APPENDIX C

HEALTH RISK ASSESSMENT

Health Risk Assessment

1073-1087 South Winchester Boulevard Mixed Use Project

September 22, 2020

Prepared by

EMC Planning Group

HEALTH RISK ASSESSMENT

1073-1087 SOUTH WINCHESTER BOULEVARD MIXED USE PROJECT

PREPARED FOR

Cord Associates
Henry Cord
401 Fieldcrest Drive
San Jose, CA 95123
Tel 408.283.7292

PREPARED BY

EMC Planning Group Inc.
301 Lighthouse Avenue, Suite C
Monterey, CA 93940
Tel 831.649.1799
Fax 831.649.8399
Tanya Kalaskar, MS, Associate Planner
kalaskar@emcplanning.com
www.emcplanning.com

September 22, 2020

TABLE OF CONTENTS

Appendices

Figures

Tables

1.0 Introduction

1.1 PURPOSE

The purpose of this report is to address community health risk impacts associated with the proposed 1073-1087 S. Winchester Boulevard Mixed Use Project located in the City of San José. Construction activities associated with the project, including demolition of the existing uses at the site, would generate air pollutant emissions volumes, which were predicted using models. Community health risk assessments typically look at all substantial sources of toxic air contaminants (TACs) that can affect sensitive receptors located within 1,000 feet of a project site (i.e. influence area). These sources include rail lines, highways, busy surface streets, and stationary sources. The potential health risk impacts to nearby sensitive receptors from exposure to emissions generated by project demolition and construction activity were evaluated in combination with exposures to existing toxic air contaminant emissions from stationary sources and high-traffic volume roadways. The impact analysis is based on the guidance provided by the Bay Area Air Quality Management District (hereinafter "air district").

This introductory section provides a description of the project. Section 2 describes the existing environmental setting including air quality conditions, and the regulatory setting for addressing emissions-related health risks. Section 3 identifies thresholds of significance and describes the analysis methodology. Section 4 presents an assessment of project-related health risks related to emissions generated by construction of the project, and Section 5 identifies references cited and includes a list of persons who prepared this technical report.

