Appendix D

Health Risk Assessment

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HEALTH RISK ASSESSMENT
for the
Garden Gate Tower Project

San José, California

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LIST OF ACRONYMS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AT	averaging time
ATCM	Air Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
BR/BW	daily breathing weight normalized to body weight
Cal-EPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CF	conversion factor
C_i	concentration in the air of substance i
DBR	daily breathing rate
DPM	Diesel Particulate Matter
ED	exposure duration
EF	exposure frequency
EPA	U.S. Environmental Protection Agency
ºF	Fahrenheit
FAH	fraction of time at home
FCAA	Federal Clean Air Act
GVWR	gross vehicle weight rating
HAP	hazardous air pollutant
kg	kilograms
L	liter
MEIR	maximally exposed individual resident
mg	milligrams
MSAT	Mobile Source Air Toxic

N/A	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
OEHHA	Office Environmental Health Hazard Assessment
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
REL	Reference Exposure Level
SB	Senate Bill
T-BACT	toxics best available control technology
TAC	Toxic Air Contaminant
VMT	vehicle miles traveled

EXECUTIVE SUMMARY

The purpose of this Health Risk Assessment (HRA) is to evaluate potential health risks associated with Diesel Particulate Matter (DPM) coming from Interstate 280 (I-280) in the vicinity of the proposed Garden Gate Tower project in the City of San José (San José), Santa Clara County, California. This Health Risk Assessment was prepared in accordance with the requirements of the Bay Area Air Quality Management District (BAAQMD) and guidance from the Office of Environmental Health Hazard Assessment (OEHHA) to determine if health risks are likely to occur at the proposed project site.

The proposed project is located at 600 South 1st Street, in the City of San José, California. The project site is located south of East Reed Street and east of South 1st Street, within approximately 86 feet north of Interstate 280 (I-280) and approximately 0.5 miles east of State Route 87 (SR-87). The Garden Gate Tower project proposes to demolish the existing two buildings to construct a mixed-use 27-story high rise tower. The 505,306-square foot tower would consist of 285 condominium units and 5,250 square feet of retail space on the ground floor. Other residential features would include three penthouse suites, a pool, common terrace, and an amenity area. The vehicular parking garage is planned from four levels below grade and would include 210 parking spaces and 72 bicycle racks. Vehicular parking would be accessible from South 1st Street and parking in the 3rd and 4th levels would be accessed through the alley off East Reed Street.

Health Risk Impacts. The HRA has demonstrated that impacts related to cancer risk and PM_{10} concentrations from mobile emissions along I-280 would not exceed established BAAQMD and the Office of Environmental Health Hazard Assessment (OEHHA) thresholds at the project site. Additionally, non-carcinogenic hazards at the project site are calculated to be within acceptable limits. Therefore, the long-term health risks attributed to the project site would be less than significant impacts.

1.0 INTRODUCTION

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1.1 PROJECT LOCATION

The proposed project is located at 600 South 1st Street, in the City of San Jose, California. The project site is located south of East Reed Street and east of South 1st Street, within approximately 86 feet north of Interstate 280 (I-280) and approximately 0.5 miles east of State Route 87 (SR-87); refer to Exhibit 1, *Regional Location*, and Exhibit 2, *Site Vicinity*.

1.2 PROJECT DESCRIPTION

The Garden Gate Tower project proposes to demolish the existing two buildings to construct a mixed-use 27-story high rise tower. The 505,306-square foot tower would consist of 285 condominium units and 5,250 square feet of retail space on the ground floor; refer to Exhibit 3, *Conceptual Site Plan*. Other residential features would include three penthouse suites, a pool, common terrace, and an amenity area. The vehicular parking garage is planned from four levels below grade and would include 210 parking spaces and 72 bicycle racks. Vehicular parking would be accessible from South 1st Street and parking in the 3rd and 4th levels would be accessed through the alley off East Reed Street.

Michael Baker
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APPROXIMATE

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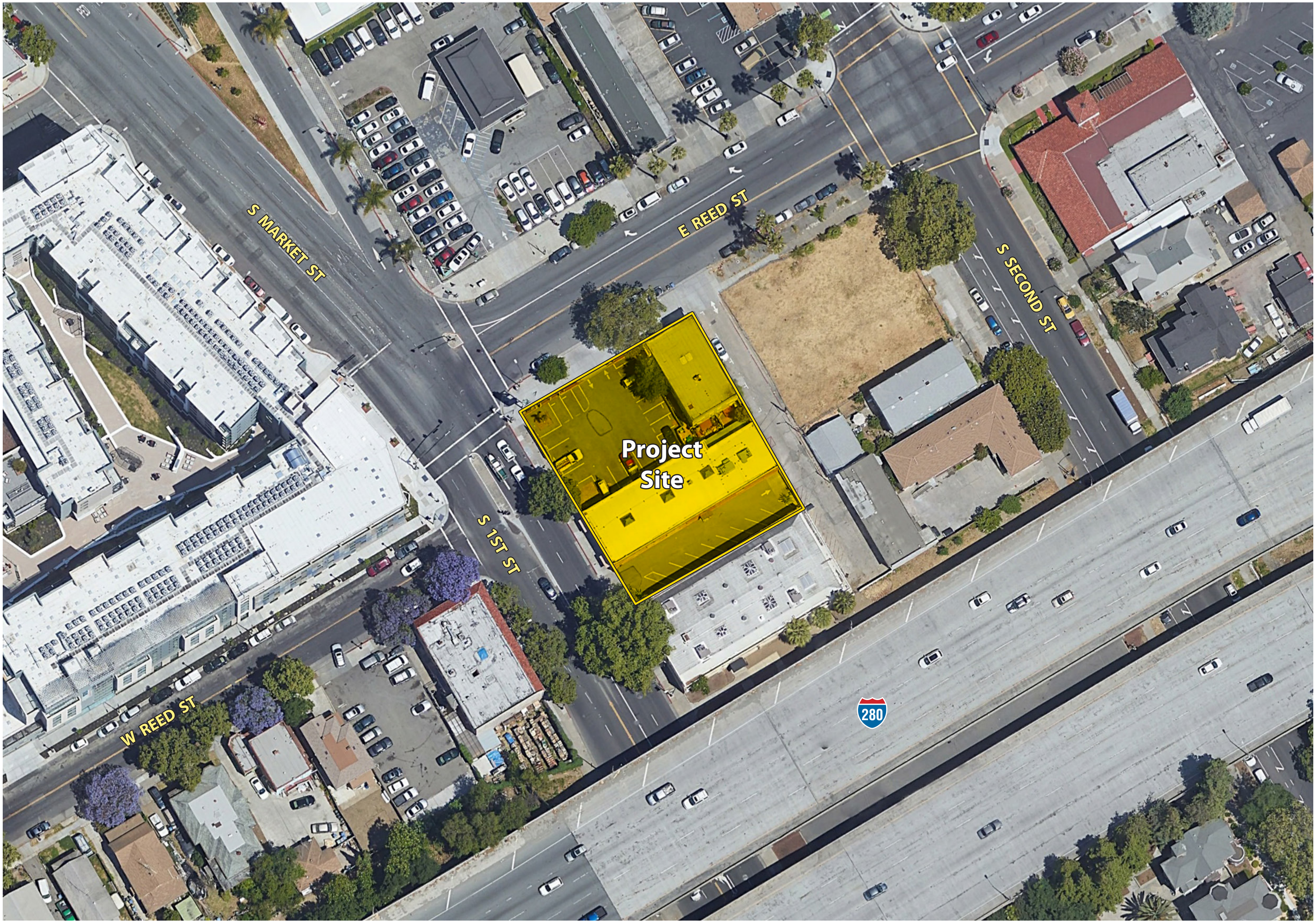
GARDEN GATE TOWER PROJECT • HEALTH RISK ASSESSMENT

Regional Location

Exhibit 1



Source: Google Earth Pro, January 2018

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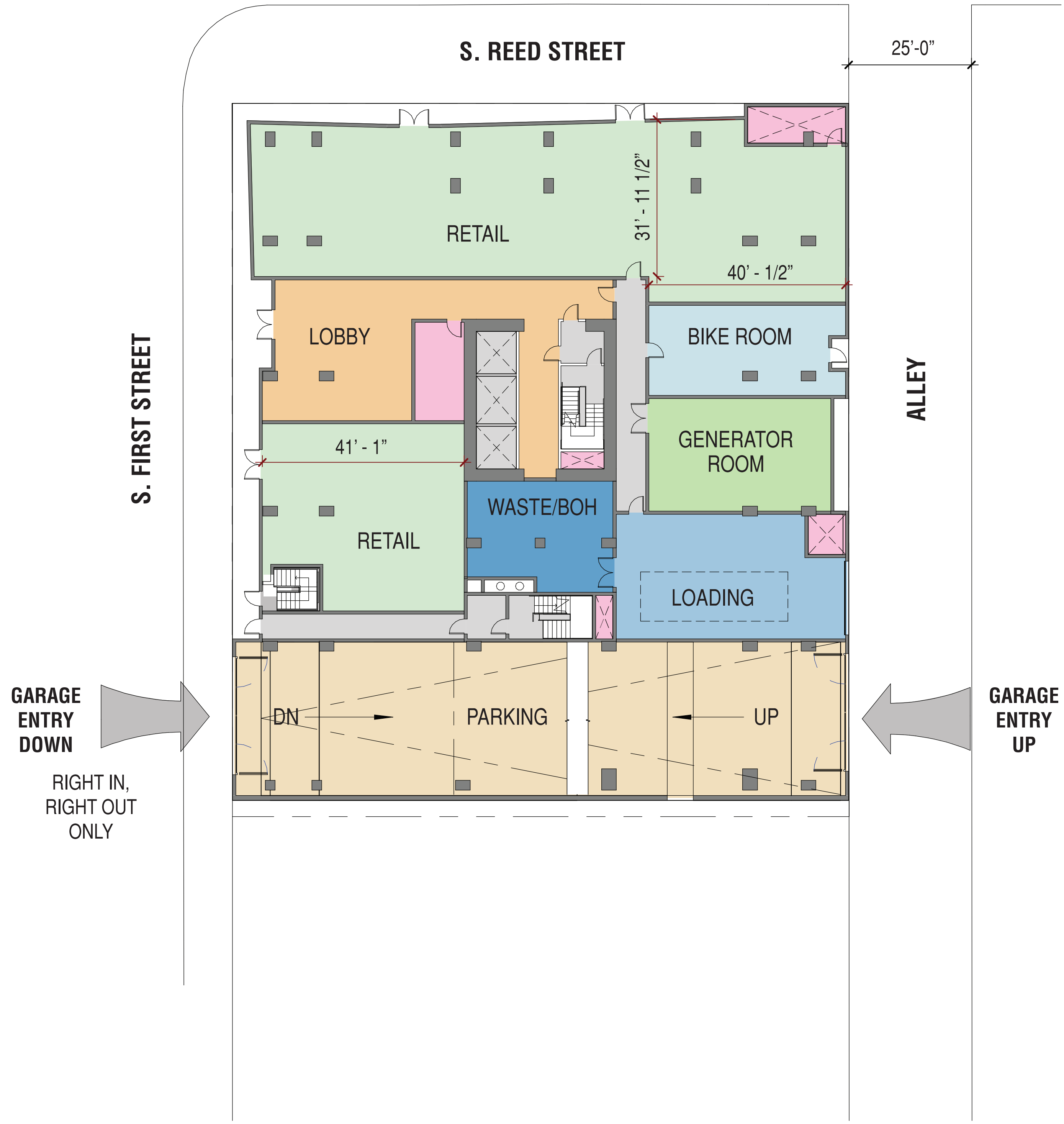
GARDEN GATE TOWER PROJECT • HEALTH RISK ASSESSMENT

Site Vicinity

Exhibit 2



Source: C2K Architecture, Inc.

