Health Risk Assessment
Woz Way Project
City of San José, California

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LIST OF ABBREVIATED TERMS

A	absorption factor from inhalation
ACES	Advanced Collaborative Emissions Study
ASF	age sensitivity factor
AB	Assembly Bill
APN	Assessor's Parcel Number
APS	auxiliary power system
AT	averaging time
ATCM	Air Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CPF	cancer potency factor
C_{air}	air concentration from model
C_i	air concentration of substance
DBR	daily breathing rate
DOORS	Diesel Off-Road Reporting System
DPM	Diesel Particulate Matter
DRRP	Diesel Risk Reduction Plan
Dose-air	dose through inhalation
EMFAC	Emissions Factor Model
ED	exposure duration
EF	exposure frequency
°F	Fahrenheit
FCAA	Federal Clean Air Act
FAH	fraction of time spent at home
GVWR	gross vehicle weight rating
HAP	hazardous air pollutant
HQ	health quotient
HRA	health risk assessment
kg	kilograms
L	liter
MICR	Maximum Individual Cancer Risk
mg	milligrams
$\mu g/m^3$	micrograms per cubic meter
MSAT	Mobile Source Air Toxic
NAAQS	National Ambient Air Quality Standards
NED	National Elevation Dataset
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
O_3	ozone
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
PERP	Portable Equipment Registration Program
REL	Reference Exposure Level
REL_i	Reference Exposure Level of substance
$Risk_{inh\text{-}res}$	residential inhalation cancer risk
SB	Senate Bill
T-BACT	toxics best available control technology
TAC	Toxic Air Contaminant
U.S. EPA	United States Environmental Protection Agency
VMT	vehicle miles traveled

1 INTRODUCTION

The purpose of this Health Risk Assessment (HRA) is to evaluate potential health risks associated with Toxic Air Contaminants (TAC) including Diesel Particulate Matter (DPM) resulting from the implementation of the proposed Woz Way Project in the City of San Jose. This HRA 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 from the Project. Technical data is included as see Appendix A: Modeling Data.

1.1 Project Location

The proposed Project is located on Woz Way in western San José. *Figure 1, Regional Map* and *Figure 2, Project Vicinity Map*, depict the Project site in a regional and local context. The Project site is currently located on 18 parcels or approximately 3.08 acres, on Woz Way and South Almaden Boulevard in the City of San José. However, one parcel is excluded for the purposes of Air Quality Assessment Project site. Therefore, 2.93-acre site development boundary will be analyzed.

The Project site is in an area of transitional land uses from a surface parking lot to the north, single-story single-family homes and commercial uses to the east, Interstate 280 (I-280) to the south, and Guadalupe River Park and Gardens to the west. The Guadalupe River Trail and river are located along the western boundary of the Project site to the immediate west of Locust Street. Elevated sections of the I-280 and State Route 87 (SR-87) interchange is visually prominent from the project site. Currently, the 2.64-acre Project site is developed as a residential community. There are 17 single-family homes on the Project site and Locust Street which connects some of the residential uses to Woz Way. There is existing landscaping and surface light fixtures along the frontages of the single-family residences.

1.2 Project Description

The Project site is located in an urban area with a mix of uses including commercial, office, and residential uses. The proposed Project existing zoning designation is Downtown Primary Commercial and proposed land use designation is Downtown Commercial.

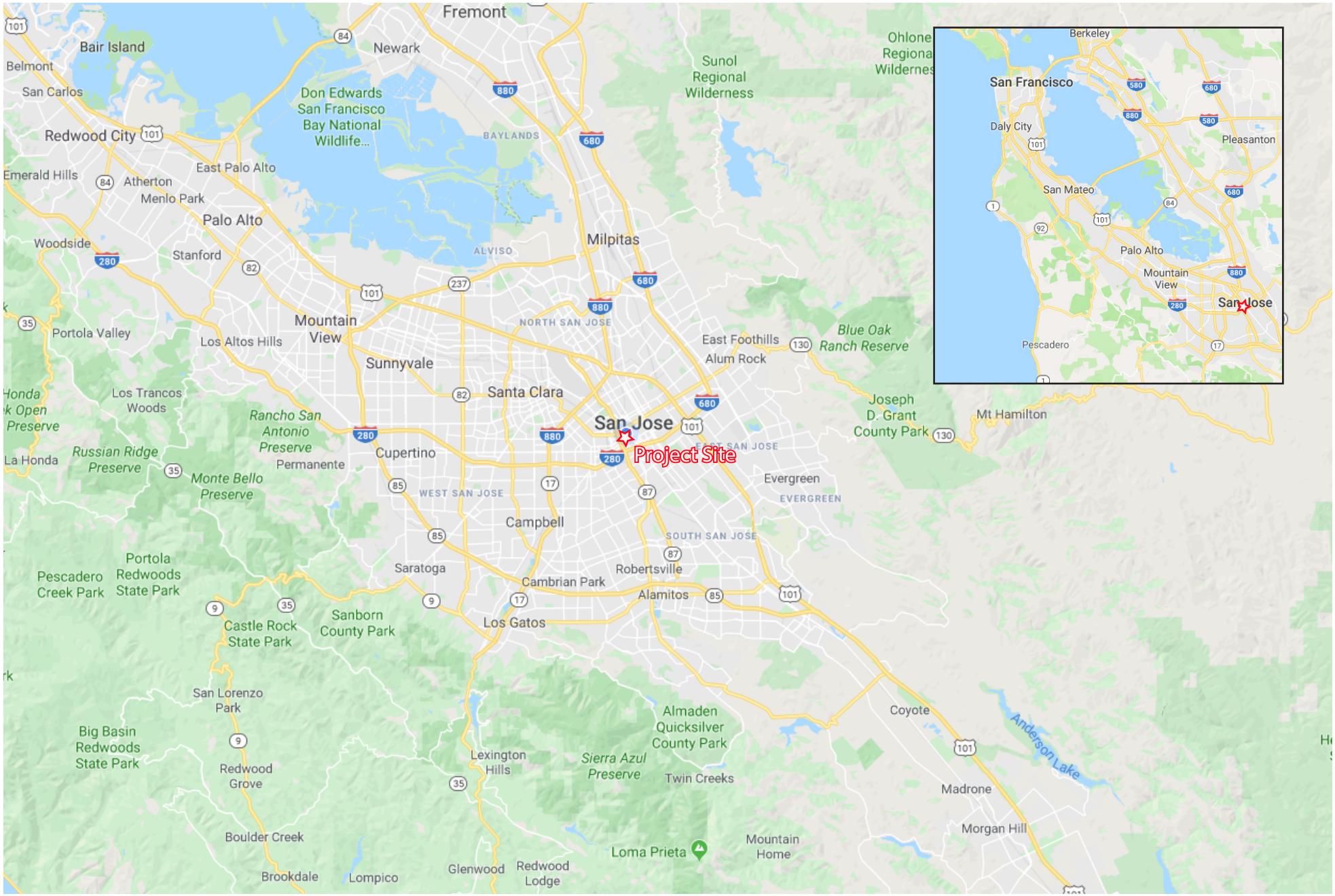
The proposed Project is an infill development that maximizes the use of land in the Downtown Core Area. The Project proposes the development of two 20 story office towers with approximately 1,211,777 square feet (sf) of office space, approximately 9,748 sf of ground floor retail, and four levels of underground parking. The retail uses would provide services and amenities to visitors and residents in the surrounding area. The proposed Project also includes four levels of underground parking and four levels of on- and above- ground parking at the south tower. See *Figure 3*, *Site Plan*.

Currently, vehicle access to the project site is from Woz Way and from South Almaden Boulevard. Vehicle access is also available from the intersection of Woz Way and Locust Street. Currently, Locust Street is not a through road. The project includes an internal driveway, located between the proposed north and south towers, with ingress and egress on both Woz Way and Almaden Boulevard. The primary entrance to the north tower lobby is provided from Woz Way and also via the internal driveway. The primary entrance to the south tower lobby is provided from the internal driveway. Vehicle ingress and egress to all parking areas (Levels B1 to B4, and Levels 1 to 4) is provided via the internal driveway, on the north side of the south tower, and via a driveway on Almaden Boulevard. There is existing utility access (water, sewer, electricity, gas) to the Project site. The project site is crossed by the Guadalupe River Trail along the

western boundary of the Project site. Pedestrian access to the trail is at the intersection of Woz Way and Locust Street.

In addition, the proposed Project site, is located within 0.33 miles of bus routes, and 0.25 miles north-east of the Children's Discovery Museum light rail station, therefore these employment opportunities would be easily accessible via transit, furthering the City's General Plan goals to support a healthy community, reduce traffic congestion and decrease greenhouse gas emissions and energy consumption. The Project would increase population and employment, thereby promoting the Downtown Strategy 2040 Final EIR goals for focused and sustainable growth, because it supports the intensification of development in an urbanized area that is currently served by existing roads, transit, utilities, and public service.

Construction is anticipated to begin in early 2021 and last approximately 31 months until summer of 2023. Construction methods would include demolition, site preparation, grading, paving, building construction, and architectural coating. Construction of the Project would be required to be consistent with the City's Best Management Practices and California Building Code. Per the City Standard Permit Conditions and GP Policy MS-13.1, the proposed Project would implement control measures that ensure that construction emissions do not exceed BAAQMD significance thresholds. The Project would use a CARB certified Tier 4 off-road equipment fleet to meet this standard (Mitigation Measure AQ-1).



Source: Google Earth, 2020

Figure 1: Regional Map

Woz Way Project

Not to scale

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Source: Nearmap, 2020

Figure 2: Project Vicinity Map

Woz Way Project

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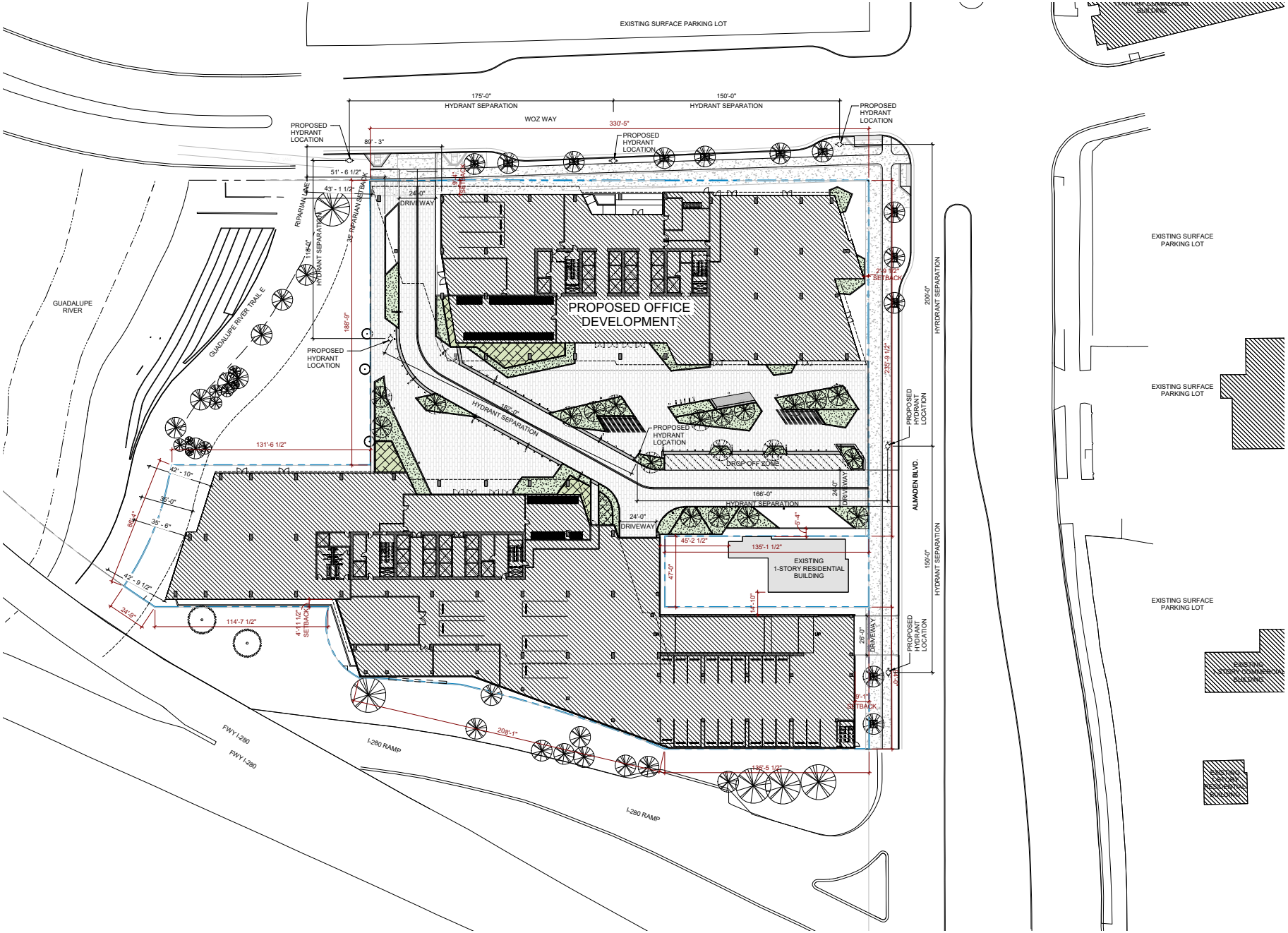

Source: C2K Architecture, 2020

Figure 3: Site Map

Woz Way Project

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2 ENVIRONMENTAL SETTING

2.1 Climate

The project is within the San Francisco Bay Area Air Basin (SFBAAB), which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma, and the southwestern portion of Solano County. SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold-water band resulting in condensation and the presence of fog and stratus clouds along the Northern California coast.

In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

2.2 Toxic Air Contaminants

Toxic Air Contaminants (TACs) are airborne substances capable of causing short-term (acute) and 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), 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. The California Air Resources Board (CARB) provides emission inventories for only the larger air basins.

Industrial facilities and mobile sources are significant sources of TACs. The electronics industry, including semiconductor manufacturing, has the potential to contaminate both air and water due to the highly toxic chlorinated solvents commonly used in semiconductor production processes. In addition to industrial sources, various common urban facilities also produce TAC emissions, such as gasoline stations (benzene), hospitals (ethylene oxide), and dry cleaners (perchloroethylene). Automobile exhaust also contains TACs such as benzene and 1,3-butadiene. Diesel particulate matter (DPM) was identified as a TAC by CARB in 1998. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of

hundreds of substances. BAAQMD research indicates that mobile-source emissions of DPM, benzene, and 1,3-butadiene represent a substantial portion of the ambient background risk from TACs in the SFBAAB.

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.

In California, on-road diesel-fueled engines contribute approximately 24 percent of the statewide total DPM emissions, 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. 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 to register their units to operate their equipment throughout California without having to obtain individual permits from local air districts.

As stated above, 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.

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. California has identified diesel exhaust particles as a carcinogen.

2.3 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than is the general population. 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. Sensitive receptors near the project site include existing residential communities to the east of the Project site. As shown in *Table 1: Sensitive Receptors*, sensitive receptors near the Project site include single-family residences adjacent to the western boundary, approximately 30 feet from the property line. Single-family residential communities are located surrounding the Project site. See *Figure 4: Sensitive Receptors* for more details.

Table 1: Sensitive Receptors

	Receptor Description	Distance and Direction from the Project Site
1	Single-family residential community	Adjacent
2	Single-family residential community	150 feet east
3	Guadalupe River and Park	500 feet north
4	Children's Discovery Museum	500 feet north
5	San Jose Convention Center	750 feet northwest
6	Hilton San Jose	1,000 feet north
7	San Jose Performing Arts Center	1,200 feet north
8	Rocketship Mateo Sheedy Elementary School	1,300 feet south
9	Parque De Los Pobladores	1,400 northeast
10	Notre Dame High School	1,800 feet east
11	Plaza De Cesar Chavez	0.3 miles north
12	The Tech Museum of Innovation	0.35 miles northeast

Source: Nearmap, 2020

Figure 4: Sensitive Receptor Locations

Woz Way Project

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3 REGULATORY SETTING

3.1 Federal

Federal Clean Air Act

The FCAA was amended in 1990 to address the numerous 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.

In 2001, the United States Environmental Protection Agency (U.S. EPA) issued its first Mobile Source Air Toxics Rule, which identified 21 mobile source air toxic (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: benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde, and DPM. More recently, the U.S. 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 less uniform.

National Emissions Standards for Hazardous Air Pollutants (NESHAPs) were incorporated into a greatly expanded program for controlling toxic air pollutants. The provisions for attainment and maintenance of the NAAQS were substantially modified and expanded. Other revisions included provisions regarding stratospheric ozone protection, increased enforcement authority, and expanded research programs.

Section 112 of the FCAA Amendments governs the federal control program for HAPs. NESHAPs are issued to limit the release of specified HAPs from specific industrial sectors. These standards are technology-based, meaning that they represent the best available control technology an industrial sector could afford. The level of emissions controls required by NESHAPs are not based on health risk considerations because allowable releases and resulting concentrations have not been determined to be safe for the public. The FCAA does not establish air quality standards for HAPs that define legally acceptable concentrations of these pollutants in ambient air.