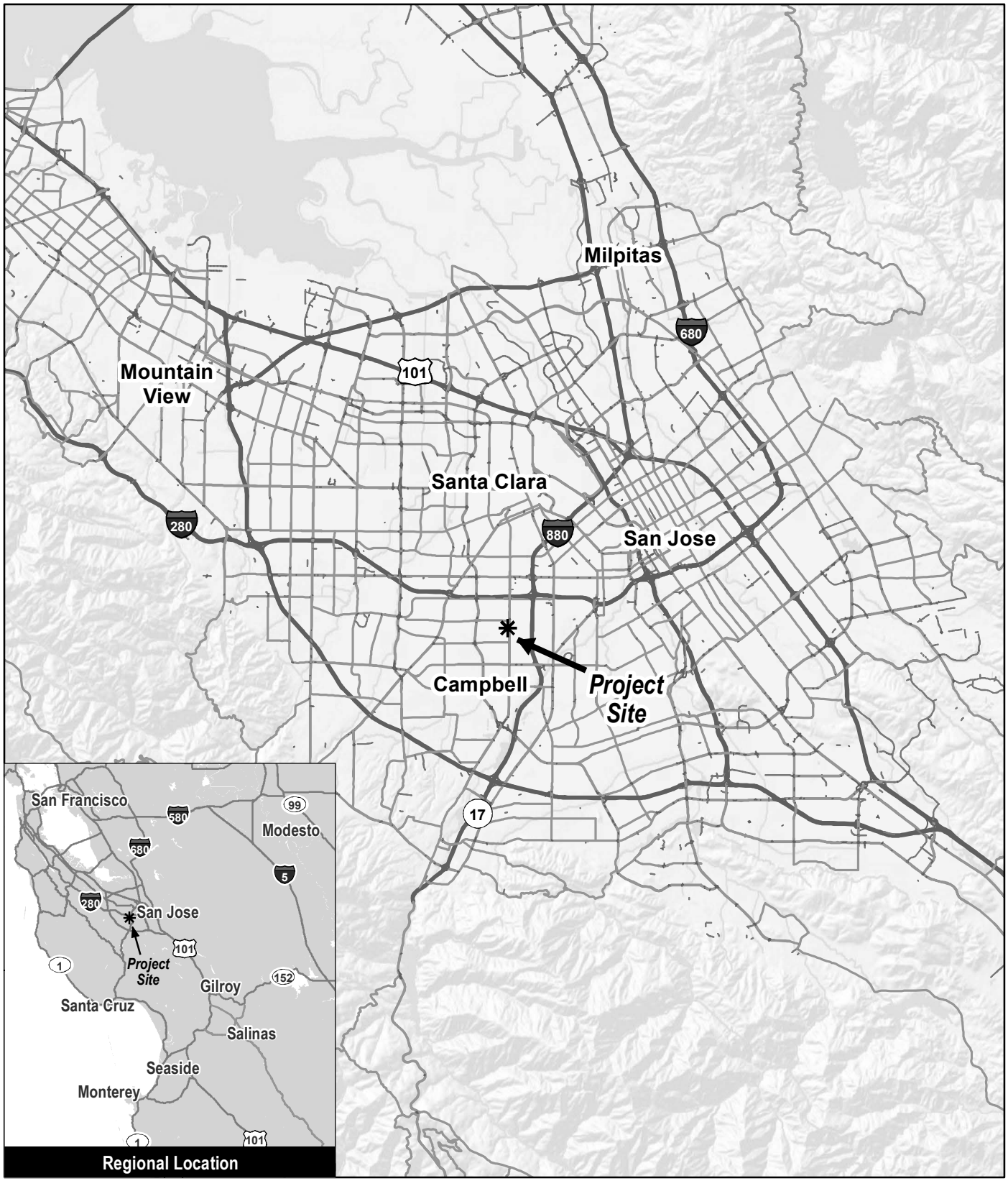
1.2 PROJECT DESCRIPTION

The proposed project is the demolition of existing office buildings and construction of a new six-story commercial and residential mixed-use building on a 0.79-acre project site located at 1073-1087 S. Winchester Boulevard in the City of San José. Figure 1-1, Location Map, presents the regional location of the project site.

The existing office buildings are 9,762 square feet and would be demolished. The proposed building would consist of up to 61 apartment units and 17,970 square feet of office uses in up to nine units. A residential lobby, gym, office lobby, three office units, and parking would be located on the ground floor. The second floor would include seven residential units, seating

areas, office lobby, and six office units. Floors three through six would consist of the remaining 54 residential units. A total of 115 vehicle parking spaces are provided. 36 parking spaces covering an area of 13,898 square feet would be tucked under the building on the ground floor. The remaining 79 parking spaces would be located in a 30,214 square foot underground parking garage.

Project demolition and construction activity is estimated to occur over a 20-month period. Grading for the proposed project includes excavation of 10,100 cubic yards of soil to accommodate the proposed underground parking garage and importing 400 cubic yards of fill. Approximately 9,700 cubic yards of excavated soils would be disposed of off-site.



0 2 miles

Source: ESRI 2014

Figure 1-1

Location Map

1073-1087 S. Winchester Blvd. Mixed Use - Health Risk Assessment

This side intentionally left blank.

2.0
Setting

2.1 ENVIRONMENTAL SETTING

Regional Climate and Topography

The project is located in Santa Clara County, which is in the San Francisco Bay Area Air Basin (air basin). The air basin encompasses all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and the southern portions of Solano and Sonoma counties.

The topography of the air basin is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys and bays. This complex terrain, especially the higher elevations, distorts the normal wind flow patterns in the air basin. The greatest distortion occurs when low-level inversions are present and the air beneath the inversion flows independently of air above the inversion, a condition that is common in the summer time.

The climate of the air basin is determined largely by a high-pressure system that is usually present over the eastern Pacific Ocean off the west coast of North America. During winter, the Pacific high-pressure system shifts southward, allowing more storms to pass through the region. During summer and early fall, when few storms pass through the region, emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone, and secondary particulates, such as nitrates and sulfates.

