MEI Receptors

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-day)⁻¹
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SAF x 8hr BR x A x (EF/365) x 10⁻⁶

- Where: C_{air} = concentration in air (µg/m³)
SAF = School Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (SEHR/8 hrs)
SHR = Hours of emission source operation
SEHR = School activity exposure hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
OHR = Operation hours of the school
A = Inhalation absorption factor
EF = Days per 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

	Child	Adult
Age -->	4 - 16	16 - 30
Parameter		
ASF =	3	1
8-Hr BR* =	520	240
SEHR** =	1.00	1.00
OHR =	8	8
SHR =	24	24
A =	1	1
EF =	312	312
AT =	70	70
SAF=	1.00	1.00

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

** SEHR based on 7 hours - 30 minutes of exposure

Cancer Risk by Year - Onsite MEI Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure	Grade	Year	Age Sensitivity Factor				DPM	Exhaust TOG	Evaporative TOG	
	Duration (years)				DPM	Exhaust TOG	Evaporative TOG				
1	1	Pre-K	2024	3	0.0005	0.0101	0.0136	9.43E-03	0.001	0.0001	0.01
2	1	K	2025	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
3	1	1	2026	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
4	1	2	2027	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
5	1	3	2028	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
6	1	4	2029	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
7	1	5	2030	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
8	1	6	2031	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
9	1	7	2032	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
10	1	8	2033	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
11	1	9	2034	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
12	1	10	2035	3	0.0005	0.0101	0.0136	0.009	0.001	0.0001	0.01
13	1	11	2036	1	0.0005	0.0101	0.0136	0.001	0.000	0.0000	0.00
14	1	12	2037	1	0.0005	0.0101	0.0136	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.12	0.015	0.001	0.13

Maximum Hazard Index Total PM2.5 (µg/m3)
0.0001 0.039

MCA School, Santa Clara, CA - Scott Blvd. Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
Onsite MEI Receptors

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-day)⁻¹
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SAF x 8hr BR x A x (EF/365) x 10⁻⁶

- Where: C_{air} = concentration in air (µg/m³)
SAF = School Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (SEHR/8 hrs)
SHR = Hours of emission source operation
SEHR = School activity exposure hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
OHR = Operation hours of the school
A = Inhalation absorption factor
EF = Days per 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

	Child	Adult
Age -->	4 - 16	16 - 30
Parameter		
ASF =	3	1
8-Hr BR* =	520	240
SEHR** =	1.00	1.00
OHR =	8	8
SHR =	24	24
A =	1	1
EF =	312	312
AT =	70	70
SAF=	1.00	1.00

* 95th percentile breathing rates for infants and 80th percentile for children and adults
** SEHR based on 7 hours - 30 minutes of exposure

Cancer Risk by Year - Onsite MEI Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure	Grade	Year	Age Sensitivity Factor		Exhaust	Evaporative	DPM	Exhaust TOG	Evaporative TOG	
	Duration				DPM	TOG	TOG				
	(years)										
1	1	Pre-K	2024	3	0.0003	0.0097	0.0143	6.29E-03	0.001	0.0001	0.01
2	1	K	2025	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
3	1	1	2026	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
4	1	2	2027	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
5	1	3	2028	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
6	1	4	2029	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
7	1	5	2030	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
8	1	6	2031	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
9	1	7	2032	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
10	1	8	2033	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
11	1	9	2034	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
12	1	10	2035	3	0.0003	0.0097	0.0143	0.006	0.001	0.0001	0.01
13	1	11	2036	1	0.0003	0.0097	0.0143	0.001	0.000	0.0000	0.00
14	1	12	2037	1	0.0003	0.0097	0.0143	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.08	0.014	0.001	0.09

Maximum Hazard Index Total PM2.5 (µg/m3)
0.0001 0.161

**MCA School, Santa Clara, CA - Roadway Impacts to Onsite MEI
DPM Cancer Risk and PM2.5 Calculations
Onsite MEI Receptors**

Emissions Years 2023 Efs, 2024 Traffic Volumes

Receptor Information

Number of Receptors

Receptor Height (in m) = 1.5 m

Receptor Distances = Onsite MEI Location

Meteorological Conditions

BAAQMD San Jose Int'l Met Data 2013 - 2017

Land Use Classification urban

Wind Speed = variable

Wind Direction = variable

US-101 - Onsite MEI Maximum Concentrations

Meteorological Data Years	TAC Concentrations ($\mu\text{g}/\text{m}^3$)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00809	0.23555	0.24182

Meteorological Data Years	PM2.5 Concentrations ($\mu\text{g}/\text{m}^3$)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.03261	0.02762	0.00499

San Tomas Expressway - Onsite MEI Maximum Concentrations

Meteorological Data Years	TAC Concentrations ($\mu\text{g}/\text{m}^3$)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.001	0.02766	0.03961

Meteorological Data Years	PM2.5 Concentrations ($\mu\text{g}/\text{m}^3$)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.05885	0.05478	0.00407

Central Expressway - Onsite MEI Maximum Concentrations

Meteorological Data Years	TAC Concentrations ($\mu\text{g}/\text{m}^3$)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.00045	0.01013	0.01358

Meteorological Data Years	PM2.5 Concentrations ($\mu\text{g}/\text{m}^3$)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.03878	0.03591	0.00287

Scott Boulevard - Onsite MEI Maximum Concentrations

Meteorological Data Years	TAC Concentrations ($\mu\text{g}/\text{m}^3$)		
	DPM	Exhaust TOG	Evaporative TOG
2013 - 2017	0.0003	0.00967	0.01425

Meteorological Data Years	PM2.5 Concentrations ($\mu\text{g}/\text{m}^3$)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013 - 2017	0.15893	0.14807	0.01086

Traffic and EFS

Road Link	Description	Direction	No. Lanes	Link	Link Width		Release Height		Initial	Initial	Average Speed (mph)	Average Vehicles per Day
				Length (miles)	(ft)	(m)	(ft)	(m)	Vertical Dimention (m)	Vertical Dispersion (m)		
NB_101_DPM	Northbound 101 DPM	NW	4	0.53	48	14.63	11.15	3.4	6.8	3.16	65mph off peak, 55mph 6am, 30mph 7am - 9am, 50mph 10am, 60mph 11am	92,713
SB_101_DPM	Southbound 101 DPM	SE	4	0.53	48	14.63	11.15	3.4	6.8	3.16	65mph off peak, 60mph 10am - Noon, 50mph 1pm, 20mph 2pm, 15mph 3pm -	82,217
NB_101_XXX	Northbound 101 XXX	NW	4	0.53	48	14.63	4.27	1.3	2.79	1.30	65mph off peak, 55mph 6am, 30mph 7am - 9am, 50mph 10am, 60mph 11am	92,713
SB_101_XXX	Southbound 101 XXX	SE	4	0.53	48	14.63	4.27	1.3	2.79	1.30	65mph off peak, 60mph 10am - Noon, 50mph 1pm, 20mph 2pm, 15mph 3pm -	82,217
SanTom_DPM	San Tomas Expressway DPM	N/S	6	0.45	76	23.16	11.15	3.4	6.8	3.16	45mph	75,966
Scott_DPM	Scott Blvd. DPM	E/W	5	0.61	68	20.73	11.15	3.4	6.8	3.16	40mph	18,746
SanTom_XXX	San Tomas Expressway XXX	N/S	6	0.45	76	23.16	4.27	1.3	2.79	1.30	45mph	75,966
Scott_XXX	Scott Blvd. XXX	E/W	5	0.61	68	20.73	4.27	1.3	2.79	1.30	40mph	18,746
Cen_W_DPM	Central Expressway west of Scott Blvd. DF E/W		6	0.24	92	28.04	11.15	3.4	6.8	3.16	50mph	46,690
Cen_E_DPM	Central Expressway east of Scott Blvd. DP E/W		6	0.26	92	28.04	11.15	3.4	6.8	3.16	50mph	30,643
Cen_W_XXX	Central Expressway west of Scott Blvd. XX E/W		6	0.24	92	28.04	4.27	1.3	2.79	1.30	50mph	46,690
Cen_E_XXX	Central Expressway east of Scott Blvd. XX E/W		6	0.26	92	28.04	4.27	1.3	2.79	1.30	50mph	30,643