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GARDEN GATE TOWER PROJECT • HEALTH RISK ASSESSMENT

Conceptual Site Plan

Exhibit 3

2.0 ENVIRONMENTAL SETTING

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The proposed project is located within the San Francisco Bay Area Air Basin (Basin). This Basin comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

2.1 CLIMATE

The project is located within the Santa Clara County sector of the Basin. The Basin includes San Mateo, Santa Clara, Alameda, Contra Costa, Napa, and Marin Counties. Santa Clara County is bounded by the Bay to the north and by mountains to the east, south and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are fairly mild. At the northern end of the county, mean maximum temperatures are in the low-80's during the summer and the high-50's during the winter, and mean minimum temperatures range from the high-50's in the summer to the low-40's in the winter. Further inland, where the moderating effect of the Bay is not as strong, temperature extremes are greater. For example, in San Martin, located 27 miles south of the San José Airport, temperatures can be more than 10 degrees warmer on summer afternoons and more than 10 degrees cooler on winter nights. Winds in the county are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the county's northwest-southeast axis.

A north-northwesterly sea breeze flows through the county during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. In the summer the southern end of the county sometimes becomes a "convergence zone," when air flowing from the Monterey Bay gets channeled northward into the southern end of the county and meets with the prevailing north-northwesterly winds. Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are quite breezy. Strong winds are rare, associated mostly with the occasional winter storm.

The air pollution potential of the Santa Clara County is high. High summer temperatures, stable air and mountains surrounding the county combine to promote ozone formation. In addition to the many local sources of pollution, ozone precursors from San Francisco, San Mateo and Alameda Counties are carried by prevailing winds to the Santa Clara County. The county tends to channel pollutants to the southeast. In addition, on summer days with low level inversions, ozone can be recirculated by southerly drainage flows in the late evening and early morning and by the prevailing north-westerlies in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of carbon monoxide and particulate matter. This movement of the air up and down the county increases the impact of the pollutants significantly. Pollution sources are plentiful and complex in this sub-region. The Santa Clara County has a high concentration of industry at the northern end, in the Silicon County. Some of these industries are sources of air toxics as well as criteria air pollutants. In addition, Santa Clara County's large population and many work-site destinations generate the highest mobile source emissions of any sub-region in the Basin.

2.2 TOXIC AIR CONTAMINANTS

Toxic Air Contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including particulate emissions from diesel-fueled engines.

Hazardous Air Pollutants (HAP) is a term used by the Federal Clean Air Act (FCAA) that includes a variety of pollutants generated or emitted by industrial production activities. Identified as TACs under the California Clean Air Act (CCAA), ten have been singled out through ambient air quality data as being the most substantial health risk in California. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. CARB provides emission inventories for only the larger air basins.

TACs do not have ambient air quality standards because no safe levels of TACs can be determined. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588) apply to facilities that use, produce, or emit toxic chemicals. Facilities subject to the toxic emission inventory requirements of the act must prepare and submit toxic emission inventory plans and reports, and periodically update those reports.

Toxic contaminants often result from fugitive emissions during fuel storage and transfer activities, and from leaking valves and pipes. For example, the electronics industry, including semiconductor manufacturing, uses highly toxic chlorinated solvents in semiconductor production processes. Sources of air toxics go beyond industry, however. Automobile exhaust also contains toxic air pollutants such as benzene and 1,3-butadiene. The following are health effects related to common Toxic Air Contaminants:

<u>Acetaldehyde</u>. Acetaldehyde is directly emitted into the atmosphere and is also formed in the atmosphere from photochemical oxidation. Acetaldehyde is generated as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. Acetaldehyde is a carcinogen that can also cause chronic non-cancer toxicity in the respiratory system. Symptoms of chronic intoxication of acetaldehyde in humans resemble those of alcoholism. The primary short-term effect of inhalation exposure to acetaldehyde is irritation

of the eyes, skin, and respiratory tract. At higher exposure levels, erythematic, coughing, and pulmonary edema, and necrosis may also occur.

Benzene. Approximately 84 percent of the benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. Benzene is highly carcinogenic and occurs throughout California. Benzene also has non-cancer health effects. Brief inhalation exposure to high concentrations can cause central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.

Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions. Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract. Redness and blisters may result from dermal exposure to benzene. Chronic inhalation of certain levels of benzene causes blood disorders because benzene specifically affects bone marrow, which produces blood cells. Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans occupationally exposed to benzene.

1,3-Butadiene. The majority of 1,3-butadiene emissions comes from incomplete combustion of gasoline and diesel fuels. 1,3-butadiene has been identified as a carcinogen in California. Butadiene vapors at elevated levels cause neurological effects such as blurred vision, fatigue, headache, and vertigo. Dermal exposure to 1,3-butadiene causes a sensation of cold, followed by a burning sensation, and can lead to frostbite. Chronic exposure to 1,3-butadiene via inhalation has been shown to result in an increase in cardiovascular diseases, and increase in the occurrence of leukemia, and an increased incidence of respiratory, bladder, stomach, and lymphato-hematopoietic cancers.

Carbon Tetrachloride. The primary sources of carbon tetrachloride in California include chemical manufacturing facilities and petroleum refineries. Carbon tetrachloride has been identified as a probable human carcinogen in California. Carbon tetrachloride is also a central nervous system depressant and mild eye and respiratory tract irritant. Acute inhalation and oral exposures to high levels of carbon tetrachloride can damage the liver and kidneys in humans and animals. Symptoms of acute exposure in humans include headache, weakness, lethargy, nausea, and vomiting.

Chromium, Hexavalent. Chromium planting and other metal finishing processes are the primary sources of hexavalent chromium emissions in California. California has identified hexavalent chromium as a carcinogen. Exposure to inhaled hexavalent chromium may result in lung cancer, and short-term exposure symptoms may include renal toxicity, gastrointestinal hemorrhage, and intravascular hemolysis.

Inhalation exposure of hexavalent exposure targets the respiratory tract. Exposure to very high concentrations of hexavalent chromium can include burns, effects on the respiratory tract such as perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, asthma, and nasal itching and soreness. Chronic human exposure to high levels of hexavalent chromium by inhalation or oral exposure may adversely affect the liver, kidney, and gastrointestinal and immune system.

Para-Dichlorobenzene. The primary sources of para-dichlorobenzene include consumer products such as non-aerosol insect repellents and solid air fresheners. These sources contribute 99 percent of statewide para-dichlorobenzene emissions. In California, para-dichlorobenzene has been identified as a carcinogen. Acute exposure to 1,4-dichlorobenzene via inhalation in humans results in irritation to the eyes, skin, and throat. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system.

Formaldehyde. Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Formaldehyde is a product of incomplete combustion, and one of the primary sources of formaldehyde is vehicular exhaust. Formaldehyde can also be found in many consumer products as an antimicrobial agent and is used in fumigants and soil disinfectants.

Acute formaldehyde inhalation exposure can result in eye, nose, and throat irritation and effects on the nasal cavity. Other effects seen from exposure to high levels of formaldehyde in humans are coughing, wheezing, chest pains, and bronchitis. Chronic inhalation exposure to formaldehyde has been associated with respiratory symptoms and eye, nose, and throat irritation. In California, formaldehyde has been identified as a carcinogen, and occupational studies have shown associations between exposure to formaldehyde and increased incidence of lung and nasopharyngeal cancer.

Methylene Chloride. Methylene chloride is a solvent used in paint stripping operations and as a blowing and cleaning agent in the manufacture of polyurethane foam and plastic. Paint removers account for the largest use of methylene chloride in California. Inhalation exposure to extremely high levels of methylene chloride can be fatal to humans. Acute inhalation exposure to high levels of methylene chloride can result in decreased visual, auditory, and psychomotor functions, but these effects are reversible once exposure ceases. Methylene chloride also irritates the nose and throat at high concentrations. The major effects from chronic inhalation exposure to methylene chloride are headaches, dizziness, nausea, and memory loss. Chronic exposure can also lead to bone marrow, hepatic, and renal toxicity. California considers methylene chloride to be carcinogenic.

Perchloroethylene. Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos and laboratory solvents. Perchloroethylene vapors are irritating to the eyes and respiratory tract and chronic exposure can result in liver toxicity, kidney dysfunction, and neurological disorders. California identifies perchloroethylene as a carcinogen.

Diesel Particulate Matter. DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled engines contribute approximately 24 percent of the statewide total, with an additional 71 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources contribute about 5 percent of total DPM. It should be noted that CARB has developed several plans and programs to reduce diesel emissions such as the Diesel Risk Reduction Plan (DRRP), the Statewide Portable Equipment Registration Program (PERP), and the Diesel Off-Road Reporting System (DOORS). The PERP and DOORS programs allow owners or operators of portable engines and certain other types of equipment can register their units in order to operate their equipment throughout California without having to obtain individual permits from local air districts.

Diesel exhaust and many individual substances contained in it (including arsenic, benzene, formaldehyde, and nickel) have the potential to contribute to mutations in cells that can lead to cancer. Long-term exposure to diesel exhaust particles poses the highest cancer risk of any TAC evaluated by OEHHA. CARB estimates that about 70 percent of the cancer risk that the average Californian faces from breathing toxic air pollutants stems from diesel exhaust particles.

In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provide strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. Using information from OEHHA's assessment, CARB estimates that diesel particle levels measured in California's air in 2000 could cause 540 "excess" cancers in a population of 1 million people over a 70-year lifetime. Other researchers and scientific organizations, including the National Institute for Occupational Safety and Health (NIOSH), have calculated cancer risks from diesel exhaust similar to those developed by OEHHA and CARB.

Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks.

Diesel engines are a major source of fine particulate pollution. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. Numerous studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children. In California, diesel exhaust particles have been identified as a carcinogen.

2.3 SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. In this analysis, this study assumes the proposed residential project to be the sensitive receptor due to the project site being in the near vicinity of I-280, which has a significant number of vehicles and is considered a source of toxic air contaminants (TAC); refer to Table 1, *Sensitive Receptor*.

Table 1
Sensitive Receptor

Receptor Type	Location	Distance from I- 280 (feet)[1]	Direction from I-280
Residential	600 1st Street	86 feet	North
Notes: 1 - Google Earth, 2018.			

3.0 REGULATORY SETTING

3.1 FEDERAL

Clean Air Act. The Federal Clean Air Act (FCAA) of 1970 and the FCAA Amendments of 1971 required the U.S. Environmental Protection Agency (EPA) to establish NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. The FCAA was amended in 1990 to address a large number of air pollutants that are known to cause or may reasonably be anticipated to cause adverse effects to human health or adverse environmental effects. 188 specific pollutants and chemical groups were initially identified as HAPs, and the list has been modified over time. The FCAA Amendments included new regulatory programs to control acid deposition and for the issuance of stationary source operating permits.

Mobile Source Air Toxics Rule. In 2001, the EPA issued its first Mobile Source Air Toxics (MSAT) Rule, which identified 21 MSAT compounds as being HAPs that required regulation. A subset of six of these MSAT compounds were identified as having the greatest influence on health and included benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde, and DPM. More recently, the EPA issued a second MSAT Rule in February 2007, which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact on health. The rule also identified several engine emission certification standards that must be implemented. Unlike the criteria pollutants, toxics do not have National Ambient Air Quality Standards (NAAQS) making evaluation of their impacts more subjective.

National Emissions Standards for Hazardous Air Pollutants Program. Under federal law, 188 substances are listed as hazardous air pollutants (HAPs). Major sources of specific HAPs are subject to the requirements of the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) program. The EPA is establishing regulatory schemes for specific source categories and requires implementation of Maximum Achievable Control Technologies (MACTs) for major sources of HAPs in each source category. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and is aimed at HAPs that are a problem in California. The state has formally identified 244 substances as TACs and is adopting appropriate control measures for each. Once adopted at the state level, each air district will be required to adopt a measure that is equally or more stringent.