Temperature inversions can often occur during the summer and winter months. An inversion is a layer of warmer air over a layer of cooler air that traps and concentrates pollutants near the ground. As such, the highest air pollutant concentrations in the air basin generally occur during inversions (Bay Area Air Quality Management District 2017).

The project site is located in the Santa Clara Valley climatological subregion. The Santa Clara Valley subregion is bounded by the Bay to the north and by mountains to the east, south and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are fairly mild. At the northern end of the valley, mean maximum temperatures are in the low-80's degrees Fahrenheit (°F) during the summer and the high-50's °F during the winter, and mean minimum temperatures range from the high-50's °F in

the summer to the low-40's °F in the winter. Winds in the valley are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the valley's northwest-southeast axis. A north-northwesterly sea breeze flows through the valley during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. In the summer the southern end of the valley sometimes becomes a "convergence zone," when air flowing from the Monterey Bay gets channeled northward into the southern end of the valley and meets with the prevailing north-northwesterly winds. Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are quite breezy. Strong winds are rare, associated mostly with the occasional winter storm (Bay Area Air Quality Management District 2017).

The air pollution potential of the Santa Clara Valley is high. High summer temperatures, stable air and mountains surrounding the valley combine to promote ozone formation. In addition to the many local sources of pollution, ozone precursors from San Francisco, San Mateo and Alameda counties are carried by prevailing winds to the Santa Clara Valley. The valley tends to channel pollutants to the southeast. In addition, on summer days with low level inversions, ozone can be recirculated by southerly drainage flows in the late evening and early morning and by the prevailing north-westerly winds in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of carbon monoxide and particulate matter. This movement of the air up and down the valley increases the impact of the pollutants significantly (Bay Area Air Quality Management District 2017).

Air Pollutants of Concern

The air basin is currently designated as a non-attainment area for state and national ozone standards, for state and national fine particulate matter ($PM_{2.5}$) standards, and state respirable particulate matter (PM_{10}) standards.

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

Particulate matter is another problematic air pollutant in the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less or PM_{10} and fine particulate matter where particles have a diameter of 2.5 micrometers or less $PM_{2.5}$. Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High

particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

TACs have the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure or acute (short-term) and/or chronic (long-term) non-cancer health effects. Examples of TACs include certain aromatic and chlorinated hydrocarbons, diesel particulate matter (DPM), certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and non-carcinogenic effects. Non-carcinogenic effects typically affect one or more target organ systems and may be experienced through either acute or chronic exposure to a given TAC.

Construction activity on the project site would generate emissions of TACs from equipment and trucks that could affect nearby sensitive receptors. The project site is located close to two high volume roadways: S. Winchester Boulevard and Williams Road (Illingworth and Rodkin 2020). Typically, for residential projects located near high-volume roadways, the primary TAC of concern with non-cancer health effects is DPM. Vehicle traffic on S. Winchester Boulevard and Williams Road would generate DPM volumes that could negatively affect the health of nearby sensitive receptors.

Construction Emissions

Construction emissions are typically generated by the use of heavy equipment, the transport of materials, and construction employee commute trips. Construction-related emissions consist primarily of ROG, NO_X, carbon monoxide, and particulate matter (PM_{10} and $PM_{2.5}$). Emissions of ROG, NO_X, carbon monoxide, and exhaust particulate matter are generated primarily by the operation of gas and diesel-powered motor vehicles, asphalt paving activities, and the application of architectural coatings. Fugitive particulate matter emissions are generated primarily by wind erosion of exposed graded surfaces.

Stationary Source Emissions

A stationary source consists of a single emission source with an identified emission point, such as a stack at an industrial facility. Facilities can have multiple emission point sources located on-site and sometimes the facility as a whole is referred to as a stationary source. Examples of air district-permitted stationary sources include refineries, gasoline dispensing stations, dry cleaning establishments, back-up diesel generators, boilers, heaters, flares,

cement kilns, and other types of combustion equipment, as well as non-combustion sources such as coating or printing operations.

According to the air district's Permitted Stationary Source Risks and Hazards geographic information systems (GIS) map tool, one stationary source is located within 1,000 feet of the project site. The stationary source is a gasoline dispensing station located at 1025 S. Winchester Boulevard in San José, approximately 500 feet to the north of the project site.