2023 Emission Factors			Local			Freeway					
	Speed Category	1	2	3	4	5	6	7	8	9	10
	Travel Speed (mph)	40	45	50	15	20	30	50	55	60	65
Emissions per vehicle (g/VMT)	DPM	0.00067	0.00073	0.00083	0.0007726	0.000617	0.000495	0.000654	0.0007691	0.0009049	0.001058477
	PM2.5	0.00180	0.00174	0.00179	0.0047629	0.0034283	0.00212	0.001617	0.0017404	0.0019455	0.002238793
	TOG Exhaust	0.02113	0.01932	0.01857	0.0672208	0.0483402	0.028845	0.018418	0.018663	0.019919	0.022393129
	TOG Evap	0.03112	0.02767	0.02490	0.0813611	0.0610208	0.040681	0.024408	0.0221894	0.0203403	0.018775645
	Fugitive PM2.5	0.02458	0.02349	0.02243	0.0150599	0.0155752	0.015912	0.013217	0.0125668	0.0122655	0.011964102

Vehicle Type	NB 101		SB 101		San Tomas	Scott Blvd.	Central W/o	Central E/o			
	Truck 1 (MDT)	746	858		479	348	462	462	0	0	0
	Truck 2 (HDT)	1,061	1,220		562	408	542	542	0	0	0
	Non-Truck	37,474	43,101		15,483	11,234	14,941	14,941	0	0	0
	Total	39,281	45,179		16,524	11,989	15,946	17,578	-	-	-
Directional Volume		92,713	82,217		75,966	18,746	46690	30643	0	0	0

File Name: Santa Clara (SF) - 2022 - Annual.EF
EMFAC2021/CT-EMFAC2017:
Run Date: 2/18/2022 14:52
Area: Santa Clara (SF)
Analysis Year: 2023
Season: Annual

=====			
Vehicle Category	VTM Fraction Across Category	Diesel VMT Gas VMT Fraction Within Cat Within Category	
Truck 1	0.019	0.487	0.513
Truck 2	0.027	0.938	0.047
Non-Truck	0.954	0.014	0.958

=====			
Road Type:	Freeway		
Silt Loading Factor:	CARB	0.015 g/m2	
Precipitation Correction:	CARB	P = 64 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	0.010393361	0.006937	0.004763	0.003428	0.002622	0.00212	0.001811	0.001642	0.001583	0.001617	0.00174	0.001945	0.002239	0.00237	0
PM10															
NOx															
CO															
HC															
TOG	0.165617123	0.107142	0.071773	0.050728	0.038136	0.030185	0.025063	0.021836	0.019982	0.019229	0.019481	0.020776	0.023315	0.025161	0
ROG															
1,3-Butadiene															
Acetaldehyde															
Acrolein															
Benzene															
Diesel PM	0.00119623	0.000993	0.000773	0.000617	0.000533	0.000495	0.000489	0.000515	0.00057	0.000654	0.000769	0.000905	0.001058	0.001065	0
Ethylbenzene															
Formaldehyde															
Naphthalene															
POM															
DEOG	0.01191478	0.008457	0.004552	0.002388	0.001689	0.00134	0.001105	0.000948	0.000853	0.000811	0.000818	0.000857	0.000922	0.000986	0
CO2															
N2O															
CH4															
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	0.078365	0.063375	0.051858	0.043141	0.03688	0.032735	0.030318	0.029332	0.02945	0.030293	0.03156	0.032722	0.033699	0.033699	0.033699
Diesel	0.012738	0.010694	0.008327	0.007164	0.006295	0.005592	0.005108	0.004746	0.004522	0.004479	0.004579	0.004792	0.005144	0.005144	0.005144

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

Pollutant Name	Emission Factor
HC	
TOG	1.220416914
ROG	0
1,3-Butadiene	
Benzene	
Ethylbenzene	
Naphthalene	
CH4	0.181902896
HFC	0.018363032

=====

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

Pollutant Name	
PM2.5	0.00209824
PM10	0

=====

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	0.004019295	0.004557	0.005083	0.005598	0.005856	0.005935	0.005916	0.005387	0.004302	0.003239	0.00259	0.002288	0.001987	0.001987	0
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	Emission Factor
PM2.5	0.007879
PM10	0.052524

=====END=====

File Name: Santa Clara (SF) - 2022 - Annual.EF
EMFAC2021/CT-EMFAC2017:
Run Date: 2/18/2022 14:37
Area: Santa Clara (SF)
Analysis Year: 2023
Season: Annual

Vehicle Category	VT Fraction	Diesel VT Gas VT Fraction	
	Across Category	Within Cat	Within Category
Truck 1	0.029	0.487	0.513
Truck 2	0.034	0.938	0.047
Non-Truck	0.937	0.014	0.958

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

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.010858801	0.007341	0.005088	0.003691	0.002842	0.00231	0.001982	0.001803	0.001744	0.00179	0.001935	0.002171	0.002503	0.002646	0
PM10															
NOx															
CO															
HC															
TOG	0.167730911	0.108937	0.073144	0.051834	0.039083	0.030997	0.025753	0.022424	0.02049	0.019681	0.019902	0.021189	0.02374	0.025599	0
ROG															
1,3-Butadiene															
Acetaldehyde															
Acrolein															
Benzene															
Diesel PM	0.001582576	0.001315	0.001028	0.000826	0.000712	0.000657	0.000645	0.000671	0.000735	0.000835	0.000975	0.001142	0.001331	0.001343	0
Ethylbenzene															
Formaldehyde															
Naphthalene															
POM															
DEOG	0.015877461	0.011284	0.006129	0.003239	0.002296	0.001826	0.001509	0.001298	0.001169	0.001111	0.001118	0.001166	0.001244	0.001326	0
CO2															
N2O															
CH4															
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	0.078365	0.063375	0.051858	0.043141	0.03688	0.032735	0.030318	0.029332	0.02945	0.030293	0.03156	0.032722	0.033699	0.033699	0.033699
Diesel	0.012738	0.010694	0.008327	0.007164	0.006295	0.005592	0.005108	0.004746	0.004522	0.004479	0.004579	0.004792	0.005144	0.005144	0.005144

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

Pollutant Name	Emission Factor
HC	
TOG	1.244988941
ROG	0
1,3-Butadiene	
Benzene	
Ethylbenzene	
Naphthalene	
CH4	0.184510807
HFC	0.019183504

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

Pollutant Name	
PM2.5	0.002137024
PM10	0

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	0.004526063	0.005054	0.005568	0.006068	0.006307	0.006377	0.006324	0.005781	0.004691	0.003631	0.002993	0.002697	0.002401	0.002401	0
PM10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

Pollutant Name	Emission Factor
PM2.5	0.016661
PM10	0.111071

=====END=====

FUG 2.5

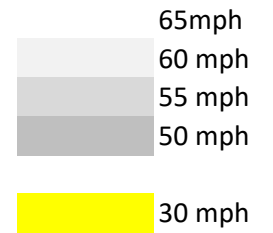
2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions -

Fraction Per			
Hour	Hour	VPH	g/s
	0	0.00681779	632 0.001104
	1	0.00462145	428 0.00074828
	2	0.00468097	434 0.00075792
	3	0.00968286	898 0.00156779
	4	0.03082435	2858 0.0049909
	5	0.06679419	6193 0.01081493
	6	0.07404355	6865 0.01259267
	7	0.06660857	6175 0.01434394

Northbound 101 XXX

Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0585321	5427 0.012604709
	9	0.0633763	5876 0.013647885
	10	0.0670055	6212 0.01198494
	11	0.0623032	5776 0.010341874
	12	0.0567865	5265 0.009194542
	13	0.0543718	5041 0.008803575
	14	0.0494414	4584 0.008005277
	15	0.0447655	4150 0.00724817

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04683244	4342 0.007582841
	17	0.05270545	4886 0.008533766
	18	0.04527766	4198 0.007331101
	19	0.0388399	3601 0.006288735
	20	0.03167478	2937 0.0051286
	21	0.02905745	2694 0.004704817
	22	0.02145047	1989 0.003473138
	23	0.01350579	1252 0.002186781
TOTAL		92,713	



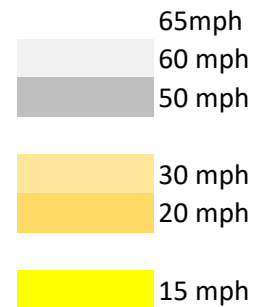
2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions -

Fraction Per			
Hour	Hour	VPH	g/s
	0	0.01772998	1458 0.00254575
	1	0.01216896	1000 0.00174727
	2	0.01214315	998 0.00174357
	3	0.00918819	755 0.00131928
	4	0.01360553	1119 0.00195354
	5	0.02312795	1902 0.00332081
	6	0.03564057	2930 0.00511743
	7	0.0495659	4075 0.00711689

Southbound 101 XXX

Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0552184	4540 0.007928501
	9	0.0500524	4115 0.007186746
	10	0.0508091	4177 0.007479152
	11	0.0561641	4618 0.00826741
	12	0.0627966	5163 0.009243726
	13	0.0653047	5369 0.010358375
	14	0.0585247	4812 0.010939597
	15	0.047628	3916 0.008608201

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04618459	3797 0.008347321
	17	0.04655436	3828 0.008414152
	18	0.0477077	3922 0.008622604
	19	0.05578799	4587 0.010653714
	20	0.05929302	4875 0.009404832
	21	0.05323704	4377 0.007644007
	22	0.04172144	3430 0.005990547
	23	0.02984567	2454 0.004285373
TOTAL		82,217	



2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions -

Fraction Per			
Hour	Hour	VPH	g/s
	0	0.01227389	932 0.0027074
	1	0.00839521	638 0.00185186
	2	0.00841206	639 0.00185558
	3	0.00943553	717 0.00208134
	4	0.02221494	1688 0.00490029
	5	0.04496107	3416 0.00991774
	6	0.05484206	4166 0.01209734
	7	0.05808724	4413 0.01281318

San Tomas Expressway XXX

Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0568753	4321 0.012545841
	9	0.0567144	4308 0.012510346
	10	0.0589073	4475 0.012994071
	11	0.0592336	4500 0.013066055
	12	0.0597915	4542 0.013189121
	13	0.0598382	4546 0.013199426
	14	0.0539831	4101 0.011907867
	15	0.0461967	3509 0.010190314

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04650851	3533 0.010259086
	17	0.0496299	3770 0.010947619
	18	0.04649268	3532 0.010255594
	19	0.04731394	3594 0.010436752
	20	0.0454839	3455 0.010033072
	21	0.04114724	3126 0.00907647
	22	0.03158596	2399 0.006967392
	23	0.02167573	1647 0.004781345
TOTAL		75,966	

2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions -

Fraction Per			
Hour	Hour	VPH	g/s
	0	0.01227389	230 0.00095933
	1	0.00839521	157 0.00065617
	2	0.00841206	158 0.00065749
	3	0.00943553	177 0.00073748
	4	0.02221494	416 0.00173632
	5	0.04496107	843 0.00351415
	6	0.05484206	1028 0.00428645
	7	0.05808724	1089 0.00454009

Scott Blvd. XXX

Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0568753	1066 0.004445363
	9	0.0567144	1063 0.004432786
	10	0.0589073	1104 0.004604184
	11	0.0592336	1110 0.00462969
	12	0.0597915	1121 0.004673297
	13	0.0598382	1122 0.004676948
	14	0.0539831	1012 0.00421931
	15	0.0461967	866 0.00361073

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04650851	872 0.003635098
	17	0.0496299	930 0.003879066
	18	0.04649268	872 0.003633861
	19	0.04731394	887 0.003698051
	20	0.0454839	853 0.003555015
	21	0.04114724	771 0.003216062
	22	0.03158596	592 0.002468753
	23	0.02167573	406 0.001694172
TOTAL		18,746	

FUG 2.5

2024 Hourly Traffic Volumes and Fugitive PM2.5 Emisss Central Expressway west of Scott Blvd. XXX

Fraction Per				Fraction Per				Fraction Per						
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s			
	0	0.01227389	573	0.000866		8	0.0568753	2656	0.004012447		16	0.04650851	2171	0.00328109
	1	0.00839521	392	0.00059227		9	0.0567144	2648	0.004001095		17	0.0496299	2317	0.003501299
	2	0.00841206	393	0.00059346		10	0.0589073	2750	0.004155801		18	0.04649268	2171	0.003279973
	3	0.00943553	441	0.00066566		11	0.0592336	2766	0.004178823		19	0.04731394	2209	0.003337912
	4	0.02221494	1037	0.00156722		12	0.0597915	2792	0.004218183		20	0.0454839	2124	0.003208806
	5	0.04496107	2099	0.00317192		13	0.0598382	2794	0.004221478		21	0.04114724	1921	0.002902863
	6	0.05484206	2561	0.00386901		14	0.0539831	2520	0.003808408		22	0.03158596	1475	0.002228331
	7	0.05808724	2712	0.00409795		15	0.0461967	2157	0.003259095		23	0.02167573	1012	0.001529183
										TOTAL	46,690			

2024 Hourly Traffic Volumes and Fugitive PM2.5 Emisss Central Expressway east of Scott Blvd. XXX

Fraction Per				Fraction Per				Fraction Per						
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s			
	0	0.01227389	376	0.00060601		8	0.0568753	1743	0.002808149		16	0.04650851	1425	0.002296303
	1	0.00839521	257	0.0004145		9	0.0567144	1738	0.002800205		17	0.0496299	1521	0.002450418
	2	0.00841206	258	0.00041534		10	0.0589073	1805	0.002908477		18	0.04649268	1425	0.002295521
	3	0.00943553	289	0.00046587		11	0.0592336	1815	0.002924589		19	0.04731394	1450	0.00233607
	4	0.02221494	681	0.00109684		12	0.0597915	1832	0.002952136		20	0.0454839	1394	0.002245714
	5	0.04496107	1378	0.0022199		13	0.0598382	1834	0.002954442		21	0.04114724	1261	0.002031596
	6	0.05484206	1681	0.00270776		14	0.0539831	1654	0.002665351		22	0.03158596	968	0.001559519
	7	0.05808724	1780	0.00286799		15	0.0461967	1416	0.002280909		23	0.02167573	664	0.001070214
										TOTAL	30,643			

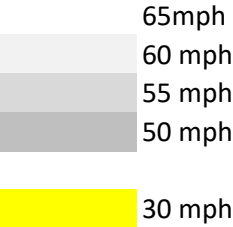
2024 Hourly Traffic Volumes and TOG Evaporative Emisssions -

Fraction Per			
Hour	Hour	VPH	g/s
	0	0.00681779	632 0.001732
	1	0.00462145	428 0.0011743
	2	0.00468097	434 0.00118942
	3	0.00968286	898 0.00246039
	4	0.03082435	2858 0.00783238
	5	0.06679419	6193 0.01697222
	6	0.07404355	6865 0.02223504
	7	0.06660857	6175 0.03667095

Northbound 101 XXX

Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0585321	5427 0.032224525
	9	0.0633763	5876 0.034891452
	10	0.0670055	6212 0.022133683
	11	0.0623032	5776 0.017150321
	12	0.0567865	5265 0.014429286
	13	0.0543718	5041 0.013815729
	14	0.0494414	4584 0.012562935
	15	0.0447655	4150 0.011374783

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04683244	4342 0.011899993
	17	0.05270545	4886 0.01339231
	18	0.04527766	4198 0.01150493
	19	0.0388399	3601 0.009869112
	20	0.03167478	2937 0.008048475
	21	0.02905745	2694 0.007383418
	22	0.02145047	1989 0.005450506
	23	0.01350579	1252 0.003431785
TOTAL		92,713	



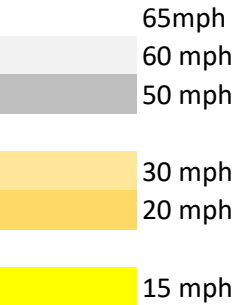
2024 Hourly Traffic Volumes and TOG Evaporative Emisssions -

Fraction Per			
Hour	Hour	VPH	g/s
	0	0.01772998	1458 0.00399512
	1	0.01216896	1000 0.00274205
	2	0.01214315	998 0.00273624
	3	0.00918819	755 0.00207039
	4	0.01360553	1119 0.00306575
	5	0.02312795	1902 0.00521146
	6	0.03564057	2930 0.00803094
	7	0.0495659	4075 0.01116876

Southbound 101 XXX

Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0552184	4540 0.012442449
	9	0.0500524	4115 0.011278388
	10	0.0508091	4177 0.012402961
	11	0.0561641	4618 0.01371016
	12	0.0627966	5163 0.01532922
	13	0.0653047	5369 0.019129758
	14	0.0585247	4812 0.042859272
	15	0.047628	3916 0.04650573