Federal Emissions Standards for On-Road Trucks

To reduce emissions from on-road, heavy-duty diesel trucks, the U.S. EPA established a series of increasingly strict emission standards for new engines, starting in 1988. The U.S. EPA promulgated the final and cleanest standards with the 2007 Heavy-Duty Highway Rule.[1] The PM emission standard of 0.01 gram per horsepower-hour (g/hp-hr) is required for new vehicles beginning with model year 2007. Also, the NO_X and nonmethane hydrocarbon (NMHC) standards of 0.20 g/hp-hr and 0.14 g/hp-hr, respectively,

[1] United States Environmental Protection Agency (U.S. EPA), *Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*, Final Rule. 40 Code of Federal Regulations, Parts 69, 80, and 86. January 18, 2001.

were phased in together between 2007 and 2010 on a percent of sales basis: 50 percent from 2007 to 2009 and 100 percent in 2010.

Emission Standards for Nonroad Diesel Engines

To reduce emissions from off-road diesel equipment, the U.S. EPA established a series of cleaner emission standards for new off-road diesel engines. Tier 1 standards were phased in from 1996 to 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006. Tier 3 standards were phased in from 2006 to 2008. Tier 4 standards, which generally require add-on emission control equipment to attain them, are being phased in from 2008 to 2015.

3.2 State of California

California Air Resources Board

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.

CARB also administers the State's mobile source emissions control program and oversees air quality programs established by State statute, such as AB 2588. 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 AB 2588 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 Risk Reduction Plan

The identification of DPM as a TAC in 1998 led CARB to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (DRRP) in October 2000. The DRRP's goals include an 85 percent reduction in DPM by 2020 from the 2000 baseline[2]. CARB estimates that emissions of DPM in 2035 will be less than half those in 2010, further reducing statewide cancer risk and non-cancer health effects.[3] The DRRP includes regulations to establish cleaner new diesel engines, cleaner in-use diesel engines (retrofits), and cleaner diesel fuel.

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

[3] California Air Resources Board, *Overview: Diesel Exhaust & Health*, available at: https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health, accessed on November 5, 2019.

Truck and Bus Regulation Reducing Emissions from Existing Diesel Vehicles

On December 12, 2008, CARB approved the Truck and Bus Regulation to significantly reduce PM and NO_X emissions from existing diesel vehicles operating in California. The regulation requires PM retrofits on all diesel trucks and buses that operate in California (i.e., existing vehicles are required 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 1, 2023, nearly all trucks and buses would need to have 2010 model year engines or equivalent.

The regulation applies to most privately-owned 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 and there are several 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. 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 is the regional agency tasked with managing air quality in the region and has regulated TACs since the 1980s. The CCAA provides the BAAQMD with the authority to manage transportation activities at indirect sources and regulate stationary source emissions. Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution. An example of this would be the motor vehicles at an intersection, a mall, and on highways. As a State agency, CARB regulates motor vehicles and fuels for their emissions. The BAAQMD has published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.

Under BAAQMD Regulation 2-1 (General Permit Requirements), Regulation 2-2 (New Source Review), and Regulation 2-5 (New Source Review), all nonexempt sources that possess the potential to emit TACs are required to obtain permits from BAAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The BAAQMD limits emissions and public exposure to TACs

through a number of programs. Section 301 of Regulation 2, Rule 2 requires Best Available Control Technology (BACT) is triggered for any new or modified source with the potential to emit specific levels of pollutants. The BAAQMD prioritizes TAC-emitting stationary sources for regulation based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Community Air Risk Evaluation Program

The BAAQMD's Community Air Risk Evaluation (CARE) program estimates and reports both local and regional impacts of TACs in the Bay Area. The objective of the CARE Program is to reduce health impacts linked to local air quality. The goals of the CARE Program are to: (1) identify areas where air pollution contributes most to health impacts and where populations are most vulnerable to air pollution; (2) apply sound scientific methods and strategies to reduce health impacts in these areas; and (3) engage community groups and other agencies to develop additional actions to reduce local health impacts. Information from the CARE program is used by the BAAQMD to design and focus effective mitigation measures in areas with highest impacts.

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 Health Risk Analysis Thresholds

Project health risks are determined by examining the types and levels of air toxics generated and the associated impacts on factors that affect air quality. The BAAQMD publishes the California Environmental Quality Act (CEQA) Air Quality Guidelines, which were most recently updated in May 2017. The BAAQMD thresholds for air toxic emissions that are used for this project are shown below:

Individual Projects:

- **Excess Cancer Risk:** Emit contaminants that exceed the maximum individual cancer risk of 10 in one million.
- **Non-Cancer Risk:** Emit contaminants that exceed the maximum hazard quotient of 1.0 in one million.
- **Ambient $PM_{2.5}$ Concentration:** Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.3 µg/m^3

Cumulative Thresholds:

- **Excess Cancer Risk:** Emit contaminants that would contribute to cumulative emissions, resulting in an exceedance of the maximum individual cancer risk of 100 in one million.
- **Non-Cancer Risk:** Emit contaminants that that would contribute to cumulative emissions, resulting in an exceedance of the maximum hazard quotient of 10.0 in one million.
- **Ambient $PM_{2.5}$ Concentration:** Incremental increase in average cumulative annual $PM_{2.5}$ concentration of greater than 0.8 µg/m^3

Cancer risk is expressed in terms of expected incremental incidence per million population. The BAAQMD has established an individual project incidence rate of 10 persons per million as the maximum acceptable incremental cancer risk. This threshold serves to determine if a given project has a potentially significant development-specific and cumulative impact. The 10 in one million standard is a health-protective significance threshold. A risk level of 10 in one million implies a likelihood that up to 10 persons, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of toxic air contaminants over a specified duration of time. This risk would be an excess cancer that is in addition to any cancer risk borne by a person not exposed to these air toxics. To put this risk in perspective, the risk of dying from accidental drowning is 1,000 in one million which is 100 times more than the BAAQMD's threshold of 10 in one million.

The BAAQMD has also established non-carcinogenic risk parameters for use in HRAs. Noncarcinogenic risks are quantified by calculating a hazard index (HI), 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 HI less than 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.

The 2017 BAAQMD CEQA Air Quality Guidelines recommend assessing impacts within 1,000 feet of the project. The 1,000-foot radius is consistent with findings in CARB's Air Quality and Land Use Handbook

(2005) and the California Health & Safety Code §42301.6 (Notice for Possible Source Near School). The CARB Air Quality and Land Use Handbook found that TAC concentrations are reduced substantially at a distance 1,000 feet downwind from sources such as freeways or large distribution centers.

4.2 Methodology

Construction Risk

Construction would generate DPM emissions from the use of off-road diesel equipment required for grading and excavation, paving, and other construction activities. For construction activity, DPM is the primary toxic air contaminant of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations. Diesel exhaust from construction equipment operating at the site potentially poses a health risk to nearby sensitive receptors. The closest sensitive receptors to the Project site is a resident onsite. The nearest school to the Project site is Rocketship Mateo Sheedy Elementary School located approximately 0.25 miles (1,300 feet) south of the site.

The EPA recommended screening model AERSCREEN has been used to evaluate potential health effects to sensitive receptors from construction emissions. AERSCREEN is the recommended screening model based on the AERMOD dispersion model. The model produces estimates of worst-case concentrations without the need for hourly meteorological data. According to the EPA Support Center for Regulatory Atmospheric Modeling (SCRAM) website, AERSCREEN is intended to produce concentration estimates that are equal to or greater than the estimates produced by AERMOD with a fully developed set of meteorological and terrain data.[4] Maximum (worst case) $PM_{2.5}$ exhaust construction emissions over the entire construction period were used in AERSCREEN to approximate construction DPM emissions. Risk levels were calculated with the CARB Hotspots Analysis and Reporting Program (HARP) Risk Assessment Standalone Tool (RAST) and based on the California Office of Environmental Health Hazard Assessment (OEHHA) guidance document, Air Toxics Hot Spots Program Risk Assessment Guidelines (February 2015).

Operational Risk

The proposed Project would not include uses that would generate diesel truck traffic or other TACs at the Project site. Therefore, no operational health risks due to the Project were modeled. However, the cumulative impacts to potential receptors at the Project site associated with sources of TACs within 1,000 feet were evaluated. The BAAQMD was contacted to determine the permitted TAC sources in the Project vicinity. Additionally, BAAQMD GIS mapping tools were utilized to determine risk levels from the freeway.

Risk and Hazard Assessment

Cancer Risk. Based on the OEHHA methodology, residential inhalation cancer risk from annual average DPM and benzene concentrations are calculated by multiplying the daily inhalation dose, cancer potency factor, age sensitivity factor (ASF), frequency of time spent at home, and exposure duration divided by averaging time, yielding 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 along I-280. Exposure through inhalation (Dose-air) is a function of breathing rate, exposure frequency, and

[4] U.S. Environmental Protection Agency, *Air Quality Dispersion Modeling- Screening Models*. https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models

concentration of substance in the air. 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-air	=	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 bodyweight-day)
A	=	inhalation absorption factor (unitless)
EF	=	exposure frequency (approximately 350 days per year for residential)
10^{-6}	=	conversion factor (micrograms to milligrams, liters to cubic meters)

OEHHA developed ASFs to consider the increased sensitivity to carcinogens during early-life exposure. In the absence of chemical-specific data, OEHHA recommends a default ASF presented in *Table 2: Default Age Sensitivity Factors and Fraction of Time at Home*. 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 FAH values presented in *Table 2*.

Table 2: Default Age Sensitivity Factors and Fraction of Time at Home

Age	Default Age Sensitivity Factor[1] (ASF)	Fraction of Time at Home (FAH)
Third trimester to age 2 years	10	85%
Ages 2 through 15 years	3	72%
Ages 16 and greater	1	73%

[1] Accounts for potential increased sensitivity to carcinogens during childhood.

Source: California Office of Environmental Health Hazard Assessment, *Air Toxics Program Guidance Manual for the Preparation of Health Risk Assessments*, February 2015.

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):

$$\text{Risk}_{inh\text{-}res} = (\text{Dose}_{air}*CPF*ASF*(ED/AT)*FAH)$$

Where:

$\text{Risk}_{inh\text{-}res}$	=	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
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 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:

$$\text{Hazard Quotient} = C_i/REL_i$$

Where:

Ci = Concentration in the air of substance i (annual average concentration in µg/m^3)

RELi = Chronic noncancer Reference Exposure Level for substance i (µg/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:

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

5 POTENTIAL HEALTH RISK IMPACTS

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 TACs, 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 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 includes construction near sensitive receptors and proposes future residential uses near high volume roadways (i.e., within the BAAQMD 1,000-foot zone of influence) an analysis of health risk impacts from TACs was performed for both construction and operations.

5.1 Construction Health Risk Analysis

The duration of construction activities for the project is estimated to be approximately 30 months. The project would demolish existing structures and a roadway and construct two towers. Construction-related activities would result in project-generated emissions of diesel particulate matter (DPM) from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., demolition, clearing, grading); paving; application of architectural coatings; on-road truck travel; and other miscellaneous activities. For construction activity, diesel PM is the primary toxic air contaminant of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations. Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors. Sensitive receptors near the project site include the onsite resident along Almaden Boulevard. The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs, so DPM is the focus of this discussion.

Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The use of diesel-powered construction equipment would be episodic and would occur over several locations isolated from one another. Additionally, construction activities would be subject to and would comply with California regulations limiting idling to no more than 5 minutes, which would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Furthermore, even during the most intense year of construction, emissions of DPM would be generated from different locations on the project site rather than in a single location because different types of construction activities (e.g., site preparation and building construction) would not occur at the same place at the same time.

In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary. Pollutants also continue to disperse at further distances, which also reduces the cumulative effects. The analysis accounts for Tier 4

equipment (Mitigation Measure AQ-1), but the results cannot be directly compared to other projects because they are based on site and project specific variables, including the level and intensity of emissions, duration of emissions, size of the site, distance to receptors, meteorology, among others.

$PM_{2.5}$ construction emissions rates in grams per second were calculated from the total annual mitigated on-site exhaust emissions reported in CalEEMod (0.15 tons unmitigated and 0.02 tons per year mitigated) total during construction. Construction phases comprised of demolition, site preparation, grading, and paving, would last slightly longer than 11 months and would not last more than 12 months, however the building construction phase would span over several years. It should be noted that although the building construction phase would span over several years, the modeling conservatively uses the year with the highest emission for each phase. Annual emissions were converted to grams per second and these emissions rates were input into AERSCREEN. Risk levels were calculated based on the California Office of Environmental Health Hazard Assessment (OEHHA) guidance document, Air Toxics Hot Spots Program Risk Assessment Guidelines (February 2015). Carcinogenic risk is based on exposure to the annual average concentration and are based on worst case conditions to provide a conservative analysis. The calculations include age sensitivity factors and start at the 3rd trimester and include the infant sensitivity factor. As noted above, the risk calculations include age sensitivity factors and a minimum exposure duration of three years, as recommended by the BAAQMD, and thus is conservative.[5] Results of this assessment are summarized in *Table 3: Construction Risk*.

Table 3: Construction Risk

Emissions Sources	Pollutant Concentration (µg/m³)	Cancer Risk (per million	Chronic Hazard	Acute Hazard
Unmitigated				
Construction	0.113	36.1	0.022	0.45
BAAQMD Threshold	*0.3*	*10*	*1.0*	*1.0*
Threshold Exceeded?	**No**	**Yes**	**No**	**No**
Mitigated				
Construction	0.019	6.2	0.004	0.08
BAAQMD Threshold	*0.3*	*10*	*1.0*	*1.0*
Threshold Exceeded?	**No**	**No**	**No**	**No**

1. Heavy-duty off-road construction equipment would also meet CARB Tier 4 Final emissions standards in conformance with the Mitigation Measure AQ-1.
Refer to Appendix A: Modeling data.

Results of this assessment indicate that the maximum concentration of $PM_{2.5}$ during construction would be 0.113 µg/m³ which is below the BAAQMD 0.3 µg/m³ significance threshold. The highest calculated carcinogenic risk from Project construction is 36.1 per million at the Maximally Exposed Individual (MEI), which is above the BAAQMD threshold of 10 in one million. The MEI during construction is the closest sensitive receptors to the Project site, which are residences onsite (see sensitive receptor #1 in *Figure 4*) Non-cancer hazards for diesel PM would be below BAAQMD threshold, with a chronic hazard index

[5] The BAAQMD recommends that the cancer risk be evaluated assuming that the average daily dose for short-term exposure lasts a minimum of three years for projects lasting three years or less (BAAQMD, *BAAQMD Air Toxics NSR Program Health Risk Assessment Guidelines*, December 2016).

computed at 0.022 and an acute hazard index of 0.45. Acute and chronic hazards would be below the BAAQMD significance threshold of 1.0.

It should be noted that the City Standard Permit Conditions require all future projects (including the proposed Project) to implement additional measures to ensure that construction emissions would not exceed BAAQMD thresholds. Additionally, General Plan GP Policy MS-13.1 requires construction equipment exhaust control measures as conditions of approval. In conformance with the Downtown Strategy 2040 EIR, GP Policy MS-13.1, and Mitigation Measure AQ-1 the proposed Project would be required to use CARB certified Tier 4 Final equipment, such that emissions do not exceed BAAQMD construction period significance thresholds. Pursuant to these requirements, the Project would use construction equipment to meet CARB Tier 4 Final emissions standards. With implementation of Tier 4 equipment, the maximum concentration of $PM_{2.5}$ during construction would be reduced to 0.019 µg/m^3. Maximum cancer risk from project construction would decrease to 6.2 per million. Additionally, acute and chronic hazards would be lowered to 0.004 and 0.08 respectively. Therefore, construction risk levels would be less than BAAQMD thresholds and impacts would be less than significant.

Mitigation Measures: Per the City Standard Permit Conditions, GP Policy MS-13.1, and Mitigation Measure AQ-1 the proposed Project would be required to implement control measures that ensure that construction emissions do not exceed BAAQMD significance thresholds. The Project would use a CARB certified Tier 4 off-road equipment fleet to meet this standard. No additional mitigation is required.

Level of Significance: Less than significant.

5.2 Operational Health Risk Analysis

The proposed Project would not include uses that would generate diesel truck traffic or other TACs at the Project site. Therefore, no operational health risks due to the Project were modeled and no impacts would occur.

Cumulative On-Site Health Impacts

In addition to mobile sources, stationary sources within a 1,000-foot-radius of the Project site were identified using BAAQMD's Stationary Source Screening Analysis Tools and consultation with the BAAQMD. As indicated in *Table 4: Cumulative On-Site Health Risk*, TACs generated from the stationary and rail sources within a 1,000-foot-radius would not exceed BAAQMD thresholds.