3.2 STATE

California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588). The California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) is a state-wide program enacted in 1987. AB 2588 requires facilities that exceed recommended OEHHA levels to reduce risks to acceptable levels. CARB also administers the state's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics

"Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the "Hot Spots" Act was amended by Senate Bill (SB) 1731 which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

Diesel exhaust is mainly composed of particulate matter and gases, which contain potential cancer-causing substances. Emissions from diesel engines currently include over 40 substances that are listed by EPA as hazardous air pollutants and by CARB as toxic air contaminants. On August 27, 1998, CARB identified particulate matter in diesel exhaust as a TAC, based on data linking diesel particulate emissions to increased risks of lung cancer and respiratory disease.

Tanner Air Toxics Act of 1983. CARB's statewide comprehensive air toxics program was established in 1983 with AB 1807 the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology (T-BACT) to minimize emissions.

Diesel Reduction Plan. In September 2000, CARB adopted a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel PM emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020. As part of this plan, CARB identified Airborne Toxic Control Measures (ATCM) for mobile and stationary emissions sources. Each ATCM is codified in the California Code of Regulations, including the ATCM to limit diesel-fueled commercial motor vehicle idling, which puts limits on idling time for large diesel engines (13 CCR Chapter 10 Section 2485).

Truck and Bus Regulation Reducing Emissions from Existing Diesel Vehicles. On December 12, 2008, CARB approved the Truck and Bus Regulation to significantly reduce particulate matter (PM) and oxides of nitrogen (NO_X) emissions from existing diesel vehicles operating in California. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Heavier trucks must be retrofitted with PM filters beginning January 1, 2012, and older trucks must be replaced starting January 1, 2015. By January 2023, nearly all trucks and buses would need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally-owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. Small fleets with three or fewer diesel trucks can delay compliance for heavier trucks by reporting and there are many extensions for low-mileage construction trucks, early PM filter retrofits, adding cleaner vehicles, and other situations. Privately and publicly owned school buses have different requirements.

Heavy-Duty Vehicle Idling Emission Reduction Program. The purpose of the CARB ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling is to reduce public exposure to diesel particulate matter and criteria pollutants by limiting the idling of diesel-fueled commercial vehicles.[1] The driver of any vehicle subject to this ATCM is prohibited from idling the vehicle's primary diesel engine for greater than five minutes at any location and is prohibited from idling a diesel-fueled auxiliary power system (APS) for more than five minutes to power a heater, air conditioner, or any ancillary equipment on the vehicle if it has a sleeper berth and the truck is located within 100 feet of a restricted area (homes and schools).

CARB Final Regulation Order, Requirements to Reduce Idling Emissions from New and In-Use Trucks, beginning in 2008, would require that new 2008 and subsequent model-year heavy-duty diesel engines be equipped with an engine shutdown system that automatically shuts down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to "neutral" or "park", and the parking brake is engaged.

3.3 REGIONAL

Bay Area Air Quality Management District. The BAAQMD has primary responsibility for regulating stationary sources of air pollution situated within its jurisdictional boundaries. To this end, BAAQMD implements air quality programs required by State and Federal mandates, enforces rules and regulations based on air pollution laws, and educates businesses and residents about their role in protecting air quality. The BAAQMD is also responsible for managing and permitting existing, new, and modified sources of air emissions within the Basin to ensure conformance with Federal, State, and local standards for air quality. PM emissions are a serious concern for the BAAQMD.

The BAAQMD adopted the *California Environmental Quality Act Air Quality Guidelines* (CEQA Guidelines, May 2012). The purpose of the guidelines is to set forth the definitions, procedures, and forms use by the BAAQMD to implement CEQA and to supplement State CEQA guidelines. The guidelines also establish the thresholds for specific pollutants, emissions above which are considered significant. On March 5, 2012 the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted its CEQA air quality thresholds. The court did not determine whether the thresholds were valid on the merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD had complied with CEQA. The BAAQMD has appealed the Alameda County Superior Court's decision. The Court of Appeal of the State of California, First Appellate District,

[1] The ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling is codified in Title 13 of the California Code of Regulations, Chapter 10, Section 2485.

reversed the trial court's decision. The Court of Appeal's decision was appealed to the California Supreme Court, which granted limited review, and the matter is currently pending there.[2]

As such, the BAAQMD is no longer recommending that the thresholds within the CEQA Guidelines be used as a generally applicable measure of a project's significant air quality impacts. BAAQMD recommends that Lead Agencies will need to determine appropriate air quality thresholds of significance based on substantial evidence in the record. Although Lead Agencies may rely on the BAAQMD's updated CEQA Guidelines (updated May 2017) for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, the BAAQMD has been ordered to set aside the thresholds and is no longer recommending that these thresholds be used as a general measure of project's significant air quality impacts. Exercising its own discretion as lead agency, the City of San José relies on the thresholds within the *Options and Justification Report* (dated October 2009) prepared by the BAAQMD. The BAAQMD Options and Justification Report establishes thresholds based on substantial evidence and are consistent with the thresholds outlined in their CEQA Air Quality Guidelines.

[2] Bay Area Air Quality Management District, *Updated CEQA Guidelines*, http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines, accessed January 17, 2018.

4.0 HEALTH RISK ASSESSMENT

4.1 SIGNIFICANCE CRITERIA AND METHODOLOGY

HEALTH RISK ANALYSIS THRESHOLDS

In order to determine whether or not a proposed project would cause a significant effect on the environment, the impact of the project must be determined by examining the types and levels of air toxics generated and the associated impacts on factors that affect air quality. Currently, the *Air Toxics Hot Spots Program Risk Assessment Guidance Manual for Preparation of Health Risk Assessments* (Guidance Manual), published by the California Environmental Protection Agency (Cal-EPA) and OEHHA, February 2015, is utilized for preparing health risk assessments. With guidance from Cal-EPA and OEHHA, the BAAQMD recommends that the following air pollution thresholds be used by lead agencies in determining whether the proposed project is significant. If the lead agency finds that the proposed project has the potential to exceed the air pollution thresholds, the project should be considered significant. The thresholds for air toxic emissions are outlined in Table 2, *Bay Area Air Quality Management District Air Quality Significance Thresholds*.

Table 2
Bay Area Air Quality Management District Air Quality Significance Thresholds

Pollutant	Operational-Related Threshold
Risk and Hazards for New Sources and Receptors (Individual Project)	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of > 10.0 in 1 million Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor

Source: Bay Area Air Quality Management District, *Proposed Thresholds of Significance*, December 2009, and Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, updated 2017.

The 10 in 1 million threshold shown in Table 2 is based on the latest scientific data, and is designed to protect the most sensitive individuals in the population as each chemical's exposure level includes large margins of safety. In addition to this carcinogen threshold, OEHHA recommends that the non-carcinogenic hazards for TACs at ground level should not exceed a chronic hazard index of greater than one.

Vehicle exhaust emissions of diesel particulates from traffic on I-280 are below the 10 and 2.5 micron range (PM_{10} and $PM_{2.5}$, respectively). DPM is the only pollutant needed for the cancer risk analysis (which uses 70-year-average emission rates for residential sensitive receptor risks) since the cancer slope factor established by OEHHA for the assessment of DPM cancer risk includes consideration of the individual toxic species that could be adsorbed onto DPM particles.

OEHHA has also established non-carcinogenic risk parameters for use in HRAs. Noncarcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. Within this analysis, non-carcinogenic exposures of less than 1.0 are considered less than significant.

METHODOLOGY

Health Risk Assessment

The air dispersion modeling for the HRA was performed using the U.S. EPA AERMOD dispersion model. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources (not a factor in this case). AERMOD requires hourly meteorological data consisting of wind vector, wind speed, temperature, stability class, and mixing height. Surface and upper air meteorological data is provided by the CARB. Surface and upper air meteorological data from The Norman Y. Mineta San José International Airport Monitoring Station was selected as being the most representative for meteorology based on proximity to the project site.

The emission source in the model is a one-line volume source (comprised of 13 smaller volume sources) along the I-280 segment to the south of the proposed project site. An emission rate for PM_{10} (DPM) was calculated using the 2016 Caltrans truck Annual Average Daily Traffic (AADT) census data[3] and a 2014 EMission FACtor model (EMFAC-2014)[4] model run for Santa Clara County; refer to Appendix A, *Dispersion Modeling Data*. Vehicle Emissions were assigned a release height of 25 feet to account for the elevation of I-280 by the project site with an additional plume height of 10 feet. A plume height of 10 feet is the BAAQMD recommended average stack height for trucks.[5]

AERMOD was run to obtain the peak 1-hour and annual average concentration in micrograms per cubic meter [$\mu g/m^3$] of PM_{10} at the project site. Note that the concentration estimate developed using this methodology is considered conservative, and is not a specific prediction of the actual concentrations that would occur at the project site any one point in time. Actual 1-hour and annual average concentrations are dependent on many variables, particularly the number and type of vehicles traveling on I-280 during time periods of adverse meteorology. The 2016 Caltrans Truck AADT lists an estimated 4,552 truck trips on the I-280 segment adjoining the project Site.

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3 Caltrans, *Traffic Census Program – Truck Traffic*, http://www.dot.ca.gov/trafficops/census/, accessed January 17, 2018.

4 California Air Resources Board, *EMFAC 2014 Web Database*, https://www.arb.ca.gov/emfac/2014/, accessed January 17, 2018.

5 Bay Area Air Quality Management District, *Recommended Methods for Screening and Modeling Local Risks and Hazards*, http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en, accessed January 17, 2018.

This value was increased by 10%, to 5,007 truck trips, to conservatively account for a potential increase in traffic during the opening year of the project.

A health risk computation was performed to determine the risk of developing an excess cancer risk calculated on a 70-year lifetime basis, 30-year, and 9-year exposure scenarios. The chronic and carcinogenic health risk calculations are based on the standardized equations contained in the U.S. EPA Human Health Evaluation Manual (1991) and the OEHHA Guidance Manual. Only the risk associated with the location of the proposed project was assessed.

Risk and Hazard Assessment

Cancer Risk. Based on the OEHHA methodology, the residential inhalation cancer risk from the annual average DPM concentrations is calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor (ASF), the frequency of time spent at home (for residents only), and the exposure duration divided by averaging time, to yield the excess cancer risk. These factors are discussed in more detail below. It is important to note that exposure duration is based on continual heavy truck operation at the project site. Cancer risk must be separately calculated for specified age groups, because of age differences in sensitivity to carcinogens and age differences in intake rates (per kg body weight). Separate risk estimates for these age groups provide a health-protective estimate of cancer risk by accounting for greater susceptibility in early life, including both age-related sensitivity and amount of exposure.

Exposure through inhalation (Dose-air) is a function of the function of the breathing rate, the exposure frequency, and the concentration of a substance in the air. For residential exposure, the breathing rates are determined for specific age groups, so Dose-air is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. To estimate cancer risk, the dose was estimated by applying the following formula to each ground-level concentration:

$$\text{Dose-air} = (C_{air} * \{BR/BW\} * A * EF * 10^{-6})$$

Where:

Dose-ai	=	dose through inhalation (mg/kg/day)
C_{air}	=	air concentration (μg/m^3) from air dispersion model
{BR/BW}	=	daily breathing rate normalized to body weight (L/kg body weight – day) (225 L\kg BW-day for 3rd Trimester, 658 L/kg BW-day for 0<2 years, 535 L/kg BW-day for 2<9 years, 452 L/kg BW-day for 2<16 years, 210 L/kg BW-day for 16<30 years, and 185 L/kg BW-day 16<70 years)
A	=	Inhalation absorption factor (unitless [1])
EF	=	exposure frequency (unitless), days/365 days (0.96 [approximately 350 days per year])
10^{-6}	=	conversion factor (micrograms to milligrams, liters to cubic meters)

OEHHA developed ASFs to take into account the increased sensitivity to carcinogens during early-in-life exposure. In the absence of chemical-specific data, OEHHA recommends a default ASF of 10 for the third trimester to age 2 years, an ASF of 3 for ages 2 through 15 years to account for potential increased sensitivity to carcinogens during childhood and an ASF of 1 for ages 16 through 70 years.