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04618459	3797 0.045096325
	17	0.04655436	3828 0.04545738
	18	0.0477077	3922 0.046583543
	19	0.05578799	4587 0.027236716
	20	0.05929302	4875 0.017368762
	21	0.05323704	4377 0.011995983
	22	0.04172144	3430 0.009401155
	23	0.02984567	2454 0.006725171
TOTAL		82,217	



2024 Hourly Traffic Volumes and TOG Evaporative Emisssions -

Fraction Per			
Hour	Hour	VPH	g/s
	0	0.01227389	932 0.0031889
	1	0.00839521	638 0.00218116
	2	0.00841206	639 0.00218553
	3	0.00943553	717 0.00245144
	4	0.02221494	1688 0.00577165
	5	0.04496107	3416 0.01168132
	6	0.05484206	4166 0.01424849
	7	0.05808724	4413 0.01509162

San Tomas Expressway XXX

Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0568753	4321 0.014776741
	9	0.0567144	4308 0.014734934
	10	0.0589073	4475 0.015304675
	11	0.0592336	4500 0.015389459
	12	0.0597915	4542 0.01553441
	13	0.0598382	4546 0.015546546
	14	0.0539831	4101 0.014025323
	15	0.0461967	3509 0.012002354

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04650851	3533 0.012083356
	17	0.0496299	3770 0.012894323
	18	0.04649268	3532 0.012079243
	19	0.04731394	3594 0.012292615
	20	0.0454839	3455 0.011817152
	21	0.04114724	3126 0.010690447
	22	0.03158596	2399 0.008206333
	23	0.02167573	1647 0.005631563
TOTAL		75,966	

2024 Hourly Traffic Volumes and TOG Evaporative Emisssions -

Fraction Per			
Hour	Hour	VPH	g/s
	0	0.01227389	230 0.00121481
	1	0.00839521	157 0.00083092
	2	0.00841206	158 0.00083259
	3	0.00943553	177 0.00093389
	4	0.02221494	416 0.00219874
	5	0.04496107	843 0.00445005
	6	0.05484206	1028 0.00542802
	7	0.05808724	1089 0.00574922

Scott Blvd. XXX

Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0568753	1066 0.005629261
	9	0.0567144	1063 0.005613335
	10	0.0589073	1104 0.00583038
	11	0.0592336	1110 0.005862679
	12	0.0597915	1121 0.005917899
	13	0.0598382	1122 0.005922522
	14	0.0539831	1012 0.005343005
	15	0.0461967	866 0.004572347

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04650851	872 0.004603205
	17	0.0496299	930 0.004912147
	18	0.04649268	872 0.004601638
	19	0.04731394	887 0.004682923
	20	0.0454839	853 0.004501794
	21	0.04114724	771 0.004072571
	22	0.03158596	592 0.003126237
	23	0.02167573	406 0.002145368
TOTAL		18,746	

2024 Hourly Traffic Volumes and TOG Evaporative Emis Central Expressway west of Scott Blvd. XXX

Fraction Per				Fraction Per				Fraction Per			
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s
0	0.01227389	573	0.000961	8	0.0568753	2656	0.004454409	16	0.04650851	2171	0.003642495
1	0.00839521	392	0.0006575	9	0.0567144	2648	0.004441806	17	0.0496299	2317	0.003886959
2	0.00841206	393	0.00065882	10	0.0589073	2750	0.004613553	18	0.04649268	2171	0.003641255
3	0.00943553	441	0.00073898	11	0.0592336	2766	0.004639111	19	0.04731394	2209	0.003705576
4	0.02221494	1037	0.00173985	12	0.0597915	2792	0.004682806	20	0.0454839	2124	0.003562249
5	0.04496107	2099	0.0035213	13	0.0598382	2794	0.004686464	21	0.04114724	1921	0.003222607
6	0.05484206	2561	0.00429517	14	0.0539831	2520	0.004227896	22	0.03158596	1475	0.002473777
7	0.05808724	2712	0.00454933	15	0.0461967	2157	0.003618077	23	0.02167573	1012	0.00169762
TOTAL										46,690	

2024 Hourly Traffic Volumes and TOG Evaporative Emis Central Expressway east of Scott Blvd. XXX

Fraction Per				Fraction Per				Fraction Per			
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s
0	0.01227389	376	0.00067276	8	0.0568753	1743	0.003117461	16	0.04650851	1425	0.002549235
1	0.00839521	257	0.00046016	9	0.0567144	1738	0.003108641	17	0.0496299	1521	0.002720326
2	0.00841206	258	0.00046108	10	0.0589073	1805	0.003228839	18	0.04649268	1425	0.002548367
3	0.00943553	289	0.00051718	11	0.0592336	1815	0.003246726	19	0.04731394	1450	0.002593383
4	0.02221494	681	0.00121765	12	0.0597915	1832	0.003277307	20	0.0454839	1394	0.002493074
5	0.04496107	1378	0.00246442	13	0.0598382	1834	0.003279867	21	0.04114724	1261	0.002255372
6	0.05484206	1681	0.00300602	14	0.0539831	1654	0.002958933	22	0.03158596	968	0.001731297
7	0.05808724	1780	0.00318389	15	0.0461967	1416	0.002532146	23	0.02167573	664	0.001188095
										TOTAL	30,643



2024 Hourly Traffic Volumes and TOG Exhaust Emisssions -
Fraction Per

Hour	Hour	VPH	g/s
	0	0.00681779	632 0.002066
	1	0.00462145	428 0.00140055
	2	0.00468097	434 0.00141859
	3	0.00968286	898 0.00293443
	4	0.03082435	2858 0.00934144
	5	0.06679419	6193 0.02024224
	6	0.07404355	6865 0.01870136
	7	0.06660857	6175 0.026002

Northbound 101 XXX
Fraction Per

Hour	Hour	VPH	g/s
	8	0.0585321	5427 0.022849202
	9	0.0633763	5876 0.02474022
	10	0.0670055	6212 0.016701485
	11	0.0623032	5776 0.016795144
	12	0.0567865	5265 0.017209361
	13	0.0543718	5041 0.016477592
	14	0.0494414	4584 0.014983422
	15	0.0447655	4150 0.013566351

Fraction Per

Hour	Hour	VPH	g/s
	16	0.04683244	4342 0.014192753
	17	0.05270545	4886 0.015972592
	18	0.04527766	4198 0.013721573
	19	0.0388399	3601 0.011770583
	20	0.03167478	2937 0.009599166
	21	0.02905745	2694 0.008805974
	22	0.02145047	1989 0.006500649
	23	0.01350579	1252 0.004092984
	TOTAL	92,713	

65mph

60 mph

55 mph

50 mph

30 mph

2024 Hourly Traffic Volumes and TOG Exhaust Emisssions -
Fraction Per

Hour	Hour	VPH	g/s
	0	0.01772998	1458 0.00476486
	1	0.01216896	1000 0.00327036
	2	0.01214315	998 0.00326342
	3	0.00918819	755 0.00246929
	4	0.01360553	1119 0.00365643
	5	0.02312795	1902 0.00621554
	6	0.03564057	2930 0.00957826
	7	0.0495659	4075 0.01332063

Southbound 101 XXX
Fraction Per

Hour	Hour	VPH	g/s
	8	0.0552184	4540 0.014839723
	9	0.0500524	4115 0.013451383
	10	0.0508091	4177 0.012146101
	11	0.0561641	4618 0.013426227
	12	0.0627966	5163 0.015011758
	13	0.0653047	5369 0.014434803
	14	0.0585247	4812 0.033952787
	15	0.047628	3916 0.038423153

Fraction Per

Hour	Hour	VPH	g/s
	16	0.04618459	3797 0.037258699
	17	0.04655436	3828 0.037557004
	18	0.0477077	3922 0.038487442
	19	0.05578799	4587 0.019312534
	20	0.05929302	4875 0.013106003
	21	0.05323704	4377 0.014307237
	22	0.04172144	3430 0.011212466
	23	0.02984567	2454 0.008020903
	TOTAL	82,217	

65mph

60 mph

50 mph

30 mph

20 mph

15 mph

2024 Hourly Traffic Volumes and TOG Exhaust Emisssions -
Fraction Per

Hour	Hour	VPH	g/s
	0	0.01227389	932 0.0022269
	1	0.00839521	638 0.00152319
	2	0.00841206	639 0.00152625
	3	0.00943553	717 0.00171194
	4	0.02221494	1688 0.00403059
	5	0.04496107	3416 0.00815755
	6	0.05484206	4166 0.00995031
	7	0.05808724	4413 0.0105391