Table 4: Cumulative On-Site Health Risk

Emissions Sources	$PM_{2.5}$ (µg/m^3)	Cancer Risk (per million	Chronic Hazard	Acute Hazard
Highway Sources (I-280 and SR-87)	0.0099	8.75	0.0020	0.0195
Stationary Sources				
San Jose Redevelopment Agency (diesel fire pump)	0.000	0.356	0.000	0.0
Team San Jose (multiple sources)	0.015	1.944	0.003	0.0
San Jose Hilton & Towers (generator)	0.005	0.296	0.001	0.0
CPT 303 Almaden LLC (generator, fire pump)	0.005	0.544	0.001	0.0
Verizon Wireless (generator)	0.005	0.210	0.001	0.0
Cumulative Health Risk Values	**0.0399**	**12.1**	**0.008**	**0.0195**

Table 4: Cumulative On-Site Health Risk				
Emissions Sources	**$PM_{2.5}$ ($\mu g/m^3$)**	**Cancer Risk (per million**	**Chronic Hazard**	**Acute Hazard**
BAAQMD Cumulative Threshold	*0.8*	*100*	*10*	*10*
Threshold Exceeded?	**No**	**No**	**No**	**No**

As described above, cumulative impacts related to residential cancer risk, $PM_{2.5}$, chronic hazard, and acute hazard would be less than cumulatively considerable and within acceptable limits.

Mitigation Measures: None required.

Level of Significance: Less than significant and less than cumulatively considerable impacts.

6 REFERENCES

1. Bay Area Air Quality Management District, *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*, January 2016.
2. California Air Pollution Control Officers Association, *Health Risk Assessment for Proposed Land Use Projects*, July 2009.
3. California Air Resources Board Research Division and University of California, Berkeley, *Activity Patterns of California Residents,* May 1991.
4. California Air Resources Board, *EMFAC 2017 Web Database*, Available at: www.arb.ca.gov/emfac/2017/, November 2019.
5. California Air Resources Board, *Overview: Diesel Exhaust & Health*, available at: https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health, accessed on November 5, 2019.
6. California Air Resources Board, *Meteorological Files*, Available at: https://ww3.arb.ca.gov/toxics/harp/metfiles2.htm, accessed November 2019.
7. California Air Resources Board, *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October 2000.
8. California Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidelines*, August 2003.
9. California Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidance Manual for Preparation of Health Risk Assessments*, February 2015.
10. City of San José, *Envision San José* 2040 *General Plan FEIR,* 2011.
11. City of San José*, San José Downtown Strategy 2040 EIR,* 2018.
12. Health Effects Institute, *Advanced Collaborative Emissions Study (ACES): Lifetime Cancer and Non-Cancer Assessment in Rats Exposed to New-Technology Diesel Exhaust*, January 2015.
13. Lakes Environmental, *AERMOD View Gaussian Plume Air Dispersion Model*, Version 9.8.1
14. Ralph Propper, et al., *Ambient and Emission Trends of Toxic Air Contaminants in California*, Environmental Science and Technology, September 2015.
15. United States Environmental Protection Agency, *Exposure Factors Handbook: 2011 Edition*, September 2011.

Appendix A

Modeling Data

Woz Way - Office - Santa Clara County, Annual

Woz Way - Office

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,281.71	1000sqft	2.00	1,281,707.00	0
Enclosed Parking with Elevator	1,251.00	Space	1.00	544,379.00	0
Strip Mall	6.07	1000sqft	0.14	6,073.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	171	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted per PG&E 2019 CRSR

Land Use - Project use

Construction Phase - Estimated construction schedule

Off-road Equipment - EstimateD equipment use

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Demolition - Buildings and Locust Street demolition

Grading - Estimated export

Architectural Coating - Mitigation requiring low VOC paint

Vehicle Trips - Adjusted trip generation and trip length

Area Coating -

Energy Use -

Construction Off-road Equipment Mitigation - Per BAAQMD basic control measures/ Standard Permit Conditions

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation - Energy reduction from 2016 Title 24 to 2019 Title 24

Water Mitigation -

Waste Mitigation - Per AB 939

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	150.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	185.00
tblConstructionPhase	NumDays	230.00	410.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	8.00	150.00
tblConstructionPhase	NumDays	18.00	45.00
tblConstructionPhase	NumDays	5.00	20.00
tblGrading	MaterialExported	0.00	191,000.00
tblLandUse	LandUseSquareFeet	1,281,710.00	1,281,707.00
tblLandUse	LandUseSquareFeet	500,400.00	544,379.00
tblLandUse	LandUseSquareFeet	6,070.00	6,073.00
tblLandUse	LotAcreage	29.42	2.00
tblLandUse	LotAcreage	11.26	1.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	171

tblVehicleTrips	CC_TL	7.30	9.19
tblVehicleTrips	CC_TL	7.30	9.19
tblVehicleTrips	CC_TL	7.30	9.19
tblVehicleTrips	CNW_TL	7.30	9.19
tblVehicleTrips	CNW_TL	7.30	9.19
tblVehicleTrips	CNW_TL	7.30	9.19
tblVehicleTrips	CW_TL	9.50	9.19
tblVehicleTrips	CW_TL	9.50	9.19
tblVehicleTrips	CW_TL	9.50	9.19
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	2.46	5.77
tblVehicleTrips	ST_TR	42.04	22.42
tblVehicleTrips	SU_TR	1.05	5.77
tblVehicleTrips	SU_TR	20.43	22.42
tblVehicleTrips	WD_TR	11.03	5.77
tblVehicleTrips	WD_TR	44.32	22.42

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

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

Year	tons/yr										MT/yr					
2021	0.4226	6.6140	3.0664	0.0144	0.9963	0.1624	1.1587	0.4349	0.1502	0.5852	0.0000	1,355.5097	1,355.5097	0.1495	0.0000	1,359.2482
2022	1.1453	6.0060	4.9606	0.0200	0.9348	0.1185	1.0532	0.2546	0.1116	0.3661	0.0000	1,847.1244	1,847.1244	0.1259	0.0000	1,850.2729
2023	2.7744	2.6324	2.7080	0.0108	0.5495	0.0565	0.6060	0.1492	0.0534	0.2026	0.0000	995.8157	995.8157	0.0629	0.0000	997.3872
Maximum	**2.7744**	**6.6140**	**4.9606**	**0.0200**	**0.9963**	**0.1624**	**1.1587**	**0.4349**	**0.1502**	**0.5852**	**0.0000**	**1,847.1244**	**1,847.1244**	**0.1495**	**0.0000**	**1,850.2729**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1741	3.7165	3.2741	0.0144	0.5719	0.0180	0.5899	0.2263	0.0175	0.2438	0.0000	1,355.5093	1,355.5093	0.1495	0.0000	1,359.2478
2022	0.9963	4.3261	5.1291	0.0200	0.8887	0.0265	0.9153	0.2433	0.0259	0.2691	0.0000	1,847.1240	1,847.1240	0.1259	0.0000	1,850.2725
2023	2.7051	1.8463	2.8016	0.0108	0.5223	0.0158	0.5381	0.1425	0.0156	0.1581	0.0000	995.8155	995.8155	0.0629	0.0000	997.3869
Maximum	**2.7051**	**4.3261**	**5.1291**	**0.0200**	**0.8887**	**0.0265**	**0.9153**	**0.2433**	**0.0259**	**0.2691**	**0.0000**	**1,847.1240**	**1,847.1240**	**0.1495**	**0.0000**	**1,850.2725**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**10.75**	**35.16**	**-4.38**	**0.00**	**20.06**	**82.12**	**27.49**	**27.02**	**81.32**	**41.85**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2021**	**3-31-2021**	1.5191	0.4387
2	**4-1-2021**	**6-30-2021**	2.2776	1.4622
3	**7-1-2021**	**9-30-2021**	2.3026	1.4782
4	**10-1-2021**	**12-31-2021**	0.8795	0.4560
5	**1-1-2022**	**3-31-2022**	1.6309	1.1787

6	**4-1-2022**	**6-30-2022**	1.6278	1.1706
7	**7-1-2022**	**9-30-2022**	1.6456	1.1834
8	**10-1-2022**	**12-31-2022**	2.2540	1.7918
9	**1-1-2023**	**3-31-2023**	2.4630	2.0526
10	**4-1-2023**	**6-30-2023**	2.4718	2.0568
11	**7-1-2023**	**9-30-2023**	0.4730	0.4457
		Highest	2.4718	2.0568

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.7496	2.1000e-004	0.0233	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0454	0.0454	1.2000e-004	0.0000	0.0483
Energy	0.1132	1.0292	0.8645	6.1800e-003		0.0782	0.0782		0.0782	0.0782	0.0000	3,145.4576	3,145.4576	0.3649	0.0916	3,181.8754
Mobile	1.8442	7.3882	25.0987	0.0959	9.3684	0.0730	9.4414	2.5077	0.0680	2.5757	0.0000	8,785.1266	8,785.1266	0.2643	0.0000	8,791.7341
Waste						0.0000	0.0000		0.0000	0.0000	243.2563	0.0000	243.2563	14.3760	0.0000	602.6571
Water						0.0000	0.0000		0.0000	0.0000	72.4141	133.7763	206.1903	7.4603	0.1803	446.4310
Total	**7.7071**	**8.4176**	**25.9866**	**0.1021**	**9.3684**	**0.1513**	**9.5197**	**2.5077**	**0.1463**	**2.6540**	**315.6703**	**12,064.4058**	**12,380.0761**	**22.4657**	**0.2719**	**13,022.7459**

Mitigated Operational

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

Category	tons/yr										MT/yr					
Area	5.7496	2.1000e-004	0.0233	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0454	0.0454	1.2000e-004	0.0000	0.0483
Energy	0.0794	0.7216	0.6061	4.3300e-003		0.0548	0.0548		0.0548	0.0548	0.0000	2,578.2887	2,578.2887	0.3191	0.0773	2,609.3030
Mobile	1.4918	5.4102	15.9438	0.0546	5.1253	0.0432	5.1685	1.3719	0.0402	1.4121	0.0000	5,005.1794	5,005.1794	0.1669	0.0000	5,009.3511
Waste						0.0000	0.0000		0.0000	0.0000	121.6281	0.0000	121.6281	7.1880	0.0000	301.3285
Water						0.0000	0.0000		0.0000	0.0000	57.9313	112.3000	170.2313	5.9691	0.1444	362.5014
Total	**7.3208**	**6.1320**	**16.5732**	**0.0589**	**5.1253**	**0.0981**	**5.2234**	**1.3719**	**0.0952**	**1.4671**	**179.5594**	**7,695.8136**	**7,875.3730**	**13.6432**	**0.2217**	**8,282.5323**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**5.01**	**27.15**	**36.22**	**42.26**	**45.29**	**35.13**	**45.13**	**45.29**	**34.96**	**44.72**	**43.12**	**36.21**	**36.39**	**39.27**	**18.45**	**36.40**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2021	2/11/2021	5	30	
2	Site Preparation	Site Preparation	2/12/2021	3/11/2021	5	20	
3	Grading	Grading	3/12/2021	10/7/2021	5	150	
4	Paving	Paving	10/8/2021	12/9/2021	5	45	
5	Building Construction	Building Construction	12/10/2021	7/6/2023	5	410	
6	Architectural Coating	Architectural Coating	11/15/2022	7/31/2023	5	185	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 1

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,931,670; Non-Residential Outdoor: 643,890; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	333.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	23,875.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	641.00	300.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	128.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0360	0.0000	0.0360	5.4500e-003	0.0000	5.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0360**	**0.0233**	**0.0593**	**5.4500e-003**	**0.0216**	**0.0271**	**0.0000**	**51.0012**	**51.0012**	**0.0144**	**0.0000**	**51.3601**

Unmitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	1.3100e-003	0.0445	9.7000e-003	1.3000e-004	2.8200e-003	1.4000e-004	2.9600e-003	7.8000e-004	1.3000e-004	9.1000e-004	0.0000	12.5380	12.5380	5.7000e-004	0.0000	12.5522
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	4.8000e-004	5.1500e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.8000e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.4772	1.4772	3.0000e-005	0.0000	1.4781
Total	**2.0000e-003**	**0.0450**	**0.0149**	**1.5000e-004**	**4.6000e-003**	**1.5000e-004**	**4.7600e-003**	**1.2500e-003**	**1.4000e-004**	**1.3900e-003**	**0.0000**	**14.0152**	**14.0152**	**6.0000e-004**	**0.0000**	**14.0303**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0154	0.0000	0.0154	2.3300e-003	0.0000	2.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9300e-003	0.0301	0.3492	5.8000e-004		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	**6.9300e-003**	**0.0301**	**0.3492**	**5.8000e-004**	**0.0154**	**9.2000e-004**	**0.0163**	**2.3300e-003**	**9.2000e-004**	**3.2500e-003**	**0.0000**	**51.0011**	**51.0011**	**0.0144**	**0.0000**	**51.3600**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3100e-003	0.0445	9.7000e-003	1.3000e-004	2.7000e-003	1.4000e-004	2.8300e-003	7.5000e-004	1.3000e-004	8.8000e-004	0.0000	12.5380	12.5380	5.7000e-004	0.0000	12.5522
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Worker	6.9000e-004	4.8000e-004	5.1500e-003	2.0000e-005	1.6900e-003	1.0000e-005	1.7000e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4772	1.4772	3.0000e-005	0.0000	1.4781
Total	**2.0000e-003**	**0.0450**	**0.0149**	**1.5000e-004**	**4.3900e-003**	**1.5000e-004**	**4.5300e-003**	**1.2000e-003**	**1.4000e-004**	**1.3400e-003**	**0.0000**	**14.0152**	**14.0152**	**6.0000e-004**	**0.0000**	**14.0303**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.8000e-004	4.1200e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1818	1.1818	3.0000e-005	0.0000	1.1825
Total	**5.5000e-004**	**3.8000e-004**	**4.1200e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1818**	**1.1818**	**3.0000e-005**	**0.0000**	**1.1825**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0772	0.0000	0.0772	0.0425	0.0000	0.0425	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6600e-003	0.0202	0.2087	3.8000e-004		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**4.6600e-003**	**0.0202**	**0.2087**	**3.8000e-004**	**0.0772**	**6.2000e-004**	**0.0779**	**0.0425**	**6.2000e-004**	**0.0431**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.8000e-004	4.1200e-003	1.0000e-005	1.3500e-003	1.0000e-005	1.3600e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1818	1.1818	3.0000e-005	0.0000	1.1825
Total	**5.5000e-004**	**3.8000e-004**	**4.1200e-003**	**1.0000e-005**	**1.3500e-003**	**1.0000e-005**	**1.3600e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.1818**	**1.1818**	**3.0000e-005**	**0.0000**	**1.1825**

3.4 Grading - 2021

Unmitigated Construction On-Site

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

Category	tons/yr										MT/yr					
Fugitive Dust					0.5022	0.0000	0.5022	0.2542	0.0000	0.2542	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1718	1.8553	1.1893	2.2200e-003		0.0870	0.0870		0.0800	0.0800	0.0000	195.4027	195.4027	0.0632	0.0000	196.9827
Total	**0.1718**	**1.8553**	**1.1893**	**2.2200e-003**	**0.5022**	**0.0870**	**0.5892**	**0.2542**	**0.0800**	**0.3342**	**0.0000**	**195.4027**	**195.4027**	**0.0632**	**0.0000**	**196.9827**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0936	3.1925	0.6956	9.2800e-003	0.2024	9.9700e-003	0.2124	0.0557	9.5300e-003	0.0652	0.0000	898.9332	898.9332	0.0408	0.0000	899.9529
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4700e-003	2.4000e-003	0.0257	8.0000e-005	8.9200e-003	6.0000e-005	8.9800e-003	2.3700e-003	5.0000e-005	2.4200e-003	0.0000	7.3861	7.3861	1.7000e-004	0.0000	7.3903
Total	**0.0971**	**3.1949**	**0.7214**	**9.3600e-003**	**0.2113**	**0.0100**	**0.2213**	**0.0580**	**9.5800e-003**	**0.0676**	**0.0000**	**906.3193**	**906.3193**	**0.0410**	**0.0000**	**907.3432**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2147	0.0000	0.2147	0.1087	0.0000	0.1087	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0272	0.1180	1.3315	2.2200e-003		3.6300e-003	3.6300e-003		3.6300e-003	3.6300e-003	0.0000	195.4025	195.4025	0.0632	0.0000	196.9824