Sensitive Receptors

There are groups of people more affected by air pollution than others. Children, the elderly, and people with illnesses are especially vulnerable to the effects of air pollution. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer-causing TACs. Residential locations are assumed to include infants and small children.

The closest sensitive receptors to the project site are single-family homes adjacent to the western boundary of the project site (Google, Inc. 2020). There are additional residences to the north, east, and northeast of the project site. In addition, the Caring Hearts Senior Care Home is located in the vicinity of the project site. The project will also introduce new sensitive receptors (residents) to the area.

2.2 Regulatory Setting

Federal

United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) was established on December 2, 1970 to create a single agency that covered several agency concerns: federal research, monitoring, standard-setting and enforcement.

The EPA regulates diesel engine design and has implemented a series of measures since 1996 to reduce NO_x and particulate emissions from off-road and highway diesel equipment. EPA Tier 1 non-road diesel engine standards were introduced in 1996, Tier 2 in 2001, Tier 3 in 2006, with final Tier 4 in 2014 (DieselNet 2017). Table 2-1, Typical Non-road Engine Emissions Standards, compares emissions standards for NO_x and particulate matter from non-road engine Tier 1 through Tier 4 for typical engine sizes. As illustrated in the table, emissions for these pollutants have decreased significantly for construction equipment manufactured over the past 20 years, and especially for construction equipment manufactured in the past five years.

Table 2-1 Typical Non-road Engine Emissions Standards

Engine Tier and Year Introduced	NO_X Emissions[1]			Particulate Emissions[1]		
	100-175 HP	175-300 HP	300-600 HP	100-175 HP	175-300 HP	300-600 HP
Tier 1 (1996)	6.90	6.90	6.90	--	0.40	0.40
Tier 2 (2001)	--[2]	--[2]	--[2]	0.22	0.15	0.15
Tier 3 (2006)	--[2]	--[2]	--[2]	-- †[3]	-- †[3]	-- †[3]
Tier 4 (2014)	0.30	0.30	0.30	0.015	0.015	0.015

SOURCE: DieselNet 2017

NOTES:

1. Expressed in g/bhp-hr, where g/bhp-hr stands for grams per brake horsepower-hour.
2. Tier 1 standards for NO_X remained in effect.
3. † - Not adopted, engines must meet Tier 2 PM standard.

State

California Air Resources Board

The California Air Resources Board (CARB) oversees regional air district activities and regulates air quality at the state level. CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways.

California Air Toxics Program

The Toxic Air Contaminant Identification and Control Act of 1983 or Assembly Bill 1807 established the California Air Toxics Program that was designed to reduce exposure to air toxics. The program involves a two-step process: risk identification and risk management. In the risk identification step, upon CARB's request, the Office of Environmental Health Hazard Assessment evaluates the health effects of substances other than pesticides and their pesticidal uses. Substances with the potential to be emitted or are currently being emitted into the ambient air may be identified as a TAC. Once a substance is identified as a TAC, and with the participation of local air districts, industry, and interested public, CARB prepares a report that outlines the need and degree to regulate the TAC through a control measure (California Air Resources Board 2020a).

The Air Toxics Hot Spots Information and Assessment Act or AB 2588 was enacted in 1987, and requires stationary sources to report the types and quantities of certain substances their facilities routinely release into the air. The goals of AB 2588 are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby

residents of significant risks, and to reduce those significant risks to acceptable levels (California Air Resources Board 2020b).

Truck and Bus Regulation

As heavy-duty on-road vehicles are a significant source of TACs, the Truck and Bus Regulation is one of the most far-reaching and important tools to reduce smog-forming and toxic emissions and protect public health in disadvantaged communities. The Truck and Bus Regulation requires all trucks and buses, by January 1, 2023, to have 2010 or newer model year engines to reduce DPM and NO_X emissions (California Air Resources Board 2020c). To help ensure that the benefits of this regulation are achieved, starting January 1, 2020, only vehicles compliant with this regulation will be registered by the California Department of Motor Vehicles.