San Tomas Expressway XXX
Fraction Per

Hour	Hour	VPH	g/s
	8	0.0568753	4321 0.01031921
	9	0.0567144	4308 0.010290015
	10	0.0589073	4475 0.010687888
	11	0.0592336	4500 0.010747096
	12	0.0597915	4542 0.010848321
	13	0.0598382	4546 0.010856797
	14	0.0539831	4101 0.009794463
	15	0.0461967	3509 0.008381741

Fraction Per

Hour	Hour	VPH	g/s
	16	0.04650851	3533 0.008438308
	17	0.0496299	3770 0.00900464
	18	0.04649268	3532 0.008435435
	19	0.04731394	3594 0.008584442
	20	0.0454839	3455 0.008252406
	21	0.04114724	3126 0.007465582
	22	0.03158596	2399 0.005730822
	23	0.02167573	1647 0.003932754
	TOTAL	75,966	

2024 Hourly Traffic Volumes and TOG Exhaust Emisssions -
Fraction Per

Hour	Hour	VPH	g/s
	0	0.01227389	230 0.00082457
	1	0.00839521	157 0.000564
	2	0.00841206	158 0.00056513
	3	0.00943553	177 0.00063389
	4	0.02221494	416 0.00149242
	5	0.04496107	843 0.00302053
	6	0.05484206	1028 0.00368434
	7	0.05808724	1089 0.00390236

Scott Blvd. XXX
Fraction Per

Hour	Hour	VPH	g/s
	8	0.0568753	1066 0.003820939
	9	0.0567144	1063 0.003810128
	10	0.0589073	1104 0.003957451
	11	0.0592336	1110 0.003979374
	12	0.0597915	1121 0.004016855
	13	0.0598382	1122 0.004019993
	14	0.0539831	1012 0.003626638
	15	0.0461967	866 0.003103543

Fraction Per

Hour	Hour	VPH	g/s
	16	0.04650851	872 0.003124489
	17	0.0496299	930 0.003334187
	18	0.04649268	872 0.003123425
	19	0.04731394	887 0.003178598
	20	0.0454839	853 0.003055654
	21	0.04114724	771 0.002764313
	22	0.03158596	592 0.002121976
	23	0.02167573	406 0.001456198
	TOTAL	18,746	

2024 Hourly Traffic Volumes and TOG Exhaust Emisssiol Central Expressway west of Scott Blvd. XXX

Fraction Per				Fraction Per				Fraction Per			
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s
0	0.01227389	573	0.000717	8	0.0568753	2656	0.003321981	16	0.04650851	2171	0.002716477
1	0.00839521	392	0.00049035	9	0.0567144	2648	0.003312582	17	0.0496299	2317	0.002898792
2	0.00841206	393	0.00049133	10	0.0589073	2750	0.003440666	18	0.04649268	2171	0.002715552
3	0.00943553	441	0.00055111	11	0.0592336	2766	0.003459727	19	0.04731394	2209	0.002763521
4	0.02221494	1037	0.00129753	12	0.0597915	2792	0.003492313	20	0.0454839	2124	0.002656631
5	0.04496107	2099	0.00262609	13	0.0598382	2794	0.003495042	21	0.04114724	1921	0.002403335
6	0.05484206	2561	0.00320322	14	0.0539831	2520	0.003153053	22	0.03158596	1475	0.001844878
7	0.05808724	2712	0.00339277	15	0.0461967	2157	0.002698267	23	0.02167573	1012	0.00126604
TOTAL										46,690	

2024 Hourly Traffic Volumes and TOG Exhaust Emisssiol Central Expressway east of Scott Blvd. XXX

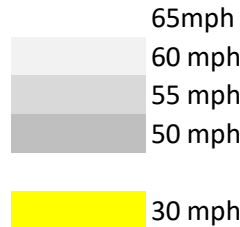
Fraction Per				Fraction Per				Fraction Per			
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s
0	0.01227389	376	0.00050173	8	0.0568753	1743	0.00232492	16	0.04650851	1425	0.001901153
1	0.00839521	257	0.00034318	9	0.0567144	1738	0.002318342	17	0.0496299	1521	0.002028747
2	0.00841206	258	0.00034386	10	0.0589073	1805	0.002407983	18	0.04649268	1425	0.001900505
3	0.00943553	289	0.0003857	11	0.0592336	1815	0.002421323	19	0.04731394	1450	0.001934076
4	0.02221494	681	0.00090809	12	0.0597915	1832	0.002444129	20	0.0454839	1394	0.001859269
5	0.04496107	1378	0.0018379	13	0.0598382	1834	0.002446039	21	0.04114724	1261	0.001681997
6	0.05484206	1681	0.00224181	14	0.0539831	1654	0.002206695	22	0.03158596	968	0.001291155
7	0.05808724	1780	0.00237446	15	0.0461967	1416	0.001888408	23	0.02167573	664	0.00088605
TOTAL										30,643	

2024 Hourly Traffic Volumes and PM2.5 Emisssions -

Northbound 101 XXX			
Fraction Per			
Hour	Hour	VPH	g/s
	0	0.00681779	632 0.000207
	1	0.00462145	428 0.00014002
	2	0.00468097	434 0.00014183
	3	0.00968286	898 0.00029337
	4	0.03082435	2858 0.00093393
	5	0.06679419	6193 0.00202375
	6	0.07404355	6865 0.00174396
	7	0.06660857	6175 0.00191101

Northbound 101 XXX			
Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0585321	5427 0.001679292
	9	0.0633763	5876 0.001818272
	10	0.0670055	6212 0.001466377
	11	0.0623032	5776 0.00164037
	12	0.0567865	5265 0.001720536
	13	0.0543718	5041 0.001647376
	14	0.0494414	4584 0.001497994
	15	0.0447655	4150 0.00135632

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04683244	4342 0.001418946
	17	0.05270545	4886 0.001596888
	18	0.04527766	4198 0.001371838
	19	0.0388399	3601 0.001176785
	20	0.03167478	2937 0.000959694
	21	0.02905745	2694 0.000880393
	22	0.02145047	1989 0.000649914
	23	0.01350579	1252 0.000409203
	TOTAL	92,713	

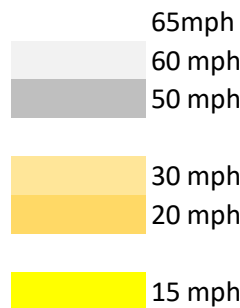


2024 Hourly Traffic Volumes and PM2.5 Emisssions -

Southbound 101 XXX			
Fraction Per			
Hour	Hour	VPH	g/s
	0	0.01772998	1458 0.00047638
	1	0.01216896	1000 0.00032696
	2	0.01214315	998 0.00032627
	3	0.00918819	755 0.00024687
	4	0.01360553	1119 0.00036556
	5	0.02312795	1902 0.00062141
	6	0.03564057	2930 0.0009576
	7	0.0495659	4075 0.00133175

Southbound 101 XXX			
Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0552184	4540 0.001483627
	9	0.0500524	4115 0.001344826
	10	0.0508091	4177 0.001186301
	11	0.0561641	4618 0.00131133
	12	0.0627966	5163 0.001466188
	13	0.0653047	5369 0.001267364
	14	0.0585247	4812 0.00240794
	15	0.047628	3916 0.002722474

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04618459	3797 0.002639966
	17	0.04655436	3828 0.002661103
	18	0.0477077	3922 0.002727029
	19	0.05578799	4587 0.001419366
	20	0.05929302	4875 0.001150697
	21	0.05323704	4377 0.001430391
	22	0.04172144	3430 0.001120986
	23	0.02984567	2454 0.000801904
	TOTAL	82,217	



2024 Hourly Traffic Volumes and PM2.5 Emisssions -

San Tomas Expressway XXX			
Fraction Per			
Hour	Hour	VPH	g/s
	0	0.01227389	932 0.0002011
	1	0.00839521	638 0.00013752
	2	0.00841206	639 0.00013779
	3	0.00943553	717 0.00015456
	4	0.02221494	1688 0.00036389
	5	0.04496107	3416 0.00073649
	6	0.05484206	4166 0.00089834
	7	0.05808724	4413 0.0009515