Total	**0.0272**	**0.1180**	**1.3315**	**2.2200e-003**	**0.2147**	**3.6300e-003**	**0.2183**	**0.1087**	**3.6300e-003**	**0.1123**	**0.0000**	**195.4025**	**195.4025**	**0.0632**	**0.0000**	**196.9824**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0936	3.1925	0.6956	9.2800e-003	0.1933	9.9700e-003	0.2033	0.0534	9.5300e-003	0.0630	0.0000	898.9332	898.9332	0.0408	0.0000	899.9529
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4700e-003	2.4000e-003	0.0257	8.0000e-005	8.4600e-003	6.0000e-005	8.5200e-003	2.2600e-003	5.0000e-005	2.3100e-003	0.0000	7.3861	7.3861	1.7000e-004	0.0000	7.3903
Total	**0.0971**	**3.1949**	**0.7214**	**9.3600e-003**	**0.2018**	**0.0100**	**0.2118**	**0.0557**	**9.5800e-003**	**0.0653**	**0.0000**	**906.3193**	**906.3193**	**0.0410**	**0.0000**	**907.3432**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0246	0.2439	0.2759	4.3000e-004		0.0130	0.0130		0.0120	0.0120	0.0000	36.8339	36.8339	0.0116	0.0000	37.1232
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0246**	**0.2439**	**0.2759**	**4.3000e-004**		**0.0130**	**0.0130**		**0.0120**	**0.0120**	**0.0000**	**36.8339**	**36.8339**	**0.0116**	**0.0000**	**37.1232**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	9.6000e-004	0.0103	3.0000e-005	3.5700e-003	2.0000e-005	3.5900e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.9544	2.9544	7.0000e-005	0.0000	2.9561
Total	**1.3900e-003**	**9.6000e-004**	**0.0103**	**3.0000e-005**	**3.5700e-003**	**2.0000e-005**	**3.5900e-003**	**9.5000e-004**	**2.0000e-005**	**9.7000e-004**	**0.0000**	**2.9544**	**2.9544**	**7.0000e-005**	**0.0000**	**2.9561**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9300e-003	0.0276	0.3097	4.3000e-004		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	36.8339	36.8339	0.0116	0.0000	37.1232
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.9300e-003**	**0.0276**	**0.3097**	**4.3000e-004**		**9.0000e-004**	**9.0000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**36.8339**	**36.8339**	**0.0116**	**0.0000**	**37.1232**

Mitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	9.6000e-004	0.0103	3.0000e-005	3.3800e-003	2.0000e-005	3.4100e-003	9.0000e-004	2.0000e-005	9.2000e-004	0.0000	2.9544	2.9544	7.0000e-005	0.0000	2.9561
Total	**1.3900e-003**	**9.6000e-004**	**0.0103**	**3.0000e-005**	**3.3800e-003**	**2.0000e-005**	**3.4100e-003**	**9.0000e-004**	**2.0000e-005**	**9.2000e-004**	**0.0000**	**2.9544**	**2.9544**	**7.0000e-005**	**0.0000**	**2.9561**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0152	0.1395	0.1326	2.2000e-004		7.6700e-003	7.6700e-003		7.2100e-003	7.2100e-003	0.0000	18.5310	18.5310	4.4700e-003	0.0000	18.6428
Total	**0.0152**	**0.1395**	**0.1326**	**2.2000e-004**		**7.6700e-003**	**7.6700e-003**		**7.2100e-003**	**7.2100e-003**	**0.0000**	**18.5310**	**18.5310**	**4.4700e-003**	**0.0000**	**18.6428**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8300e-003	0.2466	0.0657	6.5000e-004	0.0158	5.5000e-004	0.0163	4.5600e-003	5.2000e-004	5.0900e-003	0.0000	62.1671	62.1671	2.7100e-003	0.0000	62.2348
Worker	0.0158	0.0109	0.1173	3.7000e-004	0.0407	2.6000e-004	0.0409	0.0108	2.4000e-004	0.0111	0.0000	33.6675	33.6675	7.7000e-004	0.0000	33.6866

Total	**0.0236**	**0.2576**	**0.1830**	**1.0200e-003**	**0.0565**	**8.1000e-004**	**0.0573**	**0.0154**	**7.6000e-004**	**0.0161**	**0.0000**	**95.8345**	**95.8345**	**3.4800e-003**	**0.0000**	**95.9214**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.6900e-003	0.0219	0.1415	2.2000e-004		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	18.5310	18.5310	4.4700e-003	0.0000	18.6427
Total	**4.6900e-003**	**0.0219**	**0.1415**	**2.2000e-004**		**9.0000e-004**	**9.0000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**18.5310**	**18.5310**	**4.4700e-003**	**0.0000**	**18.6427**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8300e-003	0.2466	0.0657	6.5000e-004	0.0151	5.5000e-004	0.0157	4.4000e-003	5.2000e-004	4.9200e-003	0.0000	62.1671	62.1671	2.7100e-003	0.0000	62.2348
Worker	0.0158	0.0109	0.1173	3.7000e-004	0.0386	2.6000e-004	0.0388	0.0103	2.4000e-004	0.0105	0.0000	33.6675	33.6675	7.7000e-004	0.0000	33.6866
Total	**0.0236**	**0.2576**	**0.1830**	**1.0200e-003**	**0.0537**	**8.1000e-004**	**0.0545**	**0.0147**	**7.6000e-004**	**0.0155**	**0.0000**	**95.8345**	**95.8345**	**3.4800e-003**	**0.0000**	**95.9214**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1187	3.7884	1.0048	0.0104	0.2566	7.7200e-003	0.2643	0.0742	7.3900e-003	0.0816	0.0000	1,000.5499	1,000.5499	0.0420	0.0000	1,001.6008
Worker	0.2396	0.1595	1.7521	5.8300e-003	0.6609	4.0700e-003	0.6650	0.1758	3.7400e-003	0.1795	0.0000	527.2237	527.2237	0.0112	0.0000	527.5027
Total	**0.3583**	**3.9478**	**2.7568**	**0.0163**	**0.9175**	**0.0118**	**0.9293**	**0.2500**	**0.0111**	**0.2611**	**0.0000**	**1,527.7736**	**1,527.7736**	**0.0532**	**0.0000**	**1,529.1035**

Mitigated Construction On-Site

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

Off-Road	0.0729	0.3502	2.2957	3.5000e-003		0.0132	0.0132		0.0132	0.0132	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.0729**	**0.3502**	**2.2957**	**3.5000e-003**		**0.0132**	**0.0132**		**0.0132**	**0.0132**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1187	3.7884	1.0048	0.0104	0.2458	7.7200e-003	0.2535	0.0715	7.3900e-003	0.0789	0.0000	1,000.5499	1,000.5499	0.0420	0.0000	1,001.6008
Worker	0.2396	0.1595	1.7521	5.8300e-003	0.6266	4.0700e-003	0.6307	0.1674	3.7400e-003	0.1711	0.0000	527.2237	527.2237	0.0112	0.0000	527.5027
Total	**0.3583**	**3.9478**	**2.7568**	**0.0163**	**0.8724**	**0.0118**	**0.8842**	**0.2389**	**0.0111**	**0.2500**	**0.0000**	**1,527.7736**	**1,527.7736**	**0.0532**	**0.0000**	**1,529.1035**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1054	0.9638	1.0884	1.8100e-003		0.0469	0.0469		0.0441	0.0441	0.0000	155.3092	155.3092	0.0370	0.0000	156.2328
Total	**0.1054**	**0.9638**	**1.0884**	**1.8100e-003**		**0.0469**	**0.0469**		**0.0441**	**0.0441**	**0.0000**	**155.3092**	**155.3092**	**0.0370**	**0.0000**	**156.2328**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0461	1.4797	0.4651	5.2200e-003	0.1323	1.7300e-003	0.1340	0.0382	1.6500e-003	0.0399	0.0000	501.0070	501.0070	0.0185	0.0000	501.4681
Worker	0.1156	0.0739	0.8308	2.8900e-003	0.3406	2.0500e-003	0.3427	0.0906	1.8900e-003	0.0925	0.0000	261.4015	261.4015	5.1600e-003	0.0000	261.5304
Total	**0.1617**	**1.5536**	**1.2959**	**8.1100e-003**	**0.4729**	**3.7800e-003**	**0.4767**	**0.1288**	**3.5400e-003**	**0.1324**	**0.0000**	**762.4085**	**762.4085**	**0.0236**	**0.0000**	**762.9985**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0361	0.1776	1.1820	1.8100e-003		6.2300e-003	6.2300e-003		6.2300e-003	6.2300e-003	0.0000	155.3090	155.3090	0.0370	0.0000	156.2326
Total	**0.0361**	**0.1776**	**1.1820**	**1.8100e-003**		**6.2300e-003**	**6.2300e-003**		**6.2300e-003**	**6.2300e-003**	**0.0000**	**155.3090**	**155.3090**	**0.0370**	**0.0000**	**156.2326**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0461	1.4797	0.4651	5.2200e-003	0.1267	1.7300e-003	0.1284	0.0369	1.6500e-003	0.0385	0.0000	501.0070	501.0070	0.0185	0.0000	501.4681
Worker	0.1156	0.0739	0.8308	2.8900e-003	0.3230	2.0500e-003	0.3250	0.0863	1.8900e-003	0.0881	0.0000	261.4015	261.4015	5.1600e-003	0.0000	261.5304
Total	**0.1617**	**1.5536**	**1.2959**	**8.1100e-003**	**0.4496**	**3.7800e-003**	**0.4534**	**0.1231**	**3.5400e-003**	**0.1267**	**0.0000**	**762.4085**	**762.4085**	**0.0236**	**0.0000**	**762.9985**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5555					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4800e-003	0.0239	0.0308	5.0000e-005		1.3900e-003	1.3900e-003		1.3900e-003	1.3900e-003	0.0000	4.3405	4.3405	2.8000e-004	0.0000	4.3476
Total	**0.5589**	**0.0239**	**0.0308**	**5.0000e-005**		**1.3900e-003**	**1.3900e-003**		**1.3900e-003**	**1.3900e-003**	**0.0000**	**4.3405**	**4.3405**	**2.8000e-004**	**0.0000**	**4.3476**

Unmitigated Construction Off-Site

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

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2600e-003	4.1600e-003	0.0458	1.5000e-004	0.0173	1.1000e-004	0.0174	4.5900e-003	1.0000e-004	4.6900e-003	0.0000	13.7674	13.7674	2.9000e-004	0.0000	13.7747
Total	**6.2600e-003**	**4.1600e-003**	**0.0458**	**1.5000e-004**	**0.0173**	**1.1000e-004**	**0.0174**	**4.5900e-003**	**1.0000e-004**	**4.6900e-003**	**0.0000**	**13.7674**	**13.7674**	**2.9000e-004**	**0.0000**	**13.7747**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5555					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4800e-003	0.0239	0.0308	5.0000e-005		1.3900e-003	1.3900e-003		1.3900e-003	1.3900e-003	0.0000	4.3405	4.3405	2.8000e-004	0.0000	4.3476
Total	**0.5589**	**0.0239**	**0.0308**	**5.0000e-005**		**1.3900e-003**	**1.3900e-003**		**1.3900e-003**	**1.3900e-003**	**0.0000**	**4.3405**	**4.3405**	**2.8000e-004**	**0.0000**	**4.3476**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2600e-003	4.1600e-003	0.0458	1.5000e-004	0.0164	1.1000e-004	0.0165	4.3700e-003	1.0000e-004	4.4700e-003	0.0000	13.7674	13.7674	2.9000e-004	0.0000	13.7747
Total	**6.2600e-003**	**4.1600e-003**	**0.0458**	**1.5000e-004**	**0.0164**	**1.1000e-004**	**0.0165**	**4.3700e-003**	**1.0000e-004**	**4.4700e-003**	**0.0000**	**13.7674**	**13.7674**	**2.9000e-004**	**0.0000**	**13.7747**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4668					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.0984	0.1367	2.2000e-004		5.3500e-003	5.3500e-003		5.3500e-003	5.3500e-003	0.0000	19.2771	19.2771	1.1500e-003	0.0000	19.3059
Total	**2.4813**	**0.0984**	**0.1367**	**2.2000e-004**		**5.3500e-003**	**5.3500e-003**		**5.3500e-003**	**5.3500e-003**	**0.0000**	**19.2771**	**19.2771**	**1.1500e-003**	**0.0000**	**19.3059**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0260	0.0166	0.1870	6.5000e-004	0.0767	4.6000e-004	0.0771	0.0204	4.3000e-004	0.0208	0.0000	58.8210	58.8210	1.1600e-003	0.0000	58.8500
Total	**0.0260**	**0.0166**	**0.1870**	**6.5000e-004**	**0.0767**	**4.6000e-004**	**0.0771**	**0.0204**	**4.3000e-004**	**0.0208**	**0.0000**	**58.8210**	**58.8210**	**1.1600e-003**	**0.0000**	**58.8500**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4668					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.0984	0.1367	2.2000e-004		5.3500e-003	5.3500e-003		5.3500e-003	5.3500e-003	0.0000	19.2770	19.2770	1.1500e-003	0.0000	19.3059
Total	**2.4813**	**0.0984**	**0.1367**	**2.2000e-004**		**5.3500e-003**	**5.3500e-003**		**5.3500e-003**	**5.3500e-003**	**0.0000**	**19.2770**	**19.2770**	**1.1500e-003**	**0.0000**	**19.3059**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0260	0.0166	0.1870	6.5000e-004	0.0727	4.6000e-004	0.0731	0.0194	4.3000e-004	0.0198	0.0000	58.8210	58.8210	1.1600e-003	0.0000	58.8500
Total	**0.0260**	**0.0166**	**0.1870**	**6.5000e-004**	**0.0727**	**4.6000e-004**	**0.0731**	**0.0194**	**4.3000e-004**	**0.0198**	**0.0000**	**58.8210**	**58.8210**	**1.1600e-003**	**0.0000**	**58.8500**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

Transit Subsidy

Implement Employee Parking CashOut

Encourage Telecommuting and Alternative Work Schedules

Market Commute Trip Reduction Option

Provide Riade Sharing Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4918	5.4102	15.9438	0.0546	5.1253	0.0432	5.1685	1.3719	0.0402	1.4121	0.0000	5,005.1794	5,005.1794	0.1669	0.0000	5,009.3511
Unmitigated	1.8442	7.3882	25.0987	0.0959	9.3684	0.0730	9.4414	2.5077	0.0680	2.5757	0.0000	8,785.1266	8,785.1266	0.2643	0.0000	8,791.7341

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	7,395.47	7,395.47	7395.47	24,739,019	13,534,346
Strip Mall	136.09	136.09	136.09	455,241	249,055
Total	7,531.56	7,531.56	7,531.56	25,194,260	13,783,402

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	9.19	9.19	9.19	0.00	0.00	0.00	0	0	0
General Office Building	9.19	9.19	9.19	33.00	48.00	19.00	100	0	0
Strip Mall	9.19	9.19	9.19	16.60	64.40	19.00	100	0	0

4.4 Fleet Mix

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

General Office Building	0.612822	0.036208	0.182365	0.105071	0.013933	0.005011	0.012748	0.021514	0.002168	0.001529	0.005280	0.000629	0.000720
Strip Mall	0.612822	0.036208	0.182365	0.105071	0.013933	0.005011	0.012748	0.021514	0.002168	0.001529	0.005280	0.000629	0.000720

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,792.7614	1,792.7614	0.3040	0.0629	1,819.1077
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,025.0344	2,025.0344	0.3434	0.0711	2,054.7942
NaturalGas Mitigated	0.0794	0.7216	0.6061	4.3300e-003		0.0548	0.0548		0.0548	0.0548	0.0000	785.5273	785.5273	0.0151	0.0144	790.1953
NaturalGas Unmitigated	0.1132	1.0292	0.8645	6.1800e-003		0.0782	0.0782		0.0782	0.0782	0.0000	1,120.4231	1,120.4231	0.0215	0.0205	1,127.0813

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

General Office Building	2.09815e+007	0.1131	1.0285	0.8640	6.1700e-003		0.0782	0.0782		0.0782	0.0782	0.0000	1,119.6551	1,119.6551	0.0215	0.0205	1,126.3086
Strip Mall	14393	8.0000e-005	7.1000e-004	5.9000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7681	0.7681	1.0000e-005	1.0000e-005	0.7726
Total		**0.1132**	**1.0292**	**0.8645**	**6.1700e-003**		**0.0782**	**0.0782**		**0.0782**	**0.0782**	**0.0000**	**1,120.4231**	**1,120.4231**	**0.0215**	**0.0205**	**1,127.0813**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	1.47102e+007	0.0793	0.7211	0.6057	4.3300e-003		0.0548	0.0548		0.0548	0.0548	0.0000	784.9897	784.9897	0.0151	0.0144	789.6545
Strip Mall	10075.1	5.0000e-005	4.9000e-004	4.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5377	0.5377	1.0000e-005	1.0000e-005	0.5408
Total		**0.0794**	**0.7216**	**0.6061**	**4.3300e-003**		**0.0548**	**0.0548**		**0.0548**	**0.0548**	**0.0000**	**785.5273**	**785.5273**	**0.0151**	**0.0144**	**790.1953**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	3.19006e+006	247.4348	0.0420	8.6800e-003	251.0711
General Office Building	2.28528e+007	1,772.5641	0.3006	0.0622	1,798.6135
Strip Mall	64920.4	5.0355	8.5000e-004	1.8000e-004	5.1095

Total		**2,025.0344**	**0.3434**	**0.0711**	**2,054.7942**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	2.54987e+006	197.7790	0.0335	6.9400e-003	200.6855
General Office Building	2.05035e+007	1,590.3370	0.2697	0.0558	1,613.7084
Strip Mall	59891.9	4.6455	7.9000e-004	1.6000e-004	4.7137
Total		**1,792.7614**	**0.3040**	**0.0629**	**1,819.1077**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.7496	2.1000e-004	0.0233	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0454	0.0454	1.2000e-004	0.0000	0.0483
Unmitigated	5.7496	2.1000e-004	0.0233	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0454	0.0454	1.2000e-004	0.0000	0.0483