In-Use Off-Road Diesel Vehicle Regulation

The goal of the In-Use Off-Road Diesel-Fueled Fleets Regulation is to reduce DPM and NO_X emissions from in-use (existing) off-road heavy-duty diesel vehicles in California (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.) (California Air Resources Board 2020d). This regulation applies to all diesel-powered off-road vehicles with engines 25 horsepower or greater. The regulations are intended to reduce DPM and NO_X exhaust emissions by requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet averaged emission rates.

Regional/Local

Bay Area Air Quality Management District

The air district is charged with regulatory authority over stationary sources of air emissions, monitoring air quality within the air basin, providing guidelines for analysis of air quality impacts pursuant to California Environmental Quality Act (CEQA), and preparing an air quality management plan to maintain or improve air quality in the air basin. The air district's *2017 CEQA Air Quality Guidelines* (2017 CEQA Guidelines) contain instructions on how to evaluate, measure, and mitigate air quality impacts generated from land development construction and operation activities.

San José 2040 General Plan

The *Envision San José 2040 General Plan* includes goals, policies, and actions to reduce exposure of the City's sensitive population to exposure of air pollution and TACs. The following goals, policies, and actions are applicable to the proposed project:

Goal MS-10: Minimize emissions from new development.

Policy MS-10.1 Assess projected air emissions from new development in conformance with BAAQMD CEQA Guidelines and relative to state and federal standards. Identify and implement feasible air emission reduction measures.

Policy MS-10.2 Consider the cumulative air quality impacts from proposed developments for proposed land use designation changes and new development, consistent with the region's Clean Air Plan and state law.

Policy MS-10.3 Promote the expansion and improvement of public transportation services and facilities, where appropriate, to both encourage energy conservation and reduce air pollution.

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

Policy MS-11.2 For projects that emit toxic air contaminants, require project proponents to prepare health risk assessments in accordance with BAAQMD-recommended procedures as part of environmental review and employ effective mitigation to reduce possible health risks to a less than significant level. Alternatively, require new projects (such as, but not limited to, industrial, manufacturing, and processing facilities) that are sources of TACs to be located an adequate distance from residential areas and other sensitive receptors.

Policy MS-11.5 Encourage the use of pollution absorbing trees and vegetation in buffer areas between substantial sources of TACs and sensitive land uses.

This side intentionally left blank.

3.0
Significance Criteria and Methodology

3.1 BAAQMD Significance Thresholds

The air district's 2017 CEQA Guidelines provide cancer and non-cancer thresholds to establish the level at which TACs would cause significant health risks in sensitive receptors. A summary of the air district's community risk significance thresholds is presented in Table 3-1, Bay Area Air Quality Management District Community Risk Significance Thresholds.

Table 3-1 Bay Area Air Quality Management District Community Risk Significance Thresholds

Pollutant	Construction	Operational
Risk and Hazards for new sources and receptors (Individual Project)	Same as Operational Thresholds	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >10.0 in a million Increased non-cancer risk of >1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase >0.3 micrograms per cubic meter ($\mu g/m^3$) annual average Zone of Influence: 1,000-foot radius from property line of source or receptor
Risk and Hazards for new sources and receptors (Cumulative Threshold)	Same as Operational Thresholds	Compliance with Qualified Community Risk Reduction Plan OR Cancer risk of >100 in a million (from all local sources) Noncancer risk of >10.0 Hazard Index (chronic, from all local sources) Ambient $PM_{2.5}$ >0.8 $\mu g/m^3$ annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or receptor

SOURCE: Bay Area Air Quality Management District 2017

3.2 METHODOLOGY AND APPROACH

CalEEMod Modeling

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions from construction of the site assuming full build-out of the project. The model output from CalEEMod is included as Appendix A.

CalEEMod provided annual emissions for both on- and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. CalEEMod defaults were used for the equipment types, quantity, and usage. Based on information provided by the project applicant, construction would begin in April 2022 and last 20 months. The default construction schedule in CalEEMod was adjusted to last 20 months. The proposed project land uses and demolition/earthwork volumes were modeled as follows:

- Mixed-use building with 17,970 square feet entered as "General Office Building" and 61 units totaling 100,733 square feet entered as "Apartments Mid-Rise";
- 115 parking spaces totaling 44,112 square feet entered as "Enclosed Parking with Elevator";
- 2,600 square feet of sidewalk entered as "Other Non-Asphalt Surfaces";
- 4,409 square feet of landscaping entered as "Other Non-Asphalt Surfaces";
- 9,700 cubic yards of soil export during grading; and
- 9,762 square feet of existing building demolition.