San Tomas Expressway XXX			
Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0568753	4321 0.00093165
	9	0.0567144	4308 0.000929014
	10	0.0589073	4475 0.000964935
	11	0.0592336	4500 0.00097028
	12	0.0597915	4542 0.000979419
	13	0.0598382	4546 0.000980185
	14	0.0539831	4101 0.000884274
	15	0.0461967	3509 0.000756729

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04650851	3533 0.000761836
	17	0.0496299	3770 0.000812966
	18	0.04649268	3532 0.000761577
	19	0.04731394	3594 0.000775029
	20	0.0454839	3455 0.000745052
	21	0.04114724	3126 0.000674015
	22	0.03158596	2399 0.000517396
	23	0.02167573	1647 0.000355061
	TOTAL	75,966	

2024 Hourly Traffic Volumes and PM2.5 Emisssions -

Scott Blvd. XXX			
Fraction Per			
Hour	Hour	VPH	g/s
	0	0.01227389	230 7.038E-05
	1	0.00839521	157 4.8139E-05
	2	0.00841206	158 4.8236E-05
	3	0.00943553	177 5.4104E-05
	4	0.02221494	416 0.00012738
	5	0.04496107	843 0.00025781
	6	0.05484206	1028 0.00031447
	7	0.05808724	1089 0.00033308

Scott Blvd. XXX			
Fraction Per			
Hour	Hour	VPH	g/s
	8	0.0568753	1066 0.000326129
	9	0.0567144	1063 0.000325206
	10	0.0589073	1104 0.000337781
	11	0.0592336	1110 0.000339652
	12	0.0597915	1121 0.000342851
	13	0.0598382	1122 0.000343119
	14	0.0539831	1012 0.000309545
	15	0.0461967	866 0.000264897

Fraction Per			
Hour	Hour	VPH	g/s
	16	0.04650851	872 0.000266685
	17	0.0496299	930 0.000284583
	18	0.04649268	872 0.000266594
	19	0.04731394	887 0.000271303
	20	0.0454839	853 0.000260809
	21	0.04114724	771 0.000235943
	22	0.03158596	592 0.000181117
	23	0.02167573	406 0.000124291
	TOTAL	18,746	

2024 Hourly Traffic Volumes and PM2.5 Emisssions - Central Expressway west of Scott Blvd. XXX

Fraction Per				Fraction Per				Fraction Per			
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s
0	0.01227389	573	0.000069	8	0.0568753	2656	0.000320242	16	0.04650851	2171	0.000261871
1	0.00839521	392	4.727E-05	9	0.0567144	2648	0.000319336	17	0.0496299	2317	0.000279446
2	0.00841206	393	4.7365E-05	10	0.0589073	2750	0.000331683	18	0.04649268	2171	0.000261781
3	0.00943553	441	5.3128E-05	11	0.0592336	2766	0.00033352	19	0.04731394	2209	0.000266406
4	0.02221494	1037	0.00012508	12	0.0597915	2792	0.000336662	20	0.0454839	2124	0.000256101
5	0.04496107	2099	0.00025316	13	0.0598382	2794	0.000336925	21	0.04114724	1921	0.000231683
6	0.05484206	2561	0.00030879	14	0.0539831	2520	0.000303957	22	0.03158596	1475	0.000177848
7	0.05808724	2712	0.00032707	15	0.0461967	2157	0.000260115	23	0.02167573	1012	0.000122047
										TOTAL	46,690

2024 Hourly Traffic Volumes and PM2.5 Emisssions - Central Expressway east of Scott Blvd. XXX

Fraction Per				Fraction Per				Fraction Per			
Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s	Hour	Hour	VPH	g/s
0	0.01227389	376	4.8367E-05	8	0.0568753	1743	0.000224124	16	0.04650851	1425	0.000183273
1	0.00839521	257	3.3082E-05	9	0.0567144	1738	0.00022349	17	0.0496299	1521	0.000195573
2	0.00841206	258	3.3149E-05	10	0.0589073	1805	0.000232132	18	0.04649268	1425	0.00018321
3	0.00943553	289	3.7182E-05	11	0.0592336	1815	0.000233418	19	0.04731394	1450	0.000186447
4	0.02221494	681	8.7541E-05	12	0.0597915	1832	0.000235616	20	0.0454839	1394	0.000179235
5	0.04496107	1378	0.00017717	13	0.0598382	1834	0.0002358	21	0.04114724	1261	0.000162146
6	0.05484206	1681	0.00021611	14	0.0539831	1654	0.000212727	22	0.03158596	968	0.000124468
7	0.05808724	1780	0.0002289	15	0.0461967	1416	0.000182044	23	0.02167573	664	8.5416E-05
										TOTAL	30,643

2024 Hourly Traffic Volumes and DPM Emisssions - Fraction Per					Northbound 101 DPM Fraction Per				DPM Fraction Per										
Hour	Hour	VPH	g/s		Hour	Hour	VPH	g/s		Hour	Hour	VPH	g/s						
	0	0.00681779	632	0.000098		8	0.0585321	5427	0.000391712		16	0.04683244	4342	0.000670862	65mph				
	1	0.00462145	428	6.6201E-05		9	0.0633763	5876	0.00042413		17	0.05270545	4886	0.000754991	60 mph				
	2	0.00468097	434	6.7054E-05		10	0.0670055	6212	0.000592961		18	0.04527766	4198	0.00064859	55 mph				
	3	0.00968286	898	0.0001387		11	0.0623032	5776	0.000762984		19	0.0388399	3601	0.000556371	50 mph				
	4	0.03082435	2858	0.00044155		12	0.0567865	5265	0.000813451		20	0.03167478	2937	0.000453733					
	5	0.06679419	6193	0.00095681		13	0.0543718	5041	0.000778862		21	0.02905745	2694	0.00041624	30 mph				
	6	0.07404355	6865	0.00077069		14	0.0494414	4584	0.000708235		22	0.02145047	1989	0.000307272					
	7	0.06660857	6175	0.00044576		15	0.0447655	4150	0.000641253		23	0.01350579	1252	0.000193467					
										TOTAL 92,713									
2024 Hourly Traffic Volumes and DPM Emisssions - Fraction Per					Southbound 101 DPM Fraction Per				Fraction Per										
Hour	Hour	VPH	g/s		Hour	Hour	VPH	g/s		Hour	Hour	VPH	g/s						
	0	0.01772998	1458	0.00022523		8	0.0552184	4540	0.000701443		16	0.04618459	3797	0.000428258	65mph				
	1	0.01216896	1000	0.00015458		9	0.0500524	4115	0.000635819		17	0.04655436	3828	0.000431687	60 mph				
	2	0.01214315	998	0.00015426		10	0.0508091	4177	0.000551784		18	0.0477077	3922	0.000442382	50 mph				
	3	0.00918819	755	0.00011672		11	0.0561641	4618	0.000609938		19	0.05578799	4587	0.000331082					
	4	0.01360553	1119	0.00017283		12	0.0627966	5163	0.000681967		20	0.05929302	4875	0.000465309	30 mph				
	5	0.02312795	1902	0.0002938		13	0.0653047	5369	0.000512486		21	0.05323704	4377	0.000676273	20 mph				
	6	0.03564057	2930	0.00045274		14	0.0585247	4812	0.000433364		22	0.04172144	3430	0.00052999					
	7	0.0495659	4075	0.00062964		15	0.047628	3916	0.000441643		23	0.02984567	2454	0.000379131	15 mph				
										TOTAL 82,217									
2024 Hourly Traffic Volumes and DPM Emisssions - Fraction Per					San Tomas Expressway DPM Fraction Per				Fraction Per										
Hour	Hour	VPH	g/s		Hour	Hour	VPH	g/s		Hour	Hour	VPH	g/s						
	0	0.01227389	932	0.0000847		8	0.0568753	4321	0.000392433		16	0.04650851	3533	0.000320904					
	1	0.00839521	638	5.7926E-05		9	0.0567144	4308	0.000391323		17	0.0496299	3770	0.000342441					
	2	0.00841206	639	5.8042E-05		10	0.0589073	4475	0.000406454		18	0.04649268	3532	0.000320794					
	3	0.00943553	717	6.5104E-05		11	0.0592336	4500	0.000408705		19	0.04731394	3594	0.000326461					
	4	0.02221494	1688	0.00015328		12	0.0597915	4542	0.000412555		20	0.0454839	3455	0.000313834					
	5	0.04496107	3416	0.00031023		13	0.0598382	4546	0.000412877		21	0.04114724	3126	0.000283911					
	6	0.05484206	4166	0.0003784		14	0.0539831	4101	0.000372477		22	0.03158596	2399	0.00021794					
	7	0.05808724	4413	0.0004008		15	0.0461967	3509	0.000318752		23	0.02167573	1647	0.00014956					
										TOTAL 75,966									
2024 Hourly Traffic Volumes and DPM Emisssions - Fraction Per					Scott Blvd. DPM Fraction Per				Fraction Per										
Hour	Hour	VPH	g/s		Hour	Hour	VPH	g/s		Hour	Hour	VPH	g/s						
	0	0.01227389	230	2.6177E-05		8	0.0568753	1066	0.000121301		16	0.04650851	872	9.91916E-05					
	1	0.00839521	157	1.7905E-05		9	0.0567144	1063	0.000120958		17	0.0496299	930	0.000105849					
	2	0.00841206	158	1.7941E-05		10	0.0589073	1104	0.000125635		18	0.04649268	872	9.91578E-05					
	3	0.00943553	177	2.0124E-05		11	0.0592336	1110	0.000126331		19	0.04731394	887	0.000100909					
	4	0.02221494	416	4.7379E-05		12	0.0597915	1121	0.000127521		20	0.0454839	853	9.70064E-05					
	5	0.04496107	843	9.5891E-05		13	0.0598382	1122	0.000127621		21	0.04114724	771	8.77573E-05					
	6	0.05484206	1028	0.00011697		14	0.0539831	1012	0.000115133		22	0.03158596	592	6.73653E-05					
	7	0.05808724	1089	0.00012389		15	0.0461967	866	9.85267E-05		23	0.02167573	406	4.62292E-05					
										TOTAL 18,746									
Roadway_Emissions_2023																			