Fraction of time at home (FAH) during the day is used to adjust exposure duration and cancer risk from a specific facility's emissions, based on the assumption that exposure to the facility's emissions are not occurring away from home. OEHHA recommends the following FAH values: from the third trimester to age <2 years, 85 percent of time is spent at home; from age 2 through <16 years, 72 percent of time is spent at home; from age 16 years and greater, 73 percent of time is spent at home.

To estimate the cancer risk, the dose is multiplied by the cancer potency factor, the ASF, the exposure duration divided by averaging time, and the frequency of time spent at home (for residents only):

$$Risk_{inh\text{-}res} = (Dose_{air} * CPH * ASF * ED/AT * FAH)$$

Where:

$Risk_{inh\text{-}res}$	=	residential inhalation cancer risk (potential chances per million)
$Dose_{air}$	=	daily dose through inhalation (mg/kg-day)
CPF	=	inhalation cancer potency factor (mg/kg-day^{-1})
ASF	=	age sensitivity factor for a specified age group (unitless)
ED	=	exposure duration (in years) for a specified age group (0.25 years for 3rd trimester, 2 years for 0<2, 7 years for 2<9, 14 years for 2<16, 14 years for 16<30, 54 years for 16-70)
AT	=	averaging time of lifetime cancer risk (years)
FAH	=	fraction of time spent at home (unitless)

Chronic Non-Cancer Hazard

Non-cancer chronic impacts are calculated by dividing the annual average concentration by the Reference Exposure Level (REL) for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. The following equation was used to determine the non-cancer risk:

$$\text{Hazard Quotient} = Ci/RELi$$

Where:

Ci	=	Concentration in the air of substance i (annual average concentration in $\mu g/m^3$)
RELi	=	Chronic noncancer Reference Exposure Level for substance i ($\mu g/m^3$)

Acute Non-Cancer Hazard. The potential for acute non-cancer hazards is evaluated by comparing the maximum short-term exposure level to an acute REL. RELs are designed to protect sensitive individuals within the population. The calculation of acute non-cancer impacts is similar to the procedure for chronic non-cancer impacts. The equation is as follows:

$$\text{Acute HQ} = \text{Maximum Hourly Air Concentration } (\mu g/m^3) \ / \ \text{Acute REL } (\mu g/m^3)$$

4.2 IMPACT ASSESSMENT

Level of Significance Before Mitigation: *Less Than Significant Impact.*

CARB identified DPM as a TAC in 1998. Mobile sources (including trucks, buses, automobiles, trains, ships, and farm equipment) are by far the largest source of diesel emissions. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Diesel exhaust is composed of two phases, either gas or particulate – both contribute to the risk. The gas phase is composed of many of the urban HAPs, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, and polycyclic aromatic hydrocarbons. The particulate phase has many different types that can be classified by size or composition. The sizes of diesel particulates of greatest health concern are fine and ultrafine particles. These particles may be composed of elemental carbon with adsorbed[6] compounds such as organics, sulfates, nitrates, metals, and other trace elements. Diesel exhaust is emitted from a broad range of on- and off-road diesel engines. As the project is proposing three industrial warehouses requiring daily visits from heavy-duty diesel trucks during operations, an analysis was performed using the EPA-approved AERMOD model.

CARCINOGENIC RISK

Vehicle DPM emissions were estimated using emission factors for PM_{10} generated with the 2014 version of EMFAC developed by CARB. EMFAC 2014 is a mathematical model that was developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by CARB to project changes in future emissions from on-road mobile sources. The most recent version of this model, EMFAC 2014,

[6] This term is specifically used for gases.

incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

The most important improvement in EMFAC 2014 is the integration of the new data and methods to estimate emissions from diesel trucks and buses. The model includes the emissions benefits of the truck and bus rule and the previously adopted rules for other on-road diesel equipment. Finally, the impacts of the recession on emissions that were quantified as part of the truck and bus rulemaking are included.

For this project, hourly and annual average PM_{10} emission factors were generated by running EMFAC 2014 in EMFAC Mode for vehicles in the BAAQMD district within Santa Clara County. The EMFAC Mode generates emission rates in terms of grams of pollutant emitted per vehicle activity and can calculate a matrix of emission rates at specific values of vehicle speed, temperature, and relative humidity. The model was run for aggregated model years, aggregated speeds, and all fuel types, as the roadway segment considered is I-280, which varies in vehicles and traffic during the day.

Based on the AERMOD outputs, the highest expected hourly average diesel PM_{10} emission concentrations at the project site resulting from diesel truck traffic on I-280 would be 0.010 $\mu g/m^3$. The highest expected annual average diesel PM_{10} emission concentrations at the project site would be 0.001 $\mu g/m^3$. The calculations conservatively assume no cleaner technology with lower emissions in future years. Cancer risk calculations are based on 70-, 30-, and 9-year exposure periods. As shown in Table 3, *Health Risk at Project Site*, the highest calculated carcinogenic risk as a result of the project is 0.46 per million for 70-year exposure, 0.39 per million for 30-year exposure, and 0.28 per million for 9-year exposure. As shown, impacts related to cancer risk and PM_{10} concentrations from diesel truck traffic along I-280 would be less than significant at the project site.

Table 3
Health Risk at Project Site

Exposure Scenario	Maximum Cancer Risk (Risk per Million)[1,2]	Significance Threshold (Risk per Million)	Exceeds Significance Threshold?
70-Year Exposure	0.46	10	No
30-Year Exposure	0.39	10	No
9-Year Exposure	0.28	10	No

Notes:
1. Refer to Appendix A, *Dispersion Modeling Data*.
2. The maximum cancer risk would be experienced along the southeastern tip of the project site.

NON-CARCINOGENIC HAZARDS

The significance thresholds for TAC exposure also require an evaluation of non-cancer risk stated in terms of a hazard index. Non-cancer chronic impacts are calculated by dividing the annual average concentration by the Reference Exposure Level (REL) for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. The potential for acute non-cancer hazards is evaluated by comparing the maximum short-term exposure level to an acute REL. RELs are designed to protect sensitive individuals within the population. The calculation of acute non-cancer impacts is similar to the procedure for chronic non-cancer impacts.

An acute or chronic hazard index of 1.0 is considered individually significant. The hazard index is calculated by dividing the acute or chronic exposure by the reference exposure level. The highest maximum chronic and acute hazard index associated with the emissions from the project would be 0.0002 and 0.0545 respectively. Therefore, non-carcinogenic hazards are calculated to be within acceptable limits and a less than significant impact would occur.

CONCLUSION

As described, non-carcinogenic hazards resulting from the location of the proposed project are calculated to be within acceptable limits. Additionally, impacts related to cancer risk and PM_{10} concentrations from vehicle travel along I-280 would be less than significant at the proposed project site. Therefore, impacts related to health risk from I-280 on the project site would be less than significant.

Mitigation Measures: No mitigation measures are required.

Level of Significance: *Less Than Significant Impact.*

5.0 REFERENCES

5.1 LIST OF PREPARERS

Michael Baker International, Inc.
5 Hutton Centre Drive, Suite 500
Santa Ana, California 92707
949/472-3505

Eddie Torres, INCE, Environmental Sciences Manager
Pierre Glaize, Air Quality and Climate Change Specialist
Faye Stroud, Graphics

5.2 DOCUMENTS

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

2. Bay Area Air Quality Management District, *Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines,* January 2016.

3. Bay Area Air Quality Management District, *Proposed Thresholds of Significance*, December 2009.

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8. California Department of Transportation, *2016 Traffic Volumes on California State Highways*, http://www.dot.ca.gov/trafficops/census/docs/2016_aadt_volumes.pdf, accessed January 18, 2018.

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10. California Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidelines*, August 2003.

11. California Environmental Protection Agency and Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Risk Assessment Guidance Manual for Preparation of Health Risk Assessments, February 2015.

12. U.S. Environmental Protection Agency, Exposure Factors Handbook: 2011 Edition, September 2011.

5.3 SOFTWARE/WEBSITES

Bay Area Air Quality Management District, *Tools and Methodology website*, http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools, accessed January 17, 2018.

California Air Resources Board, *EMFAC 2014 Web Database*, https://www.arb.ca.gov/emfac/2014/, accessed January 17, 2018.

Google Earth, 2018.

Lakes Environmental, Gaussian Plume Air Dispersion Model (AERMOD), Version 9.5.0.

APPENDIX A: DISPERSION MODELING DATA

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** AERMOD View Ver. 9.5.0
** Lakes Environmental Software Inc.
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   SURFFILE "SJ AIRPORT AERMET\724945.SFC"
   PROFFILE "SJ AIRPORT AERMET\724945.PFL"
   SURFDATA 23293 2009
   UAIRDATA 23230 2009 OAKLAND/WSO_AP
   PROFBASE 15.5 METERS
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   RECTABLE 24 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST 600_1st_street_SJ.AD\01H1GALL.PLT 31
   PLOTFILE 24 ALL 1ST 600_1st_street_SJ.AD\24H1GALL.PLT 32
   PLOTFILE ANNUAL ALL 600_1st_street_SJ.AD\AN00GALL.PLT 33
   SUMMFILE 600_1st_street_SJ.sum
OU FINISHED

 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************
```

```
 *** AERMOD - VERSION 16216r ***   *** C:\Lakes\AERMOD
View\600_1st_street_SJ\600_1st_street_SJ.isc        ***        01/22/18
 *** AERMET - VERSION  14134 ***   ***
***        09:57:50

PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  RURAL

                                            ***     MODEL SETUP OPTIONS
SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F

 **Model Uses RURAL Dispersion Only.

 **Model Uses Regulatory DEFAULT Options:
         1. Stack-tip Downwash.
         2. Model Accounts for ELEVated Terrain Effects.
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay.

 **Other Options Specified:
         CCVR_Sub - Meteorological data includes CCVR substitutions
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_10

 **Model Calculates  2 Short Term Average(s) of:   1-HR  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:     13 Source(s);       1 Source Group(s); and
198 Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:     13 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with      0 line(s)


 **Model Set To Continue RUNning After the Setup Testing.
```

```
 **The AERMET Input Meteorological Data Version Date:  14134

 **Output Options Selected:
          Model Outputs Tables of ANNUAL Averages by Receptor
          Model Outputs Tables of Highest Short Term Values by Receptor
(RECTABLE Keyword)
          Model Outputs External File(s) of High Values for Plotting
(PLOTFILE Keyword)
          Model Outputs Separate Summary File of High Ranked Values
(SUMMFILE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for
Calm Hours
                                                                 m for
Missing Hours
                                                                 b for
Both Calm and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    15.50 ;
Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC
;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.5 MB of RAM.