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.6829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.0646					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.1600e-003	2.1000e-004	0.0233	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0454	0.0454	1.2000e-004	0.0000	0.0483
Total	**5.7496**	**2.1000e-004**	**0.0233**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0454**	**0.0454**	**1.2000e-004**	**0.0000**	**0.0483**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.6829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.0646					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.1600e-003	2.1000e-004	0.0233	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0454	0.0454	1.2000e-004	0.0000	0.0483
Total	**5.7496**	**2.1000e-004**	**0.0233**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0454**	**0.0454**	**1.2000e-004**	**0.0000**	**0.0483**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	170.2313	5.9691	0.1444	362.5014
Unmitigated	206.1903	7.4603	0.1803	446.4310

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	227.803 / 139.621	205.7842	7.4456	0.1800	445.5516
Strip Mall	0.44962 / 0.275574	0.4062	0.0147	3.6000e-004	0.8794
Total		**206.1903**	**7.4603**	**0.1803**	**446.4310**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	182.242 / 131.104	169.8960	5.9574	0.1442	361.7873
Strip Mall	0.359696 / 0.258764	0.3353	0.0118	2.8000e-004	0.7141
Total		**170.2313**	**5.9691**	**0.1444**	**362.5014**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	121.6281	7.1880	0.0000	301.3285
Unmitigated	243.2563	14.3760	0.0000	602.6571

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	1191.99	241.9632	14.2996	0.0000	599.4536
Strip Mall	6.37	1.2931	0.0764	0.0000	3.2035
Total		**243.2563**	**14.3760**	**0.0000**	**602.6571**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	595.995	120.9816	7.1498	0.0000	299.7268
Strip Mall	3.185	0.6465	0.0382	0.0000	1.6017
Total		**121.6281**	**7.1880**	**0.0000**	**301.3285**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Woz Way

Conversions:

1 ton =	907184.7	grams
1 year =	3.15E+07	seconds

Construction

	Unmitigated		Mitigated	
Year	**Tons/Year**	**g/s**	**Tons/Year**	**g/s**
2021	1.50E-01	4.32E-03	1.75E-02	5.03E-04
2022	1.12E-01	3.21E-03	2.59E-02	7.45E-04
2023	5.34E-02	1.54E-03	1.56E-02	4.49E-04
	max:	0.004321	max:	0.000745056
Total	3.15E-01		**Total** 5.90E-02	

County Population: 1,938,000 (Santa Clara County) See 70 FR 68218, November 9, 2005

	µg/m^3		
	1 hr	24 hr	Annual
Mitigated Concentration from AERSCREEN	0.1951	0.1171	0.01951

```
 AERSCREEN 16216 / AERMOD 18081
06/26/20

14:37:13

 TITLE: Woz Way Construction - Unmitigated


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 ***************************  VOLUME PARAMETERS
***************************
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 SOURCE EMISSION RATE:         0.432E-02 g/s
0.343E-01 lb/hr
 VOLUME HEIGHT:                     5.00 meters
16.40 feet
 INITIAL LATERAL DIMENSION:        37.00 meters
121.39 feet
 INITIAL VERTICAL DIMENSION:        1.00 meters
3.28 feet
 RURAL OR URBAN:                   URBAN
 POPULATION:                     1918000

 INITIAL PROBE DISTANCE =          5000. meters
16404. feet



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 ***********************  BUILDING DOWNWASH PARAMETERS
**********************
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                BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES


 ***************************  PROBE ANALYSIS
***************************
                  25 meter receptor spacing: 81. meters - 5000.
meters


      Zo       ROUGHNESS       1-HR CONC   DIST      TEMPORAL
      SECTOR     LENGTH         (ug/m3)     (m)       PERIOD
      ---------------------------------------------------------------
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```

```
      1*         1.000         1.132        80.6      ANN
 * = worst case flow sector


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 **********************  MAKEMET METEOROLOGY PARAMETERS
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 MIN/MAX TEMPERATURE:    278.0 / 298.0 (K)

 MINIMUM WIND SPEED:       0.5 m/s

 ANEMOMETER HEIGHT:     10.000 meters

 SURFACE CHARACTERISTICS INPUT: USER ENTERED

 ALBEDO:                   0.21
 BOWEN RATIO:              1.63
 ROUGHNESS LENGTH:       1.000 (meters)

 SURFACE FRICTION VELOCITY (U*) NOT ADUSTED


        METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM
IMPACT
        ------------------------------------------------------------
----

  YR MO DY JDY HR
  -- -- -- --- --
  10 01 10  10 01

     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN
ALBEDO  REF WS
  - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - -
  -1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.63
0.21    0.50

     HT  REF TA     HT
 - - - - - - - - - - -
   10.0   298.0    2.0


        METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY
IMPACT
        ------------------------------------------------------------
-----
```

```
  YR MO DY JDY HR
  -- -- -- --- --
  10 01 10  10 01

     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN
ALBEDO  REF WS
  - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - -
  -1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.63
0.21    0.50

     HT  REF TA     HT
 - - - - - - - - - - -
   10.0   298.0    2.0



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 ********************** AERSCREEN AUTOMATED DISTANCES
**********************
                    OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE
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                       MAXIMUM
MAXIMUM
            DIST     1-HR CONC                   DIST     1-HR
CONC
             (m)      (ug/m3)                     (m)
(ug/m3)
          ----------------------              -------------------
--
            80.55     1.132                    2550.00
0.8815E-02
           100.00    0.7840                    2575.00
0.8749E-02
           125.00    0.5369                    2600.00
0.8685E-02
           150.00    0.3942                    2625.00
0.8622E-02
           175.00    0.3172                    2650.00
0.8560E-02
           200.00    0.2699                    2675.00
0.8499E-02
           225.00    0.2319                    2700.00
0.8440E-02
           250.00    0.2008                    2725.00
0.8381E-02
           275.00    0.1753                    2750.00
```

0.8323E-02			
	300.00	0.1541	2775.00
0.8266E-02			
	325.00	0.1363	2800.00
0.8210E-02			
	350.00	0.1212	2825.00
0.8155E-02			
	375.00	0.1084	2850.00
0.8101E-02			
	400.00	0.9767E-01	2875.00
0.8048E-02			
	425.00	0.8903E-01	2900.00
0.7995E-02			
	450.00	0.8157E-01	2925.00
0.7944E-02			
	475.00	0.7508E-01	2950.00
0.7893E-02			
	500.00	0.6940E-01	2975.00
0.7842E-02			
	525.00	0.6439E-01	3000.00
0.7793E-02			
	550.00	0.5995E-01	3025.00
0.7744E-02			
	575.00	0.5599E-01	3050.00
0.7696E-02			
	600.00	0.5245E-01	3075.00
0.7648E-02			
	625.00	0.4925E-01	3100.00
0.7602E-02			
	650.00	0.4636E-01	3125.00
0.7555E-02			
	675.00	0.4375E-01	3150.00
0.7510E-02			
	700.00	0.4136E-01	3175.00
0.7465E-02			
	725.00	0.3919E-01	3200.00
0.7421E-02			
	750.00	0.3720E-01	3225.00
0.7377E-02			
	775.00	0.3537E-01	3250.00
0.7334E-02			
	800.00	0.3369E-01	3275.00
0.7291E-02			
	825.00	0.3214E-01	3300.00
0.7249E-02			
	850.00	0.3071E-01	3325.00
0.7207E-02			
	875.00	0.2939E-01	3350.00
0.7166E-02			
	900.00	0.2817E-01	3375.00
0.7126E-02			
	925.00	0.2703E-01	3400.00

0.7086E-02		
950.00	0.2597E-01	3425.00
0.7047E-02		
975.00	0.2499E-01	3450.00
0.7008E-02		
1000.00	0.2408E-01	3475.00
0.6969E-02		
1025.00	0.2322E-01	3500.00
0.6931E-02		
1050.00	0.2243E-01	3525.00
0.6893E-02		
1075.00	0.2168E-01	3550.00
0.6856E-02		
1100.00	0.2098E-01	3575.00
0.6820E-02		
1125.00	0.2033E-01	3600.00
0.6783E-02		
1150.00	0.1972E-01	3625.00
0.6748E-02		
1175.00	0.1915E-01	3650.00
0.6712E-02		
1200.00	0.1861E-01	3675.00
0.6677E-02		
1225.00	0.1810E-01	3700.00
0.6643E-02		
1250.00	0.1763E-01	3725.00
0.6608E-02		
1275.00	0.1718E-01	3750.00
0.6575E-02		
1300.00	0.1676E-01	3775.00
0.6541E-02		
1325.00	0.1636E-01	3800.00
0.6508E-02		
1350.00	0.1598E-01	3825.00
0.6475E-02		
1375.00	0.1563E-01	3850.00
0.6443E-02		
1400.00	0.1529E-01	3875.00
0.6411E-02		
1425.00	0.1498E-01	3900.00
0.6380E-02		
1450.00	0.1468E-01	3925.00
0.6348E-02		
1475.00	0.1439E-01	3950.00
0.6317E-02		
1500.00	0.1412E-01	3975.00
0.6287E-02		
1525.00	0.1387E-01	4000.00
0.6256E-02		
1550.00	0.1362E-01	4025.00
0.6227E-02		
1575.00	0.1339E-01	4050.00

0.6197E-02			
	1600.00	0.1317E-01	4075.00
0.6168E-02			
	1625.00	0.1296E-01	4100.00
0.6139E-02			
	1650.00	0.1276E-01	4125.00
0.6110E-02			
	1675.00	0.1257E-01	4150.00
0.6081E-02			
	1700.00	0.1239E-01	4175.00
0.6053E-02			
	1725.00	0.1222E-01	4200.00
0.6025E-02			
	1750.00	0.1205E-01	4225.00
0.5998E-02			
	1775.00	0.1189E-01	4250.00
0.5971E-02			
	1800.00	0.1174E-01	4275.00
0.5944E-02			
	1825.00	0.1159E-01	4300.00
0.5917E-02			
	1850.00	0.1145E-01	4325.00
0.5890E-02			
	1875.00	0.1131E-01	4350.00
0.5864E-02			
	1900.00	0.1118E-01	4375.00
0.5838E-02			
	1925.00	0.1106E-01	4400.00
0.5813E-02			
	1950.00	0.1094E-01	4425.00
0.5787E-02			
	1975.00	0.1082E-01	4450.00
0.5762E-02			
	2000.00	0.1070E-01	4475.00
0.5737E-02			
	2025.00	0.1060E-01	4500.00
0.5712E-02			
	2050.00	0.1049E-01	4525.00
0.5688E-02			
	2075.00	0.1039E-01	4550.00
0.5663E-02			
	2100.00	0.1029E-01	4575.00
0.5639E-02			
	2125.00	0.1019E-01	4600.00
0.5616E-02			
	2150.00	0.1009E-01	4625.00
0.5592E-02			
	2175.00	0.9995E-02	4650.00
0.5569E-02			
	2200.00	0.9901E-02	4675.00
0.5545E-02			
	2225.00	0.9810E-02	4700.00

0.5522E-02
2250.00 0.9721E-02 4725.00
0.5500E-02
2275.00 0.9635E-02 4750.00
0.5477E-02
2300.00 0.9551E-02 4775.00
0.5455E-02
2325.00 0.9470E-02 4800.00
0.5433E-02
2350.00 0.9390E-02 4825.00
0.5411E-02
2375.00 0.9312E-02 4850.00
0.5389E-02
2400.00 0.9236E-02 4875.00
0.5367E-02
2425.00 0.9162E-02 4900.00
0.5346E-02
2450.00 0.9090E-02 4925.00
0.5325E-02
2475.00 0.9019E-02 4950.00
0.5304E-02
2500.00 0.8949E-02 4975.00
0.5283E-02
2525.00 0.8881E-02 5000.00
0.5262E-02

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	1.132	1.132	1.018	0.6789	0.1132

DISTANCE FROM SOURCE 80.55 meters

IMPACT AT THE AMBIENT BOUNDARY	1.132	1.132	1.018	0.6789	0.1132

DISTANCE FROM SOURCE 80.55 meters

AERSCREEN 16216 / AERMOD 19191
06/25/20

14:19:39

TITLE: WOZ WAY CONSTRUCTION

********** VOLUME PARAMETERS **********

SOURCE EMISSION RATE: 0.745E-03 g/s 0.591E-02 lb/hr
VOLUME HEIGHT: 5.00 meters 16.40 feet
INITIAL LATERAL DIMENSION: 37.00 meters 121.39 feet
INITIAL VERTICAL DIMENSION: 1.00 meters 3.28 feet
RURAL OR URBAN: URBAN
POPULATION: 1918000

INITIAL PROBE DISTANCE = 5000. meters 16404. feet

********** BUILDING DOWNWASH PARAMETERS **********

BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES

********** PROBE ANALYSIS **********

25 meter receptor spacing: 81. meters - 5000. meters

Zo SECTOR	ROUGHNESS LENGTH	1-HR CONC (ug/m3)	DIST (m)	TEMPORAL PERIOD

```
      1*         1.000        0.1951        80.6      ANN
 * = worst case flow sector


 ---------------------------------------------------------------------
-------------
 **********************  MAKEMET METEOROLOGY PARAMETERS
**********************
 ---------------------------------------------------------------------
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 MIN/MAX TEMPERATURE:    278.0 / 298.0 (K)

 MINIMUM WIND SPEED:       0.5 m/s

 ANEMOMETER HEIGHT:     10.000 meters

 SURFACE CHARACTERISTICS INPUT: USER ENTERED

 ALBEDO:                   0.21
 BOWEN RATIO:              1.63
 ROUGHNESS LENGTH:       1.000 (meters)

 SURFACE FRICTION VELOCITY (U*) NOT ADUSTED


        METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM
IMPACT
        ---------------------------------------------------------
----

  YR MO DY JDY HR
  -- -- -- --- --
  10 01 10  10 01

     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN
ALBEDO  REF WS
  - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - -
  -1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.63
0.21    0.50

     HT  REF TA     HT
 - - - - - - - - - - -
   10.0   298.0    2.0


        METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY
IMPACT
        ---------------------------------------------------------
-----
```

```
  YR MO DY JDY HR
  -- -- -- --- --
  10 01 10  10 01

     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN
ALBEDO  REF WS
   - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - -
  -1.27  0.043 -9.000  0.020 -999.   21.      5.9 1.000   1.63
0.21    0.50