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	1/21/2022
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	MCA Expansion
Address	3003 Scott Blvd & 3080 Alfred St
City	Santa Clara
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	School
Project Size (# of units or building square feet)	900 students K-12
Comments:	

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

1. Complete all the contact and project information requested in **Table A**. Incomplete forms will not be processed. Please include a project site map.
2. Download and install the free program Google Earth, <http://www.google.com/earth/download/ge/>, and then download the county specific Google Earth stationary source application files from the District's website, <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>. The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.
5. List the stationary source information in **Table B** - the table 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 Matthew Hanson at 415-749-8733, or mhanson@baaqmd.gov

Table B: Google Earth data											Project Site				
Distance from Receptor (feet) or MEI ¹		Plant No.	Facility Name	Address	Cancer Risk ²	Hazard Risk ²	PM _{2.5} ²	Source No. ³	Type of Source ⁴	Fuel Code ⁵	Status/Comments	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
Outside 1/4 Mile	646		Siliconix, Incorporated/Vishay Siliconix	2201 Laurelwood Road	30.55	0.05	0.07		Generators		2018 Dataset	NA	0.00	0.00	0.00
	940	13306	Equinix LLC	1350 Duane Avenue	94.39	0.03	0.12		Generators		2018 Dataset	0.04	3.78	0.001	0.005
815	13567		Verizon Wireless Santa Clara Switch	1503 Arbuckle Court	29.38	0.06	0.04		Generators		2018 Dataset	0.05	1.47	0.003	0.002
											2018 Dataset; Exceeds cancer risk screening, modeled in AERMOD with BAAQMD provided DPM emissions	0.16	4.66	0.01	0.03
400	13711		Pacific Bell Corp dba AT&T CA	1700 Space Park Drive	167.40	0.05	0.21		Generators						
Outside 1/4 Mile	15001		Value Products Inc	2775 Scott Boulevard	0.01	--	--		Generators		2018 Dataset	NA	0.00	0.00	0.00
65	15273		Luxtron Corporation	3033 Scott Boulevard	--	--	--		Exempt wipe cleaning		2018 Dataset	0.83	0.00	0.00	0.00
			Silicon Valley Animal Control Authority	3370 Thomas Road	2.37	--	--		Generators		2018 Dataset	0.04	0.09	0.00	0.00
810	19293		1525 Comstock C/O Digital Realty Trust	1525 Comstock Drive	10.56	0.003	0.01		Diesel Backup Generator		2018 Dataset	0.05	0.53	0.0002	0.001
410	20256		Digital Realty Trust	1725 Comstock Drive	2.97	0.01	--		Generators		2018 Dataset	0.15	0.45	0.002	0.00
85	20326		Digital Alfred, LLC	3105 Alfred Avenue	2.15	0.01	--		Generators		2018 Dataset	0.85	1.83	0.01	0.00
900	21465		FutureWei Technologies	2890 Scott Boulevard	5.31	0.01	0.01		Generators		2018 Dataset	0.04	0.21	0.0004	0.0004
980	23022		Genia Technologies	2841 Scott Boulevard	0.79	0.0002	0.001		Diesel Backup Generator		2018 Dataset	0.04	0.03	0.00001	0.00004
		675	Harbor Electronics, Inc	3021 Kenneth Street	4.04	0.01	--		Generators		2018 Dataset	0.08	0.32	0.001	0.00
690	23923		SIHC Silicon Valley, LLC	3120 Scott Boulevard	--	--	--		Diesel Backup Generator		2018 Dataset	0.08	0.00	0.00	0.00
		960	Digital 1500 Space Park Borrower, LLC	1500 Space Park Drive	2.79	0.01	--		Generators		2018 Dataset	0.04	0.11	0.0004	0.00
960	24421		Cyxtera Communications LLC	1500 Space Park Drive	2.79	0.01	--		Generators		2018 Dataset	0.04	0.11	0.0004	0.00
									SemiConductor Fab, Diesel Backup Generator, Wipe Cleaning			0.14	0.61	0.003	0.003
460	24589 (10305)		Applied Materials	3101 Scott Boulevard	4.34	0.02	0.02		Generators		2018 Dataset				
660	200760		Golden Cajun, LLC	1500 Duane Ave	88.95	0.02	0.11		Diesel Backup Generator		2018 Dataset	0.08	7.12	0.002	0.01
		980	Roche Sequencing Solutions	2861 SCOTT BLVD	8.5	--	0.01		Generators		2018 Dataset	0.04	0.34	0.00	0.0004

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.

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 Multplier worksheet.

f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.

Roadways			
	2.47	0.03	0
	0.3	0.06	0
	0.13	0.04	0
	0.26	0.03	0
Total	24.81	0.19	0.05

Step 1: Enter Facility Data		Step 4: Specify Source Type	
Plant Name	Equinix LLC	Does facility have only diesel backup generators?	yes
Plant No.	13306	Is this analysis for a gas station?	no

Note: Default generic distance multiplier used if source is not a generator or gas station.

Step 2: Estimate Distance		Step 5: Read Estimates	
What is the distance (m) from the facility boundary to the MEI?	285	Total Cancer Risk	3.776 per 1,000,000
		Total Chronic Hazard	0.001
		Total PM2.5 Concentration	0.005 µg/m³

Step 3: Enter Emissions Data					
Chemical Name	CAS No.	Rate	Risk	Hazard	Concentration
	(dashes removed)	(lb/day)	(# / 1,000,000)	(index)	(µg/m3)
PM2.5 (PM2.5-10)	22268	0.005			

Step 1: Enter Facility Data		Step 4: Specify Source Type	
Plant Name	Pacific Bell Corp dba AT&T CA	Does facility have only diesel backup generators?	yes
Plant No.	13711	Is this analysis for a gas station?	no

Note: Default generic distance multiplier used if source is not a generator or gas station.