 **Detailed Error/Message File:   600_1st_street_SJ.err
 **File for Summary of Results:   600_1st_street_SJ.sum
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000001	0	0.45080E-05	598641.3	4131509.4	29.2	7.62	24.81	1.42	NO	
L0000002	0	0.45080E-05	598693.2	4131521.7	36.8	7.62	24.81	1.42	NO	
L0000003	0	0.45080E-05	598743.6	4131539.0	36.8	7.62	24.81	1.42	NO	
L0000004	0	0.45080E-05	598793.0	4131559.0	36.9	7.62	24.81	1.42	NO	
L0000005	0	0.45080E-05	598841.2	4131582.0	37.2	7.62	24.81	1.42	NO	
L0000006	0	0.45080E-05	598888.2	4131607.2	37.3	7.62	24.81	1.42	NO	
L0000007	0	0.45080E-05	598934.6	4131633.4	34.1	7.62	24.81	1.42	NO	
L0000008	0	0.45080E-05	598979.2	4131662.7	30.0	7.62	24.81	1.42	NO	
L0000009	0	0.45080E-05	599024.7	4131690.4	30.3	7.62	24.81	1.42	NO	
L0000010	0	0.45080E-05	599071.4	4131716.1	30.6	7.62	24.81	1.42	NO	
L0000011	0	0.45080E-05	599119.5	4131739.2	30.8	7.62	24.81	1.42	NO	
L0000012	0	0.45080E-05	599168.8	4131759.7	38.0	7.62	24.81	1.42	NO	
L0000013	0	0.45080E-05	599219.4	4131776.5	37.3	7.62	24.81	1.42	NO	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 ,
	L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(598929.5, 4131700.1, 29.9, 37.9, 0.0); (598929.5, 4131703.1, 29.9, 37.9, 0.0);
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(598938.8, 4131706.2, 30.1, 37.9, 0.0); (598941.9, 4131706.2, 30.1, 37.9, 0.0);
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(598954.2, 4131715.3, 30.2, 37.7, 0.0); (598920.2, 4131718.4, 29.8, 37.9, 0.0);

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(598948.0, 4131718.4,   30.1,   37.7,   0.0);   (
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(598938.8, 4131721.4,   30.1,   37.9,   0.0);   (
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(598944.9, 4131721.4,   30.2,   30.2,   0.0);   (
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(598951.1, 4131721.4,   30.2,   30.2,   0.0);   (
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(598957.3, 4131721.4,   30.2,   30.2,   0.0);   (
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(598923.3, 4131724.5,   29.9,   37.9,   0.0);   (
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(598935.7, 4131724.5,   30.1,   37.7,   0.0);   (
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(598954.2, 4131724.5,   30.2,   30.2,   0.0);   (
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(598923.3, 4131727.5,   29.9,   37.9,   0.0);   (
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*** AERMOD - VERSION 16216r ***   *** C:\Lakes\AERMOD View\600_1st_street_SJ\600_1st_street_SJ.isc   ***   01/22/18
*** AERMET - VERSION 14134 ***   ***
***   09:57:50

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(598935.7, 4131727.5,   30.1,   30.1,   0.0);   (598938.8, 4131727.5,   30.1,   30.1,   0.0);
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(598948.0, 4131727.5,   30.2,   30.2,   0.0);   (598951.1, 4131727.5,   30.2,   30.2,   0.0);
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(598926.4, 4131730.6,   29.9,   29.9,   0.0);   (598929.5, 4131730.6,   30.0,   30.0,   0.0);
(598932.6, 4131730.6,   30.0,   30.0,   0.0);   (598935.7, 4131730.6,   30.1,   30.1,   0.0);
(598938.8, 4131730.6,   30.1,   30.1,   0.0);   (598941.9, 4131730.6,   30.2,   30.2,   0.0);
(598944.9, 4131730.6,   30.2,   30.2,   0.0);   (598948.0, 4131730.6,   30.2,   30.2,   0.0);
(598951.1, 4131730.6,   30.2,   30.2,   0.0);   (598954.2, 4131730.6,   30.2,   30.2,   0.0);
(598957.3, 4131730.6,   30.1,   30.1,   0.0);   (598911.0, 4131733.6,   29.7,   29.7,   0.0);
(598914.0, 4131733.6,   29.7,   29.7,   0.0);   (598917.1, 4131733.6,   29.8,   29.8,   0.0);
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(598932.6, 4131733.6,   30.0,   30.0,   0.0);   (598935.7, 4131733.6,   30.1,   30.1,   0.0);
(598938.8, 4131733.6,   30.1,   30.1,   0.0);   (598941.9, 4131733.6,   30.2,   30.2,   0.0);
(598944.9, 4131733.6,   30.2,   30.2,   0.0);   (598948.0, 4131733.6,   30.2,   30.2,   0.0);
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(598941.9, 4131745.8, 30.2, 30.2, 0.0); (
598944.9, 4131745.8, 30.2, 30.2, 0.0);