     HT  REF TA     HT
 - - - - - - - - - - -
   10.0   298.0    2.0
```

********** AERSCREEN AUTOMATED DISTANCES **********

OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
80.55	0.1951	2550.00	0.1520E-02
100.00	0.1352	2575.00	0.1509E-02
125.00	0.9259E-01	2600.00	0.1498E-02
150.00	0.6798E-01	2625.00	0.1487E-02
175.00	0.5470E-01	2650.00	0.1476E-02
200.00	0.4655E-01	2675.00	0.1466E-02
225.00	0.3998E-01	2700.00	0.1455E-02
250.00	0.3463E-01	2725.00	0.1445E-02
275.00	0.3023E-01	2750.00	

0.1435E-02			
	300.00	0.2657E-01	2775.00
0.1425E-02			
	325.00	0.2350E-01	2800.00
0.1416E-02			
	350.00	0.2091E-01	2825.00
0.1406E-02			
	375.00	0.1869E-01	2850.00
0.1397E-02			
	400.00	0.1684E-01	2875.00
0.1388E-02			
	425.00	0.1535E-01	2900.00
0.1379E-02			
	450.00	0.1406E-01	2925.00
0.1370E-02			
	475.00	0.1295E-01	2950.00
0.1361E-02			
	500.00	0.1197E-01	2975.00
0.1352E-02			
	525.00	0.1110E-01	3000.00
0.1344E-02			
	550.00	0.1034E-01	3025.00
0.1335E-02			
	575.00	0.9655E-02	3050.00
0.1327E-02			
	600.00	0.9043E-02	3075.00
0.1319E-02			
	625.00	0.8493E-02	3100.00
0.1311E-02			
	650.00	0.7995E-02	3125.00
0.1303E-02			
	675.00	0.7544E-02	3150.00
0.1295E-02			
	700.00	0.7133E-02	3175.00
0.1287E-02			
	725.00	0.6758E-02	3200.00
0.1280E-02			
	750.00	0.6414E-02	3225.00
0.1272E-02			
	775.00	0.6100E-02	3250.00
0.1265E-02			
	800.00	0.5810E-02	3275.00
0.1257E-02			
	825.00	0.5543E-02	3300.00
0.1250E-02			
	850.00	0.5296E-02	3325.00
0.1243E-02			
	875.00	0.5068E-02	3350.00
0.1236E-02			
	900.00	0.4857E-02	3375.00
0.1229E-02			
	925.00	0.4661E-02	3400.00

0.1222E-02			
	950.00	0.4479E-02	3425.00
0.1215E-02			
	975.00	0.4309E-02	3450.00
0.1208E-02			
	1000.00	0.4152E-02	3475.00
0.1202E-02			
	1025.00	0.4004E-02	3500.00
0.1195E-02			
	1050.00	0.3867E-02	3525.00
0.1189E-02			
	1075.00	0.3739E-02	3550.00
0.1182E-02			
	1100.00	0.3618E-02	3575.00
0.1176E-02			
	1125.00	0.3506E-02	3600.00
0.1170E-02			
	1150.00	0.3401E-02	3625.00
0.1164E-02			
	1175.00	0.3302E-02	3650.00
0.1157E-02			
	1200.00	0.3209E-02	3675.00
0.1151E-02			
	1225.00	0.3121E-02	3700.00
0.1145E-02			
	1250.00	0.3039E-02	3725.00
0.1140E-02			
	1275.00	0.2962E-02	3750.00
0.1134E-02			
	1300.00	0.2889E-02	3775.00
0.1128E-02			
	1325.00	0.2821E-02	3800.00
0.1122E-02			
	1350.00	0.2756E-02	3825.00
0.1117E-02			
	1375.00	0.2695E-02	3850.00
0.1111E-02			
	1400.00	0.2637E-02	3875.00
0.1106E-02			
	1425.00	0.2583E-02	3900.00
0.1100E-02			
	1450.00	0.2531E-02	3925.00
0.1095E-02			
	1475.00	0.2482E-02	3950.00
0.1089E-02			
	1500.00	0.2435E-02	3975.00
0.1084E-02			
	1525.00	0.2391E-02	4000.00
0.1079E-02			
	1550.00	0.2349E-02	4025.00
0.1074E-02			
	1575.00	0.2310E-02	4050.00

0.1069E-02			
	1600.00	0.2272E-02	4075.00
0.1064E-02			
	1625.00	0.2236E-02	4100.00
0.1059E-02			
	1650.00	0.2201E-02	4125.00
0.1054E-02			
	1675.00	0.2168E-02	4150.00
0.1049E-02			
	1700.00	0.2137E-02	4175.00
0.1044E-02			
	1725.00	0.2107E-02	4200.00
0.1039E-02			
	1750.00	0.2078E-02	4225.00
0.1034E-02			
	1775.00	0.2051E-02	4250.00
0.1030E-02			
	1800.00	0.2024E-02	4275.00
0.1025E-02			
	1825.00	0.1999E-02	4300.00
0.1020E-02			
	1850.00	0.1974E-02	4325.00
0.1016E-02			
	1875.00	0.1951E-02	4350.00
0.1011E-02			
	1900.00	0.1928E-02	4375.00
0.1007E-02			
	1925.00	0.1907E-02	4400.00
0.1002E-02			
	1950.00	0.1886E-02	4425.00
0.9979E-03			
	1975.00	0.1865E-02	4450.00
0.9936E-03			
	2000.00	0.1846E-02	4475.00
0.9893E-03			
	2025.00	0.1827E-02	4500.00
0.9850E-03			
	2050.00	0.1809E-02	4525.00
0.9808E-03			
	2075.00	0.1791E-02	4550.00
0.9766E-03			
	2100.00	0.1774E-02	4575.00
0.9724E-03			
	2125.00	0.1757E-02	4600.00
0.9683E-03			
	2150.00	0.1740E-02	4625.00
0.9643E-03			
	2175.00	0.1724E-02	4650.00
0.9602E-03			
	2200.00	0.1707E-02	4675.00
0.9562E-03			
	2225.00	0.1692E-02	4700.00

0.9523E-03
2250.00 0.1676E-02 4725.00
0.9484E-03
2275.00 0.1661E-02 4750.00
0.9445E-03
2300.00 0.1647E-02 4775.00
0.9406E-03
2325.00 0.1633E-02 4800.00
0.9368E-03
2350.00 0.1619E-02 4825.00
0.9330E-03
2375.00 0.1606E-02 4850.00
0.9293E-03
2400.00 0.1593E-02 4875.00
0.9255E-03
2425.00 0.1580E-02 4900.00
0.9218E-03
2450.00 0.1567E-02 4925.00
0.9182E-03
2475.00 0.1555E-02 4950.00
0.9146E-03
2500.00 0.1543E-02 4975.00
0.9110E-03
2525.00 0.1531E-02 5000.00
0.9074E-03

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	0.1951	0.1951	0.1756	0.1171	0.1951E-01

DISTANCE FROM SOURCE 80.55 meters

IMPACT AT THE AMBIENT BOUNDARY	0.1951	0.1951	0.1756	0.1171	0.1951E-01

DISTANCE FROM SOURCE 80.55 meters

*HARP - HRACalc v19044 6/26/2020 2:39:14 PM - Acute Risk - Input File: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionHRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE\	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE\	RESP	SKIN	EYE	BONE/TEET
1			9901	DieselExhP	0	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2			107028	Acrolein	1.132	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.53E-01	0.00E+00	4.53E-01	0.00E+00

ENDO	BLOOD	ODOR	GENERAL
0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v19044 6/26/2020 2:39:14 PM - Chronic Risk - Input File: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionHRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE\	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE\	RESP	SKIN	EYE	BONE/TEE1	PASTURE_(	FISH_CONC	WATER_CO
	1		9901	DieselExhP	0.1132	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	2		107028	Acrolein	0	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENDO	BLOOD	ODOR	GENERAL	DETAILS	INH_CONC	SOIL_DOSE	DERMAL_D	MMILK_DC	WATER_DC	FISH_DOSE	CROP_DOS	BEEF_DOSE	DAIRY_DO\	PIG_DOSE	CHICKEN_D	EGG_DOSE	1ST_DRIVE
0.00E+00	0.00E+00	0.00E+00	0.00E+00	*	1.13E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATIO
0.00E+00	0.00E+00	0.00E+00	0.00E+00	*	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATIO

*HARP - HRACalc v19044 6/26/2020 2:39:14 PM - Cancer Risk - Input File: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionHRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE'	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_F	MMILK_RIS	WATER_RI	FISH_RISK	CROP_RISK	BEEF_RISK
1			9901	DieselExhP	0.1132	3.61E-05	3YrCancer[	*	3.61E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2			107028	Acrolein	0	0.00E+00	3YrCancer[	*	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

DAIRY_RISI	PIG_RISK	CHICKEN_F	EGG_RISK	1ST_DRIVE	2ND_DRIVI	PASTURE_(	FISH_CON(	WATER_CC
0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATION		0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00	0.00E+00

HARP2 - HRACalc (dated 19044) 6/26/2020 2:39:14 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 3

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 1
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: LongTerm24HR

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
3rd Trimester to 16 years: ON
16 years to 70 years: ON

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk saved to: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionCancerRisk.csv
Calculating chronic risk
Chronic risk saved to: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionNCChronicRisk.csv
Calculating acute risk
Acute risk saved to: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionNCAcuteRisk.csv
HRA ran successfully

*HARP - HRACalc v19044 6/26/2020 2:29:42 PM - Acute Risk - Input File: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionT4HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
1			9901	DieselExhF	0	NonCance	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2			107028	Acrolein	0.1951	NonCance	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.80E-02	0.00E+00	7.80E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v19044 6/26/2020 2:29:42 PM - Cancer Risk - Input File: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionT4HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_F	MMILK_RI	WATER_RI	FISH_RISK	CROP_RISI	BEEF_RISK
1			9901	DieselExhF	0.01951	6.22E-06	3YrCancer	*	6.22E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2			107028	Acrolein	0	0.00E+00	3YrCancer	*	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

DAIRY_RIS	PIG_RISK	CHICKEN_I	EGG_RISK	1ST_DRIVE	2ND_DRIV	PASTURE_	FISH_CON	WATER_CONC
0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATION		0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00			0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v19044 6/26/2020 2:29:42 PM - Chronic Risk - Input File: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionT4HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL
	1		9901	DieselExhF	0.01951	NonCance	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.90E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	2		107028	Acrolein	0	NonCance	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

INH_CONC	SOIL_DOSI	DERMAL_I	MMILK_D(	WATER_D	FISH_DOSI	CROP_DO!	BEEF_DOS	DAIRY_DO	PIG_DOSE	CHICKEN_I	EGG_DOSI	1ST_DRIVE	2ND_DRIV	3RD_DRIV	PASTURE_	FISH_CON	WATER_C(
1.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATION			0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATION			0.00E+00	0.00E+00	0.00E+00

HARP2 - HRACalc (dated 19044) 6/26/2020 2:29:42 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 3

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 1
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: LongTerm24HR

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
3rd Trimester to 16 years: ON
16 years to 70 years: ON

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk saved to: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionT4CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionT4NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: D:\Work\Woz\June 2020 Revisions\RAST\Woz ConstructionT4NCAcuteRisk.csv
HRA ran successfully

Freeway Emission Rate Calculations

	Speed (mph)	ADT	Emission Factor (g/mi)	Length (mi)	Emissions Rate (g/day)	(g/sec)	Vehicle Height
I-280 Trucks (PM)	65	5,800	0.015026972	0.81	70.59671644	0.000817092	3.66
I-280 Auto (TOG)	65	226,200	0.030243083	0.81	5541.198195	0.064134238	0.6

	AERMOD			HARP		
	Hourly	24-hour	Annual	Cancer	Chronic	Acute
PM 2.5	0.04884	0.02096	0.00989	8.75E-06	0.0020	0.0195
TOG	4.22722	1.77241	0.81705			
				8.7453		

I-280 ADT

From	To	Peak Month	AADT	Percent Trucks	Truck ADT	Other Vehicle ADT
10th Street	Route 82	245000	233000	2.60%	6,058	226,942
Route 82	Route 87	240000	232000	2.50%	5,800	226,200
Route 87	Bird	223000	213000			

Source: https://dot.ca.gov/programs/traffic-operations/census/traffic-volumes/2017/route-280-405

EMFAC2017 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: Santa Clara (SF)
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	VMT	TOG_RUNEX		PM2_5_RUNEX	
Santa Clara (SF)	2023	HHDT	Aggregate	65	GAS	12.14295735	0.529010893	6.423756716	0.001022275	0.012413
Santa Clara (SF)	2023	HHDT	Aggregate	65	DSL	297314.4454	0.022020569	6547.03338	0.034254388	10184.32
Santa Clara (SF)	2023	HHDT	Aggregate	65	NG	319.3257565	0.698926473	223.1852246	0.003806992	1.215671
Santa Clara (SF)	2023	LDA	Aggregate	65	GAS	2185966.471	0.010343393	22610.30966	0.0011575	2530.256
Santa Clara (SF)	2023	LDA	Aggregate	65	DSL	22930.54863	0.009747299	223.510912	0.005270878	120.8641
Santa Clara (SF)	2023	LDT1	Aggregate	65	GAS	202360.0221	0.023617269	4779.191093	0.001471009	297.6734
Santa Clara (SF)	2023	LDT1	Aggregate	65	DSL	50.72700924	0.233449427	11.84219125	0.159082579	8.069783
Santa Clara (SF)	2023	LDT2	Aggregate	65	GAS	678093.5878	0.017597135	11932.50457	0.001169687	793.1572
Santa Clara (SF)	2023	LDT2	Aggregate	65	DSL	5395.850753	0.009088721	49.04138097	0.003911647	21.10666
Santa Clara (SF)	2023	MCY	Aggregate	65	GAS	19821.86262	2.743902005	54389.24859	0.001830399	36.28192
Santa Clara (SF)	2023	MDV	Aggregate	65	GAS	400250.7224	0.022470314	8993.759537	0.001235095	494.3475
Santa Clara (SF)	2023	MDV	Aggregate	65	DSL	11626.73143	0.006543752	76.08244276	0.003274587	38.07275
Santa Clara (SF)	2023	MH	Aggregate	65	GAS	440.1548646	0.066093757	29.09148867	0.00116387	0.512283
Santa Clara (SF)	2023	MH	Aggregate	65	DSL	247.3364642	0.056750962	14.03658224	0.096796671	23.94135
Santa Clara (SF)	2023	MHDT	Aggregate	65	GAS	1317.874346	0.062290321	82.09081591	0.000943519	1.243439
Santa Clara (SF)	2023	MHDT	Aggregate	65	DSL	40477.35507	0.009550205	386.5670431	0.014102397	570.8277
Santa Clara (SF)	2023	OBUS	Aggregate	65	GAS	398.7719339	0.059418505	23.69443196	0.000723062	0.288337
Santa Clara (SF)	2023	OBUS	Aggregate	65	DSL	6196.990553	0.020267055	125.5947495	0.029175919	180.8029
Santa Clara (SF)	2023	SBUS	Aggregate	65	DSL	2253.63345	0.05417565	122.0920564	0.039673607	89.40977
Santa Clara (SF)	2023	UBUS	Aggregate	65	GAS	4.101931114	0.014076843	0.057742241	0.000941308	0.003861
Santa Clara (SF)	2023	UBUS	Aggregate	65	DSL	181.3353541	0.033505703	6.075768596	0.019562275	3.547332
Santa Clara (SF)	2023	UBUS	Aggregate	65	NG	46.26931248	3.778420575	174.8249223	0.001746474	0.080808

DPM (Trucks)	0.015027
TOG (All Other Vehicles)	0.030243

Toxic Air Contaminant Concentrations

	Mass Fraction	Emissions Rates	AERMOD Annual	Annual MER Concentration	Emissions Rates (1-hour)	Aermod Hourly	Acute Concentration
DPM	1			0.00E+00			
Acetaldehyde	2.80E-03		0.81705	2.29E-03	3.51E-03	4.22722	1.18E-02
Acrolein	1.30E-03			1.06E-03			5.50E-03
Benzene	2.83E-02			2.31E-02			1.20E-01
1,3-Butadiene	5.50E-03			4.49E-03			2.32E-02
Ethyl benzene	1.17E-02			9.56E-03			4.95E-02
Formaldehyde	1.58E-02			1.29E-02			6.68E-02
Hexane	3.14E-02			2.57E-02			1.33E-01
Methanol	1.20E-03			9.80E-04			5.07E-03
Methly Ethyl Ketone	2.00E-04			1.63E-04			8.45E-04
Naphthalene	5.00E-04			4.09E-04			2.11E-03
Propylene	3.06E-02			2.50E-02			1.29E-01
Styrene	1.20E-03			9.80E-04			5.07E-03
Toluene	7.46E-02			6.10E-02			3.15E-01
Xylenes	5.38E-02			4.40E-02			2.27E-01
$PM_{2.5}$	1.00E+00	2.49E-02		8.17E-01			--

PM2.5= proxy for DPM

HARP 2 Risk Summary

INDEX	POLID	POLABBREV	CONC	Cancer INH_RISK	Chronic RESP	Acute CONC	RESP
1	75070	Acetaldehyde	2.29E-03	1.80E-08	1.64E-05	1.18E-02	2.51E-05
2	107028	Acrolein	1.06E-03	0.00E+00	3.03E-03	5.50E-03	2.20E-03
3	71432	Benzene	2.31E-02	1.82E-06	0.00E+00	1.20E-01	0.00E+00
4	106990	1,3-Butadiene	4.49E-03	2.12E-06	0.00E+00	2.32E-02	0.00E+00
5	100414	Ethyl Benzene	9.56E-03	6.54E-08	0.00E+00	4.95E-02	0.00E+00
6	50000	Formaldehyde	1.29E-02	2.13E-07	1.43E-03	6.68E-02	0.00E+00
7	110543	Hexane	2.57E-02	0.00E+00	0.00E+00	1.33E-01	0.00E+00
8	67561	Methanol	9.80E-04	0.00E+00	0.00E+00	5.07E-03	0.00E+00
9	78933	MEK	1.63E-04	0.00E+00	0.00E+00	8.45E-04	6.50E-08
10	91203	Naphthalene	4.09E-04	3.86E-08	4.54E-05	2.11E-03	0.00E+00
11	115071	Propylene	2.50E-02	0.00E+00	8.33E-06	1.29E-01	0.00E+00
12	100425	Styrene	9.80E-04	0.00E+00	0.00E+00	5.07E-03	2.41E-07
13	108883	Toluene	6.10E-02	0.00E+00	2.03E-04	3.15E-01	8.51E-06
14	1330207	Xylenes	4.40E-02	0.00E+00	6.29E-05	2.27E-01	1.03E-05
15	88101	PM25	8.17E-01	7.07E-04	1.63E-01	0.00E+00	0.00E+00
	9901	DPM	9.89E-03	8.75E-06	0.0020		0.0195
		Total without PM2.5	1.03E+00	7.11E-04	1.68E-01		2.24E-03
		Total with PM2.5		7.20E-04	1.70E-01		2.18E-02

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.7.0
** Lakes Environmental Software Inc.
** Date: 11/7/2019
** File: C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280
Operational.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280 Operati
   MODELOPT DFAULT CONC
   AVERTIME 1 24 ANNUAL
   URBANOPT 1938000
   POLLUTID PM_2.5
   RUNORNOT RUN
   ERRORFIL "Woz Way I-280 Operational.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ------------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC I-280 Operational
** PREFIX
** Length of Side = 51.00
** Configuration = Adjacent
** Emission Rate = 0.000817092
** Vertical Dimension = 6.22
** SZINIT = 2.89
** Nodes = 4
** 599104.788, 4131745.331, 30.75, 3.11, 23.72
```

```
** 598790.693, 4131564.675, 36.89, 3.11, 23.72
** 598248.724, 4131402.495, 26.39, 3.11, 23.72
** 597883.306, 4131314.220, 31.21, 3.11, 23.72
** ----------------------------------------------------------------------
   LOCATION L0000001     VOLUME   599082.683 4131732.617 30.70
   LOCATION L0000002     VOLUME   599038.474 4131707.190 30.36
   LOCATION L0000003     VOLUME   598994.265 4131681.763 30.36
   LOCATION L0000004     VOLUME   598950.056 4131656.335 30.04
   LOCATION L0000005     VOLUME   598905.847 4131630.908 36.04
   LOCATION L0000006     VOLUME   598861.638 4131605.480 36.14
   LOCATION L0000007     VOLUME   598817.429 4131580.053 37.04
   LOCATION L0000008     VOLUME   598771.382 4131558.896 36.58
   LOCATION L0000009     VOLUME   598722.523 4131544.276 36.52
   LOCATION L0000010     VOLUME   598673.663 4131529.655 35.68
   LOCATION L0000011     VOLUME   598624.804 4131515.034 29.15
   LOCATION L0000012     VOLUME   598575.945 4131500.413 29.51
   LOCATION L0000013     VOLUME   598527.085 4131485.793 29.42
   LOCATION L0000014     VOLUME   598478.226 4131471.172 29.33
   LOCATION L0000015     VOLUME   598429.367 4131456.551 29.83
   LOCATION L0000016     VOLUME   598380.507 4131441.930 29.66
   LOCATION L0000017     VOLUME   598331.648 4131427.309 27.67
   LOCATION L0000018     VOLUME   598282.789 4131412.689 27.77
   LOCATION L0000019     VOLUME   598233.713 4131398.869 26.18
   LOCATION L0000020     VOLUME   598184.139 4131386.893 26.51
   LOCATION L0000021     VOLUME   598134.565 4131374.917 26.31
   LOCATION L0000022     VOLUME   598084.991 4131362.942 28.61
   LOCATION L0000023     VOLUME   598035.417 4131350.966 27.51
   LOCATION L0000024     VOLUME   597985.843 4131338.990 28.60
   LOCATION L0000025     VOLUME   597936.269 4131327.014 28.90
   LOCATION L0000026     VOLUME   597886.695 4131315.039 31.42
** End of LINE VOLUME Source ID = SLINE1
** Source Parameters **
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0000001     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000002     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000003     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000004     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000005     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000006     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000007     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000008     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000009     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000010     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000011     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000012     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000013     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000014     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000015     0.0000314266      3.11     23.72      2.89
```

```
   SRCPARAM L0000016     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000017     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000018     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000019     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000020     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000021     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000022     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000023     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000024     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000025     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000026     0.0000314266      3.11     23.72      2.89
** ----------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "Woz Way I-280 Operational.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE "\\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\724945.SFC"
   PROFFILE "\\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\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 "WOZ WAY I-280 OPERATIONAL.AD\01H1GALL.PLT" 31
   PLOTFILE 24 ALL 1ST "WOZ WAY I-280 OPERATIONAL.AD\24H1GALL.PLT" 32
   PLOTFILE ANNUAL ALL "WOZ WAY I-280 OPERATIONAL.AD\AN00GALL.PLT" 33
   SUMMFILE "Woz Way I-280 Operational.sum"
OU FINISHED
**
************************************
** Project Parameters
************************************
** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    World Geodetic System 1984
** DTMRGN   Global Definition
** UNITS    m
** ZONE     10
** ZONEINX  0
**
```