Step 2: Estimate Distance		Step 5: Read Estimates	
What is the distance (m) from the facility boundary to the MEI?	120	Total Cancer Risk	26.783 per 1,000,000
		Total Chronic Hazard	0.007
		Total PM2.5 Concentration	0.034 µg/m³

Step 3: Enter Emissions Data					
Chemical Name	CAS No.	Rate	Risk	Hazard	Concentration
	(dashes removed)	(lb/day)	(# / 1,000,000)	(index)	(µg/m3)
Fine Particulate Matter (PM2.5)		1.13E-01			0.21

	Step 1: Enter Facility Data		Step 4: Specify Source Type										
	Plant Name	1525 Comstock C/O Digital Realty Trust	Does facility have only diesel backup generators?	yes									
	Plant No.	19293	Is this analysis for a gas station?	no									
Note: Default generic distance multiplier used if source is not a generator or gas station.													
Step 2: Estimate Distance		Step 3: Enter Emissions Data	Step 5: Read Estimates										
What is the distance (m) from the facility boundary to the MEI?			<table border="1"> <tr> <td>Total Cancer Risk</td> <td>0.634</td> <td>per 1,000,000</td> </tr> <tr> <td>Total Chronic Hazard</td> <td>0.000</td> <td></td> </tr> <tr> <td>Total PM2.5 Concentration</td> <td>0.001</td> <td>µg/m³</td> </tr> </table>		Total Cancer Risk	0.634	per 1,000,000	Total Chronic Hazard	0.000		Total PM2.5 Concentration	0.001	µg/m³
Total Cancer Risk	0.634	per 1,000,000											
Total Chronic Hazard	0.000												
Total PM2.5 Concentration	0.001	µg/m³											
Chemical Name		CAS No.	Rate	Risk	Hazard	Concentration							
		(dashes removed)	(lb/day)	(# / 1,000,000)	(index)	(µg/m3)							
Fine Particulate Matter (PM2.5)			7.14E-03			0.01							

	Step 1: Enter Facility Data		Step 4: Specify Source Type										
	Plant Name	Genia Technologies	Does facility have only diesel backup generators?	yes									
	Plant No.	23022	Is this analysis for a gas station?	no									
Note: Default generic distance multiplier used if source is not a generator or gas station.													
Step 2: Estimate Distance		Step 3: Enter Emissions Data	Step 5: Read Estimates										
What is the distance (m) from the facility boundary to the MEI?			<table border="1"> <tr> <td>Total Cancer Risk</td> <td>0.031</td> <td>per 1,000,000</td> </tr> <tr> <td>Total Chronic Hazard</td> <td>0.000</td> <td></td> </tr> <tr> <td>Total PM2.5 Concentration</td> <td>0.000</td> <td>µg/m³</td> </tr> </table>		Total Cancer Risk	0.031	per 1,000,000	Total Chronic Hazard	0.000		Total PM2.5 Concentration	0.000	µg/m³
Total Cancer Risk	0.031	per 1,000,000											
Total Chronic Hazard	0.000												
Total PM2.5 Concentration	0.000	µg/m³											
Chemical Name		CAS No.	Rate	Risk	Hazard	Concentration							
		(dashes removed)	(lb/day)	(# / 1,000,000)	(index)	(µg/m3)							
Fine Particulate Matter (PM2.5)			5.32E-04			0.00							

	Step 1: Enter Facility Data		Step 4: Specify Source Type									
	Plant Name	Applied Materials	Does facility have only diesel backup generators?	no								
	Plant No.	24589	Is this analysis for a gas station?	no								
Note: Default generic distance multiplier used if source is not a generator or gas station.												
Step 2: Estimate Distance		Step 3: Enter Emissions Data	Step 5: Read Estimates									
What is the distance (m) from the facility boundary to the MEI?			<table border="1"> <tr> <td>Total Cancer Risk</td> <td>0.667</td> <td rowspan="3">per 1,000,000</td> </tr> <tr> <td>Total Chronic Hazard</td> <td>0.000</td> </tr> <tr> <td>Total PM2.5 Concentration</td> <td>0.001</td> <td>µg/m³</td> </tr> </table>		Total Cancer Risk	0.667	per 1,000,000	Total Chronic Hazard	0.000	Total PM2.5 Concentration	0.001	µg/m³
Total Cancer Risk	0.667	per 1,000,000										
Total Chronic Hazard	0.000											
Total PM2.5 Concentration	0.001		µg/m³									
Chemical Name	CAS No.	Rate	Risk	Hazard	Concentration							
	(dashes removed)	(lb/day)	(# / 1,000,000)	(index)	(µg/m3)							
Fine Particulate Matter (PM2.5)		1.20E-03			0.00							

	Step 1: Enter Facility Data		Step 4: Specify Source Type									
	Plant Name	Golden Cajun, LLC	Does facility have only diesel backup generators?	yes								
	Plant No.	200760	Is this analysis for a gas station?	no								
Note: Default generic distance multiplier used if source is not a generator or gas station.												
Step 2: Estimate Distance		Step 3: Enter Emissions Data	Step 5: Read Estimates									
What is the distance (m) from the facility boundary to the MEI?			<table border="1"> <tr> <td>Total Cancer Risk</td> <td>7.116</td> <td rowspan="3">per 1,000,000</td> </tr> <tr> <td>Total Chronic Hazard</td> <td>0.002</td> </tr> <tr> <td>Total PM2.5 Concentration</td> <td>0.009</td> <td>µg/m³</td> </tr> </table>		Total Cancer Risk	7.116	per 1,000,000	Total Chronic Hazard	0.002	Total PM2.5 Concentration	0.009	µg/m³
Total Cancer Risk	7.116	per 1,000,000										
Total Chronic Hazard	0.002											
Total PM2.5 Concentration	0.009		µg/m³									
Chemical Name	CAS No.	Rate	Risk	Hazard	Concentration							
	(dashes removed)	(lb/day)	(# / 1,000,000)	(index)	(µg/m3)							
Fine Particulate Matter (PM2.5)		6.01E-02			0.11							



Stationary Source Risk & Hazards Screening Report

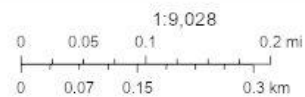
Area of Interest (AOI) Information

Area : 9,479,303.81 ft²

Dec 10 2021 13:51:11 Pacific Standard Time



● Permitted Facilities 2018



City of San Jose, County of Santa Clara, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

Summary

Name	Count	Area(ft ²)	Length(ft)
Permitted Facilities 2018	15	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	646	Siliconix, Incorporated/Vishay Siliconix	2201 Laurelwood Road	Santa Clara	CA
2	10305	AKT America Incorporated	3101 Scott Boulevard	Santa Clara	CA
3	13306	Equinix LLC	1350 Duane Avenue	Santa Clara	CA
4	13567	Verizon Wireless Santa Clara Switch	1503 Arbuckle Court	Santa Clara	CA
5	13711	Pacific Bell Corp dba AT&T CA	1700 Space Park Drive	Santa Clara	CA
6	15001	Value Products Inc	2775 Scott Boulevard	Santa Clara	CA
7	15273	Luxtron Corporation	3033 Scott Boulevard	Santa Clara	CA
8	18252	Silicon Valley Animal Control Authority	3370 Thomas Road	Santa Clara	CA
9	20256	Digital Realty Trust	1725 Comstock Drive	Santa Clara	CA
10	20326	Digital Alfred, LLC	3105 Alfred Avenue	Santa Clara	CA
11	21465	FutureWei Technologies	2890 Scott Boulevard	Santa Clara	CA
12	23420	Harbor Electronics, Inc	3021 Kenneth Street	Santa Clara	CA
13	24257	Digital 1500 Space Park Borrower, LLC	1500 Space Park Drive	Santa Clara	CA
14	24421	Cyxtera Communications LLC	1500 Space Park Drive	Santa Clara	CA
15	201086	Roche Sequencing Solutions	2861 SCOTT BLVD	SANTA CLARA	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	95054	Santa Clara	30.550	0.050	0.070	Generators	1
2	95054	Santa Clara	4.340	0.020	0.020	Contact BAAQMD	1
3	95050	Santa Clara	173.280	0.310	0.400	Generators	1
4	95054	Santa Clara	29.380	0.060	0.040	Generators	1
5	95054	Santa Clara	196.110	0.360	0.250	Generators	1
6	95050	Santa Clara	0.010	0.000	0.000	Generators	1
7	95054	Santa Clara	0.000	0.000	0.000	Contact BAAQMD	1
8	95054	Santa Clara	2.370	0.000	0.000	Generators	1
9	95054	Santa Clara	2.970	0.010	0.000	Generators	1
10	95054	Santa Clara	2.150	0.010	0.000	Generators	1
11	95050	Santa Clara	5.310	0.010	0.010	Generators	1
12	95054	Santa Clara	4.040	0.010	0.000	Generators	1
13	95054	Santa Clara	2.790	0.010	0.000	Generators	1
14	95054	Santa Clara	2.790	0.010	0.000	Generators	1
15	95050	Santa Clara	8.500	0.000	0.010	Generators	1

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

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

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