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

```
( 598948.0, 4131745.8,      30.1,      30.1,       0.0);         ( 598926.4, 4131748.9,      29.9,      29.9,       0.0);
( 598929.5, 4131748.9,      29.9,      29.9,       0.0);         ( 598932.6, 4131748.9,      30.0,      30.0,       0.0);
( 598935.7, 4131748.9,      30.0,      30.0,       0.0);         ( 598938.8, 4131748.9,      30.1,      30.1,       0.0);
( 598941.9, 4131748.9,      30.2,      30.2,       0.0);         ( 598944.9, 4131748.9,      30.2,      30.2,       0.0);
( 598929.5, 4131751.9,      29.9,      29.9,       0.0);         ( 598932.6, 4131751.9,      29.9,      29.9,       0.0);
( 598935.7, 4131751.9,      30.0,      30.0,       0.0);         ( 598938.8, 4131751.9,      30.1,      30.1,       0.0);
( 598941.9, 4131751.9,      30.2,      30.2,       0.0);         ( 598944.9, 4131751.9,      30.2,      30.2,       0.0);
( 598935.7, 4131755.0,      30.0,      30.0,       0.0);         ( 598938.8, 4131755.0,      30.1,      30.1,       0.0);
( 598941.9, 4131755.0,      30.1,      30.1,       0.0);         ( 598941.9, 4131758.0,      30.0,      30.0,       0.0);
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1
1   1 1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1
1   1 1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1
1   1 1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1
1   1 1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1
1   1 1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1
1   1 1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1
1   1 1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

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 *** AERMOD - VERSION 16216r ***   *** C:\Lakes\AERMOD
View\600_1st_street_SJ\600_1st_street_SJ.isc         ***        01/22/18
 *** AERMET - VERSION  14134 ***   ***
***        09:57:50

PAGE   8
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  RURAL

                                    *** UP TO THE FIRST 24 HOURS OF
METEOROLOGICAL DATA ***

   Surface file:   SJ AIRPORT AERMET\724945.SFC
Met Version:  14134
   Profile file:   SJ AIRPORT AERMET\724945.PFL
   Surface format: FREE
   Profile format: FREE
   Surface station no.:    23293                 Upper air station no.:
23230
                  Name: UNKNOWN                                   Name:
OAKLAND/WSO_AP
                  Year:   2009                                    Year:
2009

 First 24 hours of scalar data
 YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0
BOWEN ALBEDO  REF WS   WD     HT  REF TA     HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
 09 01 01   1 01 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.25
1.10   1.00    0.00    0.   10.0  282.5    2.0
 09 01 01   1 02  -13.4  0.236 -9.000 -9.000 -999.  275.     89.0  0.32
1.10   1.00    2.36   18.   10.0  282.5    2.0
 09 01 01   1 03   -7.9  0.139 -9.000 -9.000 -999.  128.     30.9  0.32
1.10   1.00    1.76    4.   10.0  282.0    2.0
 09 01 01   1 04  -12.4  0.217 -9.000 -9.000 -999.  242.     74.8  0.25
1.10   1.00    2.36   73.   10.0  281.4    2.0
 09 01 01   1 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.25
1.10   1.00    0.00    0.   10.0  282.0    2.0
 09 01 01   1 06   -9.7  0.170 -9.000 -9.000 -999.  168.     46.1  0.47
1.10   1.00    1.76  342.   10.0  281.4    2.0
 09 01 01   1 07  -13.5  0.236 -9.000 -9.000 -999.  275.     88.6  0.32
1.10   1.00    2.36    5.   10.0  281.4    2.0
 09 01 01   1 08  -19.7  0.345 -9.000 -9.000 -999.  486.    189.6  0.47
1.10   0.74    2.86  333.   10.0  280.9    2.0
 09 01 01   1 09   -8.3  0.363 -9.000 -9.000 -999.  526.    525.4  0.47
1.10   0.39    2.86  327.   10.0  280.9    2.0
 09 01 01   1 10    8.1  0.382  0.288  0.014  106.  566.   -625.1  0.47
1.10   0.27    2.86  351.   10.0  280.9    2.0
 09 01 01   1 11   17.6 -9.000 -9.000 -9.000  189. -999. -99999.0  0.25
1.10   0.23    0.00    0.   10.0  280.9    2.0
 09 01 01   1 12   23.0 -9.000 -9.000 -9.000  259. -999. -99999.0  0.25
1.10   0.21    0.00    0.   10.0  281.4    2.0
 09 01 01   1 13   23.9 -9.000 -9.000 -9.000  315. -999. -99999.0  0.25
1.10   0.21    0.00    0.   10.0  281.4    2.0
```

```
 09 01 01   1 14   48.5 -9.000 -9.000 -9.000  407. -999. -99999.0  0.25
1.10   0.22    0.00    0.   10.0  283.1    2.0
 09 01 01   1 15   69.5  0.319  0.953  0.016  453.  433.    -42.6  0.32
1.10   0.25    2.36   32.   10.0  283.1    2.0
 09 01 01   1 16   24.5 -9.000 -9.000 -9.000  460. -999. -99999.0  0.25
1.10   0.33    0.00    0.   10.0  283.1    2.0
 09 01 01   1 17 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.25
1.10   0.57    0.00    0.   10.0  283.1    2.0
 09 01 01   1 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.25
1.10   1.00    0.00    0.   10.0  282.5    2.0
 09 01 01   1 19  -24.2  0.212 -9.000 -9.000 -999.  235.     35.9  0.47
1.10   1.00    2.36  324.   10.0  281.4    2.0
 09 01 01   1 20 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.25
1.10   1.00    0.00    0.   10.0  281.4    2.0
 09 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.25
1.10   1.00    0.00    0.   10.0  280.9    2.0
 09 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.25
1.10   1.00    0.00    0.   10.0  280.9    2.0
 09 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.25
1.10   1.00    0.00    0.   10.0  280.4    2.0
 09 01 01   1 24   -9.7  0.170 -9.000 -9.000 -999.  168.     45.7  0.47
1.10   1.00    1.76  310.   10.0  280.4    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 09 01 01 01   10.0 1 -999.  -99.00   282.6   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```

*** AERMOD - VERSION 16216r ***   *** C:\Lakes\AERMOD View\600_1st_street_SJ\600_1st_street_SJ.isc   ***   01/22/18
*** AERMET - VERSION 14134 ***   ***
***   09:57:50

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
598929.49	4131700.09	0.00086	598929.49	4131703.14	0.00087
598932.58	4131703.14	0.00087	598935.67	4131703.14	0.00088
598926.40	4131706.19	0.00086	598929.49	4131706.19	0.00087
598932.58	4131706.19	0.00087	598935.67	4131706.19	0.00088
598938.76	4131706.19	0.00088	598941.85	4131706.19	0.00089
598926.40	4131709.24	0.00086	598929.49	4131709.24	0.00087
598932.58	4131709.24	0.00087	598935.67	4131709.24	0.00088
598938.76	4131709.24	0.00088	598941.85	4131709.24	0.00089
598944.94	4131709.24	0.00089	598923.31	4131712.29	0.00086
598926.40	4131712.29	0.00086	598929.49	4131712.29	0.00087
598932.58	4131712.29	0.00087	598935.67	4131712.29	0.00088
598938.76	4131712.29	0.00088	598941.85	4131712.29	0.00089
598944.94	4131712.29	0.00089	598948.03	4131712.29	0.00089
598951.12	4131712.29	0.00089	598920.22	4131715.34	0.00085

598923.31	4131715.34	0.00085
598926.40	4131715.34	0.00086
598929.49	4131715.34	0.00087
598932.58	4131715.34	0.00087
598935.67	4131715.34	0.00088
598938.76	4131715.34	0.00088
598941.85	4131715.34	0.00088
598944.94	4131715.34	0.00089
598948.03	4131715.34	0.00089
598951.12	4131715.34	0.00089
598954.21	4131715.34	0.00090
598920.22	4131718.39	0.00085
598923.31	4131718.39	0.00085
598926.40	4131718.39	0.00086
598929.49	4131718.39	0.00086
598932.58	4131718.39	0.00087
598935.67	4131718.39	0.00087
598938.76	4131718.39	0.00088
598941.85	4131718.39	0.00088
598944.94	4131718.39	0.00089
598948.03	4131718.39	0.00089
598951.12	4131718.39	0.00089
598954.21	4131718.39	0.00090
598957.30	4131718.39	0.00090
598960.39	4131718.39	0.00090
598917.13	4131721.44	0.00084
598920.22	4131721.44	0.00084
598923.31	4131721.44	0.00085
598926.40	4131721.44	0.00085
598929.49	4131721.44	0.00086
598932.58	4131721.44	0.00087
598935.67	4131721.44	0.00087
598938.76	4131721.44	0.00088
598941.85	4131721.44	0.00088
598944.94	4131721.44	0.00088
598948.03	4131721.44	0.00089
598951.12	4131721.44	0.00089
598954.21	4131721.44	0.00089
598957.30	4131721.44	0.00090
598960.39	4131721.44	0.00090
598917.13	4131724.49	0.00084
598920.22	4131724.49	0.00084
598923.31	4131724.49	0.00085
598926.40	4131724.49	0.00085
598929.49	4131724.49	0.00086
598932.58	4131724.49	0.00086
598935.67	4131724.49	0.00087
598938.76	4131724.49	0.00087
598941.85	4131724.49	0.00088
598944.94	4131724.49	0.00088
598948.03	4131724.49	0.00088
598951.12	4131724.49	0.00089

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
598954.21	4131724.49	0.00089	598957.30	4131724.49	0.00089
598960.39	4131724.49	0.00090	598914.04	4131727.54	0.00083
598917.13	4131727.54	0.00083	598920.22	4131727.54	0.00084
598923.31	4131727.54	0.00084	598926.40	4131727.54	0.00085
598929.49	4131727.54	0.00086	598932.58	4131727.54	0.00086
598935.67	4131727.54	0.00087	598938.76	4131727.54	0.00087
598941.85	4131727.54	0.00087	598944.94	4131727.54	0.00088
598948.03	4131727.54	0.00088	598951.12	4131727.54	0.00088
598954.21	4131727.54	0.00089	598957.30	4131727.54	0.00089
598914.04	4131730.59	0.00083	598917.13	4131730.59	0.00083
598920.22	4131730.59	0.00084	598923.31	4131730.59	0.00084
598926.40	4131730.59	0.00085	598929.49	4131730.59	0.00085
598932.58	4131730.59	0.00086	598935.67	4131730.59	0.00086
598938.76	4131730.59	0.00087	598941.85	4131730.59	0.00087

598944.94	4131730.59	0.00088
598948.03	4131730.59	0.00088
598951.12	4131730.59	0.00088
598954.21	4131730.59	0.00088
598957.30	4131730.59	0.00089
598910.95	4131733.64	0.00082
598914.04	4131733.64	0.00083
598917.13	4131733.64	0.00083
598920.22	4131733.64	0.00084
598923.31	4131733.64	0.00084
598926.40	4131733.64	0.00085
598929.49	4131733.64	0.00085
598932.58	4131733.64	0.00086
598935.67	4131733.64	0.00086
598938.76	4131733.64	0.00087
598941.85	4131733.64	0.00087
598944.94	4131733.64	0.00087
598948.03	4131733.64	0.00088
598951.12	4131733.64	0.00088
598954.21	4131733.64	0.00088
598907.86	4131736.69	0.00082
598910.95	4131736.69	0.00082
598914.04	4131736.69	0.00082
598917.13	4131736.69	0.00083
598920.22	4131736.69	0.00083
598923.31	4131736.69	0.00084
598926.40	4131736.69	0.00084
598929.49	4131736.69	0.00085
598932.58	4131736.69	0.00085
598935.67	4131736.69	0.00086
598938.76	4131736.69	0.00086
598941.85	4131736.69	0.00087
598944.94	4131736.69	0.00087
598948.03	4131736.69	0.00087
598951.12	4131736.69	0.00087
598954.21	4131736.69	0.00088
598910.95	4131739.74	0.00081
598914.04	4131739.74	0.00082
598917.13	4131739.74	0.00083
598920.22	4131739.74	0.00083
598923.31	4131739.74	0.00084
598926.40	4131739.74	0.00084
598929.49	4131739.74	0.00085
598932.58	4131739.74	0.00085
598935.67	4131739.74	0.00086
598938.76	4131739.74	0.00086
598941.85	4131739.74	0.00086
598944.94	4131739.74	0.00087
598948.03	4131739.74	0.00087
598951.12	4131739.74	0.00087
598914.04	4131742.79	0.00082
598917.13	4131742.79	0.00082

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
598920.22	4131742.79	0.00083	598923.31	4131742.79	0.00083
598926.40	4131742.79	0.00084	598929.49	4131742.79	0.00084
598932.58	4131742.79	0.00085	598935.67	4131742.79	0.00085
598938.76	4131742.79	0.00086	598941.85	4131742.79	0.00086
598944.94	4131742.79	0.00086	598948.03	4131742.79	0.00086
598951.12	4131742.79	0.00087	598920.22	4131745.84	0.00083
598923.31	4131745.84	0.00083	598926.40	4131745.84	0.00083
598929.49	4131745.84	0.00084	598932.58	4131745.84	0.00084
598935.67	4131745.84	0.00085	598938.76	4131745.84	0.00085
598941.85	4131745.84	0.00086	598944.94	4131745.84	0.00086
598948.03	4131745.84	0.00086	598926.40	4131748.89	0.00083
598929.49	4131748.89	0.00083	598932.58	4131748.89	0.00084
598935.67	4131748.89	0.00084	598938.76	4131748.89	0.00085
598941.85	4131748.89	0.00086	598944.94	4131748.89	0.00086

598929.49	4131751.94	0.00083
598932.58	4131751.94	0.00083
598935.67	4131751.94	0.00084
598938.76	4131751.94	0.00085
598941.85	4131751.94	0.00085
598944.94	4131751.94	0.00085
598935.67	4131754.99	0.00084
598938.76	4131754.99	0.00084
598941.85	4131754.99	0.00085
598941.85	4131758.04	0.00084

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
598929.49	4131700.09	0.01035	(11042424)	598929.49	4131703.14	0.01024	(11042424)
598932.58	4131703.14	0.01022	(11042424)	598935.67	4131703.14	0.01020	(11042424)
598926.40	4131706.19	0.01024	(13082202)	598929.49	4131706.19	0.01018	(13112424)
598932.58	4131706.19	0.01015	(13112424)	598935.67	4131706.19	0.01011	(13112424)
598938.76	4131706.19	0.01007	(13112424)	598941.85	4131706.19	0.01010	(12111408)
598926.40	4131709.24	0.01022	(13082202)	598929.49	4131709.24	0.01017	(13082202)
598932.58	4131709.24	0.01011	(13082202)	598935.67	4131709.24	0.01005	(13082202)
598938.76	4131709.24	0.00997	(13112424)	598941.85	4131709.24	0.00994	(12111408)
598944.94	4131709.24	0.00997	(12111408)	598923.31	4131712.29	0.01014	(13082202)
598926.40	4131712.29	0.01014	(09112308)	598929.49	4131712.29	0.01010	(13082202)
598932.58	4131712.29	0.01006	(13082202)	598935.67	4131712.29	0.01000	(13082202)
598938.76	4131712.29	0.00991	(13082202)	598941.85	4131712.29	0.00983	(13082202)
598944.94	4131712.29	0.00978	(12111408)	598948.03	4131712.29	0.00981	(12111408)
598951.12	4131712.29	0.00983	(12111408)	598920.22	4131715.34	0.01001	(09112308)

598923.31	4131715.34	0.01003	(09112308)
598926.40	4131715.34	0.01004	(09112308)
598929.49	4131715.34	0.00999	(09112308)
598932.58	4131715.34	0.00995	(09112308)
598935.67	4131715.34	0.00989	(13082202)
598938.76	4131715.34	0.00983	(13082202)
598941.85	4131715.34	0.00978	(13082202)
598944.94	4131715.34	0.00972	(13082202)
598948.03	4131715.34	0.00965	(13082202)
598951.12	4131715.34	0.00965	(12111408)
598954.21	4131715.34	0.00962	(12111408)
598920.22	4131718.39	0.00989	(09112308)
598923.31	4131718.39	0.00991	(09112308)
598926.40	4131718.39	0.00990	(09112308)
598929.49	4131718.39	0.00987	(09112308)
598932.58	4131718.39	0.00985	(09112308)
598935.67	4131718.39	0.00982	(09112308)
598938.76	4131718.39	0.00976	(09112308)
598941.85	4131718.39	0.00970	(09112308)
598944.94	4131718.39	0.00963	(13082202)
598948.03	4131718.39	0.00959	(13082202)
598951.12	4131718.39	0.00953	(13082202)
598954.21	4131718.39	0.00951	(13082202)
598957.30	4131718.39	0.00945	(13082202)
598960.39	4131718.39	0.00940	(13082202)
598917.13	4131721.44	0.00974	(11110207)
598920.22	4131721.44	0.00974	(11110207)
598923.31	4131721.44	0.00975	(11110207)
598926.40	4131721.44	0.00975	(11110207)
598929.49	4131721.44	0.00973	(11110207)
598932.58	4131721.44	0.00972	(11110207)
598935.67	4131721.44	0.00971	(09112308)
598938.76	4131721.44	0.00968	(09112308)
598941.85	4131721.44	0.00964	(09112308)
598944.94	4131721.44	0.00961	(09112308)
598948.03	4131721.44	0.00954	(09112308)
598951.12	4131721.44	0.00947	(09112308)
598954.21	4131721.44	0.00941	(13082202)
598957.30	4131721.44	0.00937	(13082202)
598960.39	4131721.44	0.00932	(13082202)
598917.13	4131724.49	0.00958	(10082404)
598920.22	4131724.49	0.00960	(11110207)
598923.31	4131724.49	0.00961	(11110207)
598926.40	4131724.49	0.00962	(11110207)
598929.49	4131724.49	0.00961	(11110207)
598932.58	4131724.49	0.00960	(11110207)
598935.67	4131724.49	0.00960	(11110207)
598938.76	4131724.49	0.00959	(11110207)
598941.85	4131724.49	0.00956	(11110207)
598944.94	4131724.49	0.00952	(09112308)
598948.03	4131724.49	0.00946	(09112308)
598951.12	4131724.49	0.00940	(09112308)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
598954.21	4131724.49	0.00935	(09112308)	598957.30	4131724.49	0.00929	(09112308)
598960.39	4131724.49	0.00923	(09112308)	598914.04	4131727.54	0.00942	(10082404)