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.7.0
** Lakes Environmental Software Inc.
** Date: 11/7/2019
** File: C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280
Operational.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280 Operati
   MODELOPT DFAULT CONC
   AVERTIME 1 24 ANNUAL
   URBANOPT 1938000
   POLLUTID PM_2.5
   RUNORNOT RUN
   ERRORFIL "Woz Way I-280 Operational.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC I-280 Operational
** PREFIX
** Length of Side = 51.00
** Configuration = Adjacent
** Emission Rate = 0.000817092
** Vertical Dimension = 6.22
** SZINIT = 2.89
** Nodes = 4
** 599104.788, 4131745.331, 30.75, 3.11, 23.72
```

```
** 598790.693, 4131564.675, 36.89, 3.11, 23.72
** 598248.724, 4131402.495, 26.39, 3.11, 23.72
** 597883.306, 4131314.220, 31.21, 3.11, 23.72
** ----------------------------------------------------------------------
   LOCATION L0000001     VOLUME   599082.683 4131732.617 30.70
   LOCATION L0000002     VOLUME   599038.474 4131707.190 30.36
   LOCATION L0000003     VOLUME   598994.265 4131681.763 30.36
   LOCATION L0000004     VOLUME   598950.056 4131656.335 30.04
   LOCATION L0000005     VOLUME   598905.847 4131630.908 36.04
   LOCATION L0000006     VOLUME   598861.638 4131605.480 36.14
   LOCATION L0000007     VOLUME   598817.429 4131580.053 37.04
   LOCATION L0000008     VOLUME   598771.382 4131558.896 36.58
   LOCATION L0000009     VOLUME   598722.523 4131544.276 36.52
   LOCATION L0000010     VOLUME   598673.663 4131529.655 35.68
   LOCATION L0000011     VOLUME   598624.804 4131515.034 29.15
   LOCATION L0000012     VOLUME   598575.945 4131500.413 29.51
   LOCATION L0000013     VOLUME   598527.085 4131485.793 29.42
   LOCATION L0000014     VOLUME   598478.226 4131471.172 29.33
   LOCATION L0000015     VOLUME   598429.367 4131456.551 29.83
   LOCATION L0000016     VOLUME   598380.507 4131441.930 29.66
   LOCATION L0000017     VOLUME   598331.648 4131427.309 27.67
   LOCATION L0000018     VOLUME   598282.789 4131412.689 27.77
   LOCATION L0000019     VOLUME   598233.713 4131398.869 26.18
   LOCATION L0000020     VOLUME   598184.139 4131386.893 26.51
   LOCATION L0000021     VOLUME   598134.565 4131374.917 26.31
   LOCATION L0000022     VOLUME   598084.991 4131362.942 28.61
   LOCATION L0000023     VOLUME   598035.417 4131350.966 27.51
   LOCATION L0000024     VOLUME   597985.843 4131338.990 28.60
   LOCATION L0000025     VOLUME   597936.269 4131327.014 28.90
   LOCATION L0000026     VOLUME   597886.695 4131315.039 31.42
** End of LINE VOLUME Source ID = SLINE1
** Source Parameters **
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0000001     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000002     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000003     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000004     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000005     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000006     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000007     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000008     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000009     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000010     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000011     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000012     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000013     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000014     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000015     0.0000314266      3.11     23.72      2.89
```

```
   SRCPARAM L0000016     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000017     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000018     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000019     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000020     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000021     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000022     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000023     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000024     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000025     0.0000314266      3.11     23.72      2.89
   SRCPARAM L0000026     0.0000314266      3.11     23.72      2.89
** ----------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "Woz Way I-280 Operational.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE "\\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\724945.SFC"
   PROFFILE "\\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\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 "WOZ WAY I-280 OPERATIONAL.AD\01H1GALL.PLT" 31
   PLOTFILE 24 ALL 1ST "WOZ WAY I-280 OPERATIONAL.AD\24H1GALL.PLT" 32
   PLOTFILE ANNUAL ALL "WOZ WAY I-280 OPERATIONAL.AD\AN00GALL.PLT" 33
   SUMMFILE "Woz Way I-280 Operational.sum"
OU FINISHED

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

 *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
Operational\Woz Way I-280 Operati ***        11/07/19
 *** AERMET - VERSION  14134 ***   ***
                       ***        13:11:35

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                                            ***     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 URBAN Dispersion Algorithm for the SBL for    26 Source(s),
   for Total of    1 Urban Area(s):
   Urban Population =   1938000.0 ;  Urban Roughness Length =  1.000 m

 **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.
        6. Urban Roughness Length of 1.0 Meter Assumed.

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

 **Model Assumes No FLAGPOLE Receptor Heights.
```

```
 **The User Specified a Pollutant Type of:  PM_2.5

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

 **This Run Includes:     26 Source(s);       1 Source Group(s); and       9
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:     26 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.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out
```

**Detailed Error/Message File: Woz Way I-280 Operational.err

**File for Summary of Results: Woz Way I-280 Operational.sum

*** AERMOD - VERSION 18081 *** *** C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280 Operati *** 11/07/19
*** AERMET - VERSION 14134 *** *** *** 13:11:35

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** 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 BY	EMISSION RATE SCALAR VARY
L0000001	0	0.31427E-04	599082.7	4131732.6	30.7	3.11	23.72	2.89	YES	
L0000002	0	0.31427E-04	599038.5	4131707.2	30.4	3.11	23.72	2.89	YES	
L0000003	0	0.31427E-04	598994.3	4131681.8	30.4	3.11	23.72	2.89	YES	
L0000004	0	0.31427E-04	598950.1	4131656.3	30.0	3.11	23.72	2.89	YES	
L0000005	0	0.31427E-04	598905.8	4131630.9	36.0	3.11	23.72	2.89	YES	
L0000006	0	0.31427E-04	598861.6	4131605.5	36.1	3.11	23.72	2.89	YES	
L0000007	0	0.31427E-04	598817.4	4131580.1	37.0	3.11	23.72	2.89	YES	
L0000008	0	0.31427E-04	598771.4	4131558.9	36.6	3.11	23.72	2.89	YES	
L0000009	0	0.31427E-04	598722.5	4131544.3	36.5	3.11	23.72	2.89	YES	
L0000010	0	0.31427E-04	598673.7	4131529.7	35.7	3.11	23.72	2.89	YES	
L0000011	0	0.31427E-04	598624.8	4131515.0	29.2	3.11	23.72	2.89	YES	
L0000012	0	0.31427E-04	598575.9	4131500.4	29.5	3.11	23.72			

```
2.89     YES
 L0000013         0   0.31427E-04  598527.1 4131485.8    29.4     3.11    23.72
2.89     YES
 L0000014         0   0.31427E-04  598478.2 4131471.2    29.3     3.11    23.72
2.89     YES
 L0000015         0   0.31427E-04  598429.4 4131456.6    29.8     3.11    23.72
2.89     YES
 L0000016         0   0.31427E-04  598380.5 4131441.9    29.7     3.11    23.72
2.89     YES
 L0000017         0   0.31427E-04  598331.6 4131427.3    27.7     3.11    23.72
2.89     YES
 L0000018         0   0.31427E-04  598282.8 4131412.7    27.8     3.11    23.72
2.89     YES
 L0000019         0   0.31427E-04  598233.7 4131398.9    26.2     3.11    23.72
2.89     YES
 L0000020         0   0.31427E-04  598184.1 4131386.9    26.5     3.11    23.72
2.89     YES
 L0000021         0   0.31427E-04  598134.6 4131374.9    26.3     3.11    23.72
2.89     YES
 L0000022         0   0.31427E-04  598085.0 4131362.9    28.6     3.11    23.72
2.89     YES
 L0000023         0   0.31427E-04  598035.4 4131351.0    27.5     3.11    23.72
2.89     YES
 L0000024         0   0.31427E-04  597985.8 4131339.0    28.6     3.11    23.72
2.89     YES
 L0000025         0   0.31427E-04  597936.3 4131327.0    28.9     3.11    23.72
2.89     YES
 L0000026         0   0.31427E-04  597886.7 4131315.0    31.4     3.11    23.72
2.89     YES
 *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
Operational\Woz Way I-280 Operati ***        11/07/19
 *** AERMET - VERSION  14134 ***   ***
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                                  PAGE   3
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID                                          SOURCE IDs
 -----------                                          ----------


  ALL        L0000001    , L0000002    , L0000003    , L0000004    , L0000005    ,
L0000006    , L0000007    , L0000008    ,

             L0000009    , L0000010    , L0000011    , L0000012    , L0000013    ,
```

L0000014 , L0000015 , L0000016 ,

L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 ,

L0000025 , L0000026 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
	1938000.	L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 , L0000025 , L0000026 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

(598368.2, 4131587.8, 28.3, 28.3, 0.0); (598337.3, 4131551.1, 28.3, 28.3, 0.0);
(598357.3, 4131551.1, 28.1, 28.1, 0.0); (598377.3,

```
4131551.1,      28.2,      28.2,       0.0);
     ( 598397.3, 4131551.1,      28.5,      28.5,       0.0);         ( 598357.3,
4131571.1,      28.1,      28.1,       0.0);
     ( 598377.3, 4131571.1,      28.3,      28.3,       0.0);         ( 598397.3,
4131571.1,      28.5,      28.5,       0.0);
     ( 598397.3, 4131591.1,      28.5,      28.5,       0.0);

↑ *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
Operational\Woz Way I-280 Operati ***        11/07/19
 *** AERMET - VERSION  14134 ***   ***
                       ***        13:11:35

                                  PAGE   6
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                                            *** 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

                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,
↑ *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
Operational\Woz Way I-280 Operati ***        11/07/19
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

Surface file: \\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\724945.SFC   Met Version: 14134
Profile file: \\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\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  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
Operational\Woz Way I-280 Operati ***        11/07/19
 *** AERMET - VERSION  14134 ***   ***
                      ***        13:11:35

                                  PAGE   8
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   *** 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    ,
```

L0000014 , L0000015 , L0000016 , L0000017 , L0000018
, L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026
,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF PM_2.5 IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
598368.23	4131587.82	0.00713	598337.31	4131551.13	0.00856
598357.31	4131551.13	0.00896	598377.31	4131551.13	0.00939
598397.31	4131551.13	0.00989	598357.31	4131571.13	0.00776
598377.31	4131571.13	0.00810	598397.31	4131571.13	0.00847
598397.31	4131591.13	0.00739			

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** 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 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018
, L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026
,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF PM_2.5 IN MICROGRAMS/M**3

**

```
      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
        598368.23   4131587.82        0.03624  (11012620)                598337.31
4131551.13        0.04248  (13021419)
        598357.31   4131551.13        0.04443  (13021419)                598377.31
4131551.13        0.04653  (13021419)
        598397.31   4131551.13        0.04884  (13021419)                598357.31
4131571.13        0.03905  (13021419)
        598377.31   4131571.13        0.04079  (13021419)                598397.31
4131571.13        0.04262  (13021419)
        598397.31   4131591.13        0.03773  (13021419)

 *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
Operational\Woz Way I-280 Operati ***        11/07/19
 *** AERMET - VERSION  14134 ***   ***
                      ***        13:11:35