598917.13	4131727.54	0.00944	(10082404)	598920.22	4131727.54	0.00944	(10082404)
598923.31	4131727.54	0.00945	(11110207)	598926.40	4131727.54	0.00946	(11110207)
598929.49	4131727.54	0.00948	(11110207)	598932.58	4131727.54	0.00949	(11110207)
598935.67	4131727.54	0.00948	(11110207)	598938.76	4131727.54	0.00946	(11110207)
598941.85	4131727.54	0.00944	(11110207)	598944.94	4131727.54	0.00942	(11110207)
598948.03	4131727.54	0.00936	(11110207)	598951.12	4131727.54	0.00931	(11110207)
598954.21	4131727.54	0.00925	(09112308)	598957.30	4131727.54	0.00920	(09112308)
598914.04	4131730.59	0.00926	(10102703)	598917.13	4131730.59	0.00932	(10102703)
598920.22	4131730.59	0.00932	(10082404)	598923.31	4131730.59	0.00931	(10082404)
598926.40	4131730.59	0.00930	(11110207)	598929.49	4131730.59	0.00930	(11110207)
598932.58	4131730.59	0.00931	(11110207)	598935.67	4131730.59	0.00931	(11110207)
598938.76	4131730.59	0.00930	(11110207)	598941.85	4131730.59	0.00930	(11110207)

598944.94	4131730.59	0.00928	(11110207)
598948.03	4131730.59	0.00924	(11110207)
598951.12	4131730.59	0.00920	(11110207)
598954.21	4131730.59	0.00915	(11110207)
598957.30	4131730.59	0.00909	(11110207)
598910.95	4131733.64	0.00915	(13111607)
598914.04	4131733.64	0.00917	(13111607)
598917.13	4131733.64	0.00919	(13111607)
598920.22	4131733.64	0.00919	(13111607)
598923.31	4131733.64	0.00917	(13110621)
598926.40	4131733.64	0.00918	(09110503)
598929.49	4131733.64	0.00919	(09110503)
598932.58	4131733.64	0.00916	(09110503)
598935.67	4131733.64	0.00914	(09110503)
598938.76	4131733.64	0.00912	(09110503)
598941.85	4131733.64	0.00912	(11110207)
598944.94	4131733.64	0.00911	(11110207)
598948.03	4131733.64	0.00908	(11110207)
598951.12	4131733.64	0.00905	(11110207)
598954.21	4131733.64	0.00901	(11110207)
598907.86	4131736.69	0.00905	(13081902)
598910.95	4131736.69	0.00903	(13110621)
598914.04	4131736.69	0.00905	(13110621)
598917.13	4131736.69	0.00907	(13110621)
598920.22	4131736.69	0.00908	(13110621)
598923.31	4131736.69	0.00907	(13110621)
598926.40	4131736.69	0.00905	(13110621)
598929.49	4131736.69	0.00905	(09110503)
598932.58	4131736.69	0.00904	(09110503)
598935.67	4131736.69	0.00902	(09110503)
598938.76	4131736.69	0.00901	(09110503)
598941.85	4131736.69	0.00900	(09110503)
598944.94	4131736.69	0.00897	(09110503)
598948.03	4131736.69	0.00891	(09110503)
598951.12	4131736.69	0.00886	(10082404)
598954.21	4131736.69	0.00883	(11110207)
598910.95	4131739.74	0.00892	(13081902)
598914.04	4131739.74	0.00894	(13081902)
598917.13	4131739.74	0.00896	(13081902)
598920.22	4131739.74	0.00898	(13081902)
598923.31	4131739.74	0.00897	(13081902)
598926.40	4131739.74	0.00895	(13081902)
598929.49	4131739.74	0.00893	(13110621)
598932.58	4131739.74	0.00892	(13110621)
598935.67	4131739.74	0.00891	(13110621)
598938.76	4131739.74	0.00889	(13110621)
598941.85	4131739.74	0.00887	(13110621)
598944.94	4131739.74	0.00884	(09110503)
598948.03	4131739.74	0.00879	(09110503)
598951.12	4131739.74	0.00874	(09110503)
598914.04	4131742.79	0.00883	(13081902)
598917.13	4131742.79	0.00884	(13081902)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE   1ST HIGHEST 1-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ALL   ***
INCLUDING SOURCE(S):   L0000001   , L0000002   , L0000003   , L0000004   , L0000005   ,
L0000006   , L0000007   , L0000008   , L0000009   , L0000010   , L0000011   , L0000012   , L0000013   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10   IN MICROGRAMS/M**3   **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
598920.22	4131742.79	0.00886	(13081902)	598923.31	4131742.79	0.00886	(13081902)
598926.40	4131742.79	0.00885	(13092707)	598929.49	4131742.79	0.00884	(13092707)
598932.58	4131742.79	0.00882	(13092707)	598935.67	4131742.79	0.00881	(13081902)
598938.76	4131742.79	0.00879	(13081902)	598941.85	4131742.79	0.00877	(13081902)
598944.94	4131742.79	0.00873	(13110621)	598948.03	4131742.79	0.00867	(13110621)
598951.12	4131742.79	0.00861	(13110621)	598920.22	4131745.84	0.00875	(10082502)
598923.31	4131745.84	0.00875	(10082502)	598926.40	4131745.84	0.00873	(13092707)
598929.49	4131745.84	0.00872	(13092707)	598932.58	4131745.84	0.00871	(13092707)
598935.67	4131745.84	0.00870	(13092707)	598938.76	4131745.84	0.00869	(13092707)
598941.85	4131745.84	0.00869	(13092707)	598944.94	4131745.84	0.00864	(13092707)
598948.03	4131745.84	0.00857	(13081902)	598926.40	4131748.89	0.00859	(10082502)
598929.49	4131748.89	0.00858	(13092707)	598932.58	4131748.89	0.00857	(13092707)
598935.67	4131748.89	0.00856	(13092707)	598938.76	4131748.89	0.00858	(13092707)
598941.85	4131748.89	0.00858	(13092707)	598944.94	4131748.89	0.00855	(13092707)

598929.49	4131751.94	0.00843	(10082502)
598932.58	4131751.94	0.00841	(13092707)
598935.67	4131751.94	0.00841	(13092707)
598938.76	4131751.94	0.00844	(13092707)
598941.85	4131751.94	0.00846	(13092707)
598944.94	4131751.94	0.00843	(13092707)
598935.67	4131754.99	0.00831	(10102905)
598938.76	4131754.99	0.00831	(10102905)
598941.85	4131754.99	0.00831	(10102905)
598941.85	4131758.04	0.00817	(10102905)

*** AERMOD - VERSION 16216r ***   *** C:\Lakes\AERMOD View\600_1st_street_SJ\600_1st_street_SJ.isc   ***   01/22/18
*** AERMET - VERSION 14134 ***   ***   ***   09:57:50

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
598929.49	4131700.09	0.00277b	(11010824)	598929.49	4131703.14	0.00276b	(11010824)
598932.58	4131703.14	0.00279b	(11010824)	598935.67	4131703.14	0.00281b	(11010824)
598926.40	4131706.19	0.00273b	(11010824)	598929.49	4131706.19	0.00275b	(11010824)
598932.58	4131706.19	0.00277b	(11010824)	598935.67	4131706.19	0.00279b	(11010824)
598938.76	4131706.19	0.00282b	(11010824)	598941.85	4131706.19	0.00284b	(11010824)
598926.40	4131709.24	0.00275c	(10020824)	598929.49	4131709.24	0.00273b	(11010824)
598932.58	4131709.24	0.00275b	(11010824)	598935.67	4131709.24	0.00277b	(11010824)
598938.76	4131709.24	0.00279b	(11010824)	598941.85	4131709.24	0.00281b	(11010824)
598944.94	4131709.24	0.00283b	(11010824)	598923.31	4131712.29	0.00279c	(10020824)
598926.40	4131712.29	0.00279c	(10020824)	598929.49	4131712.29	0.00278c	(10020824)
598932.58	4131712.29	0.00276c	(10020824)	598935.67	4131712.29	0.00275b	(11010824)
598938.76	4131712.29	0.00277b	(11010824)	598941.85	4131712.29	0.00278b	(11010824)
598944.94	4131712.29	0.00280b	(11010824)	598948.03	4131712.29	0.00282b	(11010824)
598951.12	4131712.29	0.00283b	(11010824)	598920.22	4131715.34	0.00281c	(10020824)

598923.31	4131715.34	0.00281c (10020824)
598926.40	4131715.34	0.00281c (10020824)
598929.49	4131715.34	0.00281c (10020824)
598932.58	4131715.34	0.00279c (10020824)
598935.67	4131715.34	0.00278c (10020824)
598938.76	4131715.34	0.00276c (10020824)
598941.85	4131715.34	0.00275b (11010824)
598944.94	4131715.34	0.00278b (11010824)
598948.03	4131715.34	0.00279b (11010824)
598951.12	4131715.34	0.00281b (11010824)
598954.21	4131715.34	0.00282b (11010824)
598920.22	4131718.39	0.00283c (10020824)
598923.31	4131718.39	0.00283c (10020824)
598926.40	4131718.39	0.00283c (10020824)
598929.49	4131718.39	0.00282c (10020824)
598932.58	4131718.39	0.00282c (10020824)
598935.67	4131718.39	0.00281c (10020824)
598938.76	4131718.39	0.00280c (10020824)
598941.85	4131718.39	0.00278c (10020824)
598944.94	4131718.39	0.00276c (10020824)
598948.03	4131718.39	0.00276b (11010824)
598951.12	4131718.39	0.00278b (11010824)
598954.21	4131718.39	0.00280b (11010824)
598957.30	4131718.39	0.00281b (11010824)
598960.39	4131718.39	0.00282b (11010824)
598917.13	4131721.44	0.00286c (10102724)
598920.22	4131721.44	0.00285c (10102724)
598923.31	4131721.44	0.00284c (10102724)
598926.40	4131721.44	0.00283c (10020824)
598929.49	4131721.44	0.00284c (10020824)
598932.58	4131721.44	0.00284c (10020824)
598935.67	4131721.44	0.00284c (10020824)
598938.76	4131721.44	0.00283c (10020824)
598941.85	4131721.44	0.00282c (10020824)
598944.94	4131721.44	0.00281c (10020824)
598948.03	4131721.44	0.00279c (10020824)
598951.12	4131721.44	0.00276c (10020824)
598954.21	4131721.44	0.00276b (11010824)
598957.30	4131721.44	0.00277b (11010824)
598960.39	4131721.44	0.00279b (11010824)
598917.13	4131724.49	0.00288c (10102724)
598920.22	4131724.49	0.00288c (10102724)
598923.31	4131724.49	0.00287c (10102724)
598926.40	4131724.49	0.00286c (10102724)
598929.49	4131724.49	0.00286c (10102724)
598932.58	4131724.49	0.00286c (10020824)
598935.67	4131724.49	0.00286c (10020824)
598938.76	4131724.49	0.00286c (10020824)
598941.85	4131724.49	0.00285c (10020824)
598944.94	4131724.49	0.00284c (10020824)
598948.03	4131724.49	0.00282c (10020824)
598951.12	4131724.49	0.00280c (10020824)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE 1ST HIGHEST 24-HR AVERAGE
CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 ,
L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 ,
L0000010 , L0000011 , L0000012 , L0000013 ,

*** DISCRETE CARTESIAN
RECEPTOR POINTS ***

** CONC OF PM_10 IN
MICROGRAMS/M**3 **

X-COORD (M) Y-COORD (M) CONC (YYMMDDHH) X-
COORD (M) Y-COORD (M) CONC (YYMMDDHH)
- -
- -
598954.21 4131724.49 0.00278c (10020824)
598957.30 4131724.49 0.00275c (10020824)
598960.39 4131724.49 0.00275b (11010824)
598914.04 4131727.54 0.00290c (10102724)
598917.13 4131727.54 0.00290c (10102724)
598920.22 4131727.54 0.00290c (10102724)
598923.31 4131727.54 0.00290c (10102724)
598926.40 4131727.54 0.00289c (10102724)
598929.49 4131727.54 0.00289c (10102724)
598932.58 4131727.54 0.00289c (10102724)
598935.67 4131727.54 0.00288c (10102724)
598938.76 4131727.54 0.00287c (10020824)
598941.85 4131727.54 0.00287c (10020824)
598944.94 4131727.54 0.00286c (10020824)
598948.03 4131727.54 0.00284c (10020824)
598951.12 4131727.54 0.00283c (10020824)
598954.21 4131727.54 0.00281c (10020824)
598957.30 4131727.54 0.00278c (10020824)
598914.04 4131730.59 0.00291c (10102724)
598917.13 4131730.59 0.00292c (10102724)
598920.22 4131730.59 0.00292c (10102724)
598923.31 4131730.59 0.00292c (10102724)
598926.40 4131730.59 0.00292c (10102724)
598929.49 4131730.59 0.00291c (10102724)
598932.58 4131730.59 0.00291c (10102724)
598935.67 4131730.59 0.00290c (10102724)
598938.76 4131730.59 0.00289c (10102724)
598941.85 4131730.59 0.00288c (10102724)

598944.94	4131730.59	0.00287c	(10020824)
598948.03	4131730.59	0.00286c	(10020824)
598951.12	4131730.59	0.00285c	(10020824)
598954.21	4131730.59	0.00283c	(10020824)
598957.30	4131730.59	0.00280c	(10020824)
598910.95	4131733.64	0.00292c	(10102724)
598914.04	4131733.64	0.00293c	(10102724)
598917.13	4131733.64	0.00293c	(10102724)
598920.22	4131733.64	0.00293c	(10102724)
598923.31	4131733.64	0.00293c	(10102724)
598926.40	4131733.64	0.00293c	(10102724)
598929.49	4131733.64	0.00293c	(10102724)
598932.58	4131733.64	0.00293c	(10102724)
598935.67	4131733.64	0.00292c	(10102724)
598938.76	4131733.64	0.00291c	(10102724)
598941.85	4131733.64	0.00290c	(10102724)
598944.94	4131733.64	0.00289c	(10102724)
598948.03	4131733.64	0.00287c	(10020824)
598951.12	4131733.64	0.00286c	(10020824)
598954.21	4131733.64	0.00284c	(10020824)
598907.86	4131736.69	0.00293c	(10102724)
598910.95	4131736.69	0.00292c	(10102724)
598914.04	4131736.69	0.00293c	(10102724)
598917.13	4131736.69	0.00294c	(10102724)
598920.22	4131736.69	0.00294c	(10102724)
598923.31	4131736.69	0.00294c	(10102724)
598926.40	4131736.69	0.00294c	(10102724)
598929.49	4131736.69	0.00294c	(10102724)
598932.58	4131736.69	0.00294c	(10102724)
598935.67	4131736.69	0.00294c	(10102724)
598938.76	4131736.69	0.00293c	(10102724)
598941.85	4131736.69	0.00292c	(10102724)
598944.94	4131736.69	0.00291c	(10102724)
598948.03	4131736.69	0.00288c	(10102724)
598951.12	4131736.69	0.00286c	(10102724)
598954.21	4131736.69	0.00284c	(10102724)
598910.95	4131739.74	0.00292c	(10102724)
598914.04	4131739.74	0.00293c	(10102724)
598917.13	4131739.74	0.00294c	(10102724)
598920.22	4131739.74	0.00294c	(10102724)
598923.31	4131739.74	0.00295c	(10102724)
598926.40	4131739.74	0.00295c	(10102724)
598929.49	4131739.74	0.00295c	(10102724)
598932.58	4131739.74	0.00295c	(10102724)
598935.67	4131739.74	0.00295c	(10102724)
598938.76	4131739.74	0.00294c	(10102724)
598941.85	4131739.74	0.00294c	(10102724)
598944.94	4131739.74	0.00292c	(10102724)
598948.03	4131739.74	0.00290c	(10102724)
598951.12	4131739.74	0.00288c	(10102724)
598914.04	4131742.79	0.00293c	(10102724)
598917.13	4131742.79	0.00294c	(10102724)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ALL   ***
INCLUDING SOURCE(S):   L0000001   , L0000002   , L0000003   , L0000004   , L0000005   , L0000006   , L0000007   , L0000008   , L0000009   , L0000010   , L0000011   , L0000012   , L0000013   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10   IN MICROGRAMS/M**3   **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
598920.22	4131742.79	0.00295c	(10102724)	598923.31	4131742.79	0.00295c	(10102724)
598926.40	4131742.79	0.00295c	(10102724)	598929.49	4131742.79	0.00295c	(10102724)
598932.58	4131742.79	0.00296c	(10102724)	598935.67	4131742.79	0.00296c	(10102724)
598938.76	4131742.79	0.00295c	(10102724)	598941.85	4131742.79	0.00294c	(10102724)
598944.94	4131742.79	0.00293c	(10102724)	598948.03	4131742.79	0.00291c	(10102724)
598951.12	4131742.79	0.00288c	(10102724)	598920.22	4131745.84	0.00294c	(10102724)
598923.31	4131745.84	0.00295c	(10102724)	598926.40	4131745.84	0.00295c	(10102724)
598929.49	4131745.84	0.00295c	(10102724)	598932.58	4131745.84	0.00295c	(10102724)
598935.67	4131745.84	0.00295c	(10102724)	598938.76	4131745.84	0.00295c	(10102724)
598941.85	4131745.84	0.00295c	(10102724)	598944.94	4131745.84	0.00294c	(10102724)
598948.03	4131745.84	0.00291c	(10102724)	598926.40	4131748.89	0.00294c	(10102724)
598929.49	4131748.89	0.00294c	(10102724)	598932.58	4131748.89	0.00294c	(10102724)
598935.67	4131748.89	0.00294c	(10102724)	598938.76	4131748.89	0.00295c	(10102724)
598941.85	4131748.89	0.00295c	(10102724)	598944.94	4131748.89	0.00294c	(10102724)

598929.49	4131751.94	0.00292c (10102724)
598932.58	4131751.94	0.00292c (10102724)
598935.67	4131751.94	0.00293c (10102724)
598938.76	4131751.94	0.00294c (10102724)
598941.85	4131751.94	0.00295c (10102724)
598944.94	4131751.94	0.00293c (10102724)
598935.67	4131754.99	0.00291c (10102724)
598938.76	4131754.99	0.00292c (10102724)
598941.85	4131754.99	0.00293c (10102724)
598941.85	4131758.04	0.00290c (10102724)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.00090	AT (598960.39, 4131718.39, 30.20, 30.20, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.00090	AT (598957.30, 4131718.39, 30.18, 30.18, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.00090	AT (598960.39, 4131721.44, 30.18, 30.18, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.00090	AT (598954.21, 4131715.34, 30.16, 37.73, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.00090	AT (598957.30, 4131721.44, 30.17, 30.17, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.00090	AT (598954.21, 4131718.39, 30.16, 30.16, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.00090	AT (598960.39, 4131724.49, 30.16, 30.16, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.00089	AT (598951.12, 4131712.29, 30.11, 37.87, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.00089	AT (598951.12, 4131715.34, 30.13, 37.87, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.00089	AT (598954.21, 4131721.44, 30.16, 30.16, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