                                  PAGE  10
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                               *** 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    ,
                  L0000014    , L0000015    , L0000016    , L0000017    , L0000018
, L0000019    , L0000020    , L0000021    ,
                  L0000022    , L0000023    , L0000024    , L0000025    , L0000026
,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF PM_2.5   IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
        598368.23   4131587.82        0.01518b (12022724)                598337.31
4131551.13        0.01814b (12022724)
        598357.31   4131551.13        0.01895b (12022724)                598377.31
```

4131551.13 0.01987b (12022724)
598397.31 4131551.13 0.02096b (12022724) 598357.31
4131571.13 0.01648b (12022724)
598377.31 4131571.13 0.01722b (12022724) 598397.31
4131571.13 0.01803b (12022724)
598397.31 4131591.13 0.01578b (12022724)

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

GROUP ID	NETWORK	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.00989	AT (598397.31, 4131551.13, 28.54, 28.54, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.00939	AT (598377.31, 4131551.13, 28.19, 28.19, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.00896	AT (598357.31, 4131551.13, 28.13, 28.13, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.00856	AT (598337.31, 4131551.13, 28.31, 28.31, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.00847	AT (598397.31, 4131571.13, 28.51, 28.51, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.00810	AT (598377.31, 4131571.13, 28.29, 28.29, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.00776	AT (598357.31, 4131571.13, 28.07, 28.07, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.00739	AT (598397.31, 4131591.13, 28.48, 28.48, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.00713	AT (598368.23, 4131587.82, 28.27, 28.27, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00,		

0.00, 0.00)

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

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	NETWORK OF TYPE	GRID-ID	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)
ALL	HIGH 1ST HIGH VALUE IS	0.04884	ON 13021419:		AT (598397.31, 4131551.13, 28.54, 28.54, 0.00) DC

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

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

** CONC OF PM_2.5 IN MICROGRAMS/M**3
**

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	0.02096b ON 12022724:	AT (598397.31, 4131551.13, 28.54, 28.54, 0.00)	DC	

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

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** 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 ***
****

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.7.0
** Lakes Environmental Software Inc.
** Date: 11/7/2019
** File: C:\Lakes\AERMOD View\Woz Way I-280 Operational TOG\Woz Way I-280
Operational TOG.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280 Operati
   MODELOPT DFAULT CONC
   AVERTIME 1 24 ANNUAL
   URBANOPT 1938000
   POLLUTID TOG
   RUNORNOT RUN
   ERRORFIL "Woz Way I-280 Operational TOG.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ------------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC I-280 Operational TOG
** PREFIX
** Length of Side = 51.00
** Configuration = Adjacent
** Emission Rate = 0.064134238
** Vertical Dimension = 1.02
** SZINIT = 0.47
** Nodes = 4
** 599104.788, 4131745.331, 30.75, 0.51, 23.72
```

```
** 598790.693, 4131564.675, 36.89, 0.51, 23.72
** 598248.724, 4131402.495, 26.39, 0.51, 23.72
** 597883.306, 4131314.220, 31.21, 0.51, 23.72
** ----------------------------------------------------------------------
   LOCATION L0000001     VOLUME   599082.683 4131732.617 30.70
   LOCATION L0000002     VOLUME   599038.474 4131707.190 30.36
   LOCATION L0000003     VOLUME   598994.265 4131681.763 30.36
   LOCATION L0000004     VOLUME   598950.056 4131656.335 30.04
   LOCATION L0000005     VOLUME   598905.847 4131630.908 36.04
   LOCATION L0000006     VOLUME   598861.638 4131605.480 36.14
   LOCATION L0000007     VOLUME   598817.429 4131580.053 37.04
   LOCATION L0000008     VOLUME   598771.382 4131558.896 36.58
   LOCATION L0000009     VOLUME   598722.523 4131544.276 36.52
   LOCATION L0000010     VOLUME   598673.663 4131529.655 35.68
   LOCATION L0000011     VOLUME   598624.804 4131515.034 29.15
   LOCATION L0000012     VOLUME   598575.945 4131500.413 29.51
   LOCATION L0000013     VOLUME   598527.085 4131485.793 29.42
   LOCATION L0000014     VOLUME   598478.226 4131471.172 29.33
   LOCATION L0000015     VOLUME   598429.367 4131456.551 29.83
   LOCATION L0000016     VOLUME   598380.507 4131441.930 29.66
   LOCATION L0000017     VOLUME   598331.648 4131427.309 27.67
   LOCATION L0000018     VOLUME   598282.789 4131412.689 27.77
   LOCATION L0000019     VOLUME   598233.713 4131398.869 26.18
   LOCATION L0000020     VOLUME   598184.139 4131386.893 26.51
   LOCATION L0000021     VOLUME   598134.565 4131374.917 26.31
   LOCATION L0000022     VOLUME   598084.991 4131362.942 28.61
   LOCATION L0000023     VOLUME   598035.417 4131350.966 27.51
   LOCATION L0000024     VOLUME   597985.843 4131338.990 28.60
   LOCATION L0000025     VOLUME   597936.269 4131327.014 28.90
   LOCATION L0000026     VOLUME   597886.695 4131315.039 31.42
** End of LINE VOLUME Source ID = SLINE1
** Source Parameters **
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0000001     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000002     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000003     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000004     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000005     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000006     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000007     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000008     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000009     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000010     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000011     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000012     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000013     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000014     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000015     0.0024667015      0.51     23.72      0.47
```

```
   SRCPARAM L0000016     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000017     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000018     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000019     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000020     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000021     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000022     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000023     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000024     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000025     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000026     0.0024667015      0.51     23.72      0.47
** ----------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "Woz Way I-280 Operational TOG.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE "\\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\724945.SFC"
   PROFFILE "\\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\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 "WOZ WAY I-280 OPERATIONAL TOG.AD\01H1GALL.PLT" 31
   PLOTFILE 24 ALL 1ST "WOZ WAY I-280 OPERATIONAL TOG.AD\24H1GALL.PLT" 32
   PLOTFILE ANNUAL ALL "WOZ WAY I-280 OPERATIONAL TOG.AD\AN00GALL.PLT" 33
   SUMMFILE "Woz Way I-280 Operational TOG.sum"
OU FINISHED
**
************************************
** Project Parameters
************************************
** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    World Geodetic System 1984
** DTMRGN   Global Definition
** UNITS    m
** ZONE     10
** ZONEINX  0
**
```

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.7.0
** Lakes Environmental Software Inc.
** Date: 11/7/2019
** File: C:\Lakes\AERMOD View\Woz Way I-280 Operational TOG\Woz Way I-280
Operational TOG.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280 Operati
   MODELOPT DFAULT CONC
   AVERTIME 1 24 ANNUAL
   URBANOPT 1938000
   POLLUTID TOG
   RUNORNOT RUN
   ERRORFIL "Woz Way I-280 Operational TOG.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC I-280 Operational TOG
** PREFIX
** Length of Side = 51.00
** Configuration = Adjacent
** Emission Rate = 0.064134238
** Vertical Dimension = 1.02
** SZINIT = 0.47
** Nodes = 4
** 599104.788, 4131745.331, 30.75, 0.51, 23.72
```

```
** 598790.693, 4131564.675, 36.89, 0.51, 23.72
** 598248.724, 4131402.495, 26.39, 0.51, 23.72
** 597883.306, 4131314.220, 31.21, 0.51, 23.72
** ----------------------------------------------------------------------
   LOCATION L0000001     VOLUME   599082.683 4131732.617 30.70
   LOCATION L0000002     VOLUME   599038.474 4131707.190 30.36
   LOCATION L0000003     VOLUME   598994.265 4131681.763 30.36
   LOCATION L0000004     VOLUME   598950.056 4131656.335 30.04
   LOCATION L0000005     VOLUME   598905.847 4131630.908 36.04
   LOCATION L0000006     VOLUME   598861.638 4131605.480 36.14
   LOCATION L0000007     VOLUME   598817.429 4131580.053 37.04
   LOCATION L0000008     VOLUME   598771.382 4131558.896 36.58
   LOCATION L0000009     VOLUME   598722.523 4131544.276 36.52
   LOCATION L0000010     VOLUME   598673.663 4131529.655 35.68
   LOCATION L0000011     VOLUME   598624.804 4131515.034 29.15
   LOCATION L0000012     VOLUME   598575.945 4131500.413 29.51
   LOCATION L0000013     VOLUME   598527.085 4131485.793 29.42
   LOCATION L0000014     VOLUME   598478.226 4131471.172 29.33
   LOCATION L0000015     VOLUME   598429.367 4131456.551 29.83
   LOCATION L0000016     VOLUME   598380.507 4131441.930 29.66
   LOCATION L0000017     VOLUME   598331.648 4131427.309 27.67
   LOCATION L0000018     VOLUME   598282.789 4131412.689 27.77
   LOCATION L0000019     VOLUME   598233.713 4131398.869 26.18
   LOCATION L0000020     VOLUME   598184.139 4131386.893 26.51
   LOCATION L0000021     VOLUME   598134.565 4131374.917 26.31
   LOCATION L0000022     VOLUME   598084.991 4131362.942 28.61
   LOCATION L0000023     VOLUME   598035.417 4131350.966 27.51
   LOCATION L0000024     VOLUME   597985.843 4131338.990 28.60
   LOCATION L0000025     VOLUME   597936.269 4131327.014 28.90
   LOCATION L0000026     VOLUME   597886.695 4131315.039 31.42
** End of LINE VOLUME Source ID = SLINE1
** Source Parameters **
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0000001     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000002     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000003     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000004     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000005     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000006     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000007     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000008     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000009     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000010     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000011     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000012     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000013     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000014     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000015     0.0024667015      0.51     23.72      0.47
```

```
   SRCPARAM L0000016     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000017     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000018     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000019     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000020     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000021     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000022     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000023     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000024     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000025     0.0024667015      0.51     23.72      0.47
   SRCPARAM L0000026     0.0024667015      0.51     23.72      0.47
** ----------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "Woz Way I-280 Operational TOG.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE "\\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\724945.SFC"
   PROFFILE "\\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\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 "WOZ WAY I-280 OPERATIONAL TOG.AD\01H1GALL.PLT" 31
   PLOTFILE 24 ALL 1ST "WOZ WAY I-280 OPERATIONAL TOG.AD\24H1GALL.PLT" 32
   PLOTFILE ANNUAL ALL "WOZ WAY I-280 OPERATIONAL TOG.AD\AN00GALL.PLT" 33
   SUMMFILE "Woz Way I-280 Operational TOG.sum"
OU FINISHED

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

 *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
Operational\Woz Way I-280 Operati ***        11/07/19
 *** AERMET - VERSION  14134 ***   ***
                       ***        13:31:44

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                                            ***     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 URBAN Dispersion Algorithm for the SBL for    26 Source(s),
   for Total of    1 Urban Area(s):
   Urban Population =   1938000.0 ;  Urban Roughness Length =  1.000 m

 **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.
        6. Urban Roughness Length of 1.0 Meter Assumed.

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

 **Model Assumes No FLAGPOLE Receptor Heights.
```

```
 **The User Specified a Pollutant Type of:  TOG

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

 **This Run Includes:     26 Source(s);       1 Source Group(s); and       9
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:     26 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.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out
```

**Detailed Error/Message File: Woz Way I-280 Operational TOG.err

**File for Summary of Results: Woz Way I-280 Operational TOG.sum

*** AERMOD - VERSION 18081 *** *** C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280 Operati *** 11/07/19
*** AERMET - VERSION 14134 *** *** 13:31:44

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** 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 BY	EMISSION RATE SCALAR VARY
L0000001	0	0.24667E-02	599082.7	4131732.6	30.7	0.51	23.72	0.47	YES	
L0000002	0	0.24667E-02	599038.5	4131707.2	30.4	0.51	23.72	0.47	YES	
L0000003	0	0.24667E-02	598994.3	4131681.8	30.4	0.51	23.72	0.47	YES	
L0000004	0	0.24667E-02	598950.1	4131656.3	30.0	0.51	23.72	0.47	YES	
L0000005	0	0.24667E-02	598905.8	4131630.9	36.0	0.51	23.72	0.47	YES	
L0000006	0	0.24667E-02	598861.6	4131605.5	36.1	0.51	23.72	0.47	YES	
L0000007	0	0.24667E-02	598817.4	4131580.1	37.0	0.51	23.72	0.47	YES	
L0000008	0	0.24667E-02	598771.4	4131558.9	36.6	0.51	23.72	0.47	YES	
L0000009	0	0.24667E-02	598722.5	4131544.3	36.5	0.51	23.72	0.47	YES	
L0000010	0	0.24667E-02	598673.7	4131529.7	35.7	0.51	23.72	0.47	YES	
L0000011	0	0.24667E-02	598624.8	4131515.0	29.2	0.51	23.72	0.47	YES	
L0000012	0	0.24667E-02	598575.9	4131500.4	29.5	0.51	23.72			

```
0.47     YES
 L0000013         0   0.24667E-02  598527.1 4131485.8    29.4     0.51    23.72
0.47     YES
 L0000014         0   0.24667E-02  598478.2 4131471.2    29.3     0.51    23.72
0.47     YES
 L0000015         0   0.24667E-02  598429.4 4131456.6    29.8     0.51    23.72
0.47     YES
 L0000016         0   0.24667E-02  598380.5 4131441.9    29.7     0.51    23.72
0.47     YES
 L0000017         0   0.24667E-02  598331.6 4131427.3    27.7     0.51    23.72
0.47     YES
 L0000018         0   0.24667E-02  598282.8 4131412.7    27.8     0.51    23.72
0.47     YES
 L0000019         0   0.24667E-02  598233.7 4131398.9    26.2     0.51    23.72
0.47     YES
 L0000020         0   0.24667E-02  598184.1 4131386.9    26.5     0.51    23.72
0.47     YES
 L0000021         0   0.24667E-02  598134.6 4131374.9    26.3     0.51    23.72
0.47     YES
 L0000022         0   0.24667E-02  598085.0 4131362.9    28.6     0.51    23.72
0.47     YES
 L0000023         0   0.24667E-02  598035.4 4131351.0    27.5     0.51    23.72
0.47     YES
 L0000024         0   0.24667E-02  597985.8 4131339.0    28.6     0.51    23.72
0.47     YES
 L0000025         0   0.24667E-02  597936.3 4131327.0    28.9     0.51    23.72
0.47     YES
 L0000026         0   0.24667E-02  597886.7 4131315.0    31.4     0.51    23.72
0.47     YES
 *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
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 *** AERMET - VERSION  14134 ***   ***
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                                  PAGE   3
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID                                          SOURCE IDs
 -----------                                          ----------


  ALL        L0000001    , L0000002    , L0000003    , L0000004    , L0000005    ,
L0000006    , L0000007    , L0000008    ,

             L0000009    , L0000010    , L0000011    , L0000012    , L0000013    ,
```

L0000014 , L0000015 , L0000016 ,

L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 ,

L0000025 , L0000026 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
	1938000.	L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 , L0000025 , L0000026 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

(598368.2, 4131587.8, 28.3, 28.3, 0.0); (598337.3, 4131551.1, 28.3, 28.3, 0.0);
(598357.3, 4131551.1, 28.1, 28.1, 0.0); (598377.3,

```
4131551.1,      28.2,      28.2,       0.0);
     ( 598397.3, 4131551.1,      28.5,      28.5,       0.0);         ( 598357.3,
4131571.1,      28.1,      28.1,       0.0);
     ( 598377.3, 4131571.1,      28.3,      28.3,       0.0);         ( 598397.3,
4131571.1,      28.5,      28.5,       0.0);
     ( 598397.3, 4131591.1,      28.5,      28.5,       0.0);

↑ *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
Operational\Woz Way I-280 Operati ***        11/07/19
 *** AERMET - VERSION  14134 ***   ***
                       ***        13:31:44

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                                            *** 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

                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,
↑ *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
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Woz Way I-280 Operational TOG.ADO
*** AERMET - VERSION 14134 *** ***
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

Surface file: \\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\724945.SFC Met Version: 14134
Profile file: \\orafp01\CA_ORA\ORA_AQN\097817008 - Woz Way\5 HRA\5.1 Data\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  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
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 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   *** 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    ,
```

L0000014 , L0000015 , L0000016 , L0000017 , L0000018
, L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026
,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
598368.23	4131587.82	0.57864	598337.31	4131551.13	0.70046
598357.31	4131551.13	0.73525	598377.31	4131551.13	0.77375
598397.31	4131551.13	0.81705	598357.31	4131571.13	0.63237
598377.31	4131571.13	0.66118	598397.31	4131571.13	0.69234
598397.31	4131591.13	0.60053			

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** 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 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018
, L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026
,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

```
                    **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - -
        598368.23   4131587.82        3.09021  (13021419)               598337.31
4131551.13        3.63493  (12020124)
        598357.31   4131551.13        3.79258  (12011521)               598377.31
4131551.13        3.99928  (09121919)
        598397.31   4131551.13        4.22722  (09121919)               598357.31
4131571.13        3.32727  (13021419)
        598377.31   4131571.13        3.45610  (12020124)               598397.31
4131571.13        3.60104  (12011521)
        598397.31   4131591.13        3.18450  (13021419)

 *** AERMOD - VERSION  18081 ***   *** C:\Lakes\AERMOD View\Woz Way I-280
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 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                               *** 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    ,
                  L0000014    , L0000015    , L0000016    , L0000017    , L0000018
, L0000019    , L0000020    , L0000021    ,
                  L0000022    , L0000023    , L0000024    , L0000025    , L0000026
,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - -
        598368.23   4131587.82        1.24286c (10122624)               598337.31
4131551.13        1.50436b (12022724)
        598357.31   4131551.13        1.58303b (12022724)               598377.31
```

4131551.13 1.67142b (12022724)
598397.31 4131551.13 1.77241b (12022724) 598357.31
4131571.13 1.35560b (12022724)
598377.31 4131571.13 1.42321b (12022724) 598397.31
4131571.13 1.49620b (12022724)
598397.31 4131591.13 1.29253b (12022724)

*** AERMOD - VERSION 18081 *** *** C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280 Operati *** 11/07/19
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

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

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.81705 AT (598397.31, 4131551.13, 28.54, 28.54, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.77375 AT (598377.31, 4131551.13, 28.19, 28.19, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.73525 AT (598357.31, 4131551.13, 28.13, 28.13, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.70046 AT (598337.31, 4131551.13, 28.31, 28.31, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.69234 AT (598397.31, 4131571.13, 28.51, 28.51, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.66118 AT (598377.31, 4131571.13, 28.29, 28.29, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.63237 AT (598357.31, 4131571.13, 28.07, 28.07, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.60053 AT (598397.31, 4131591.13, 28.48, 28.48, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.57864 AT (598368.23, 4131587.82, 28.27, 28.27, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00,		

0.00,   0.00)

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

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

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

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	1ST HIGH VALUE IS	4.22722	ON 09121919: AT (598397.31, 4131551.13, 28.54, 28.54, 0.00)	DC	

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

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

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

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

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	1.77241b ON 12022724:	AT (598397.31, 4131551.13, 28.54, 28.54, 0.00)	DC	

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

*** AERMOD - VERSION 18081 *** *** C:\Lakes\AERMOD View\Woz Way I-280 Operational\Woz Way I-280 Operati *** 11/07/19
*** AERMET - VERSION 14134 *** *** *** 13:31:44

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** 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 ***
**********************************
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