```
 *** AERMOD - VERSION 16216r ***   *** C:\Lakes\AERMOD
View\600_1st_street_SJ\600_1st_street_SJ.isc         ***        01/22/18
 *** AERMET - VERSION  14134 ***   ***
***        09:57:50

PAGE  19
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  RURAL

                                                *** THE SUMMARY OF
HIGHEST  1-HR RESULTS ***


                                    ** CONC OF PM_10    IN
MICROGRAMS/M**3                          **

                                                      DATE
NETWORK
GROUP ID                          AVERAGE CONC     (YYMMDDHH)
RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS       0.01035  ON 11042424: AT (
598929.49,  4131700.09,    29.85,    37.94,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL RURAL

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_10   IN MICROGRAMS/M**3   **

```
                                                  DATE
NETWORK
GROUP ID                          AVERAGE CONC     (YYMMDDHH)
RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS       0.00296c ON 10102724: AT ( 598932.58,  4131742.79,    30.04,    30.04,    0.00)  DC


*** RECEPTOR TYPES:  GC = GRIDCART
                     GP = GRIDPOLR
                     DC = DISCCART
                     DP = DISCPOLR
```

```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  RURAL

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of        13130 Informational Message(s)

 A Total of        43872 Hours Were Processed

 A Total of        11611 Calm Hours Identified

 A Total of         1519 Missing Hours Identified (  3.46 Percent)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 MX W481   43873         MAIN: Data Remaining After End of Year. Number of Hours=          48

    ************************************
    *** AERMOD Finishes Successfully ***
    ************************************
```

Garden Gate - Emission Rate Calculations

HWY 280 Truck Movement[1]	Emission Factor (g/mi)	Daily Truck Trips (AADT)	length (mi)[2]	g/day	g/sec
Trucks - From RTE. 280 (West to East)	0.030612766	5007.2	0.4291811	6.58E+01	7.61E-04

# sources[3]	EVS
13	5.86E-05

Notes:

1. 2016 Truck AADTs volumes increased by 10% to account for pontential future traffic growth.
2. Length (mi) is from line volume source drawn in Lakes AERMOD.
3. # of sources is the # of line volume sources in the AERMOD run.

Sources:

https://www.arb.ca.gov/emfac/2014/
http://www.dot.ca.gov/trafficops/census/docs/2016_aadt_truck.pdf
http://www.dot.ca.gov/trafficops/census/docs/Back_and_Ahead_Leg_Traffic_Count_Diagram.pdf

600 1st Street - Garden Gate Tower Healh Risk Calculation

PM_{10} (µg/m3)

Risk Calculations

Max 1-hr Avg Concentration: 0.01035

Annual Avg Concentration: 0.0009

Cancer Risk

	3rd trimester	0<2 years	2<9 years	2<16 years	16<30 years	16<70 years
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})	2.025E-07	5.92200E-07	4.815E-07	4.068E-07	0.000000189	1.665E-07
Risk = DOSEair * CPF * ASF * ED/AT * FAH	6.76205E-09	1.58202E-07	1.14404E-07	1.93311E-07	3.035340E-08	1.0314E-07

		Risk	in one million
Cancer Risk:	70-year exposure	4.61E-07	0.46
	30-year exposure	3.89E-07	0.39
	9-year exposure	2.79E-07	0.28
Threshold:			10 in one million

	DOSEair		mg/kg-d	Dose through inhalation
	CPF	1.1	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (3rd trimester)	225	L/kg bodyweight-day	Daily Breathing rate normalized to body weight
	BR/BW (0 < 2 years)	658		
	BR/BW (2 < 9 years)	535		
	BR/BW (2 < 16 years)	452		
	BR/BW (16 < 30 years)	210		
	BR/BW (16 < 70 years)	185		
	10^{-6}	1.00E-06		Micrograms to milligrams conversions, liters to cubic meters conversion
	Cair	0.001	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1		Inhalation absorption factor
	EF	1.00	days/year	Exposure frequency (days/year)
ED	ED (3rd trimester)	0.25	years	Exposure duration (years)
	ED (0 < 2 years)	2		
	ED (2 < 9 years)	7		
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (3rd trimester - 2 years)	10		Age Sensitivity Factor
	ASF (2 - 16 years)	3		
	ASF (16 - 70 years)	1		
FAH	FAH (3rd trimester - 2 years)	0.85		Fraction of time spent at home (unitless)
	FAH (2 - 16 years)	0.72		
	FAH (16 - 70 years)	0.73		

Chronic Noncancer Hazard

Threshold: 1

Hazard Quotient = C_i/REL_i

HQ = 1.80E-04

C_i 9.00E-04 Concentration (annual average)

REL_i 5 Reference Exposure Level for Diesel Exhaust

Acute NonCancer Hazard

Threshold: 1

Acute HQ = Maximum Hourly Concentration/Acute REL

Acute HQ = 5.45E-02

Max Hourly concentration 1.04E-02

Acute REL (Acrolein) 0.19