CalEEMod estimated total annual exhaust PM_{10} emissions (assumed to be DPM) from the off-road construction equipment and on-road vehicles for the overall construction period at 0.0715 tons per year. The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ emissions were calculated by CalEEMod as 0.00854 tons per year for the overall construction period.

Dispersion Modeling

For short-term construction, a dispersion modeling analysis was conducted of DPM emitted from diesel vehicles and construction equipment on the proposed project site for the health risk assessment to assess the health risk impacts of the project's construction on nearby off-site sensitive receptors. The dispersion modeling was performed using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD),

which is an air district-recommended model for modeling atmospheric dispersion of emissions. Principal parameters of AERMOD for the project included the following:

- The 5-year meteorological data set (2013-2017) from the San José International Airport provided by the air district;
- Construction emissions were modeled as occurring daily between 7:00 a.m. to 4:00 p.m. from Monday through Friday;
- Combustion equipment exhaust emissions (DPM) were modeled as an area source with an emission release height of 6 meters. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases;
- Construction fugitive dust emissions ($PM_{2.5}$) were modeled as an area source with a near-ground level release height of 2 meters; and
- Receptor height of 1.5 meters were used to represent the breathing heights of residents in the nearby homes and senior care home.

Health Risk Calculations

The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) have developed recommended methods for conducting health risk assessments. The *Air Toxics Hot Spots Program Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments* (2015 risk assessment guidelines) published in February 2015 are the most recent OEHHA risk assessment guidelines. These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. The air district has adopted recommended procedures for applying the 2015 risk assessment guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants. Exposure parameters from OEHHA's 2015 risk assessment guidelines and the *BAAQMD Air Toxics NSR Program Health Risk Assessment Guidelines* were used in this report.

Cancer Risk

Potential increased cancer risk from inhalation of TACs are calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency and duration of exposure. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The 2015 risk assessment guidelines recommend that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASF) associated with the different types of exposure include: ASF of 10 for the third trimester and infant exposures, ASF of 3 for a child exposure, and ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day). As recommended by the air district for residential exposures, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, the air district recommends using the 95th percentile breathing rates. Additionally, CARB and the air district recommend the use of a residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the air district.

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

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

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 106

Where;

CPF is Cancer potency factor $(mg/kg\text{-}day)^{-1}$;

ASF is Age sensitivity factor for specified age group;

ED is Exposure duration (years);

AT is Averaging time for lifetime cancer risk (years);

FAH is Fraction of time spent at home (unitless); and

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

Where;

C_{air} is Concentration in air ($\mu g/m^3$);

DBR is Daily breathing rate (L/kg body weight-day);

A is Inhalation absorption factor;

EF is Exposure frequency (days/year); and

10^{-6} is Conversion factor.

A summary of the health risk parameters used in this evaluation are presented in Table 3-2, Health Risk Parameters.

Table 3-2 Health Risk Parameters

Parameter	Exposure Type →	Infant		Child		Adult
	Age Range →	3rd Trimester	0<2	2<9	9<16	16-30
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80th Percentile Rate		273	758	631	572	261
Daily Breathing Rate (L/kg-day) 95th Percentile Rate		361	1,090	861	745	335
Inhalation Absorption Factor		1	1	1	1	1
Averaging Time (years)		70	70	70	70	70
Exposure Duration (years)		0.25	2	14	14	14
Exposure Frequency (days/year)		350	350	350	350	350
Age Sensitivity Factor		10	10	3	3	1
Fraction of Time at Home		0.85-1.0	0.85-1.0	0.72-1.0	0.72-1.0	0.73

SOURCES: Bay Area Air Quality Management District 2016 and Office of Environmental Health Hazard Assessment 2015.

Non-Cancer Hazards

Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index, which is the ratio of the TAC concentration to a reference exposure level. OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the reference exposure level are not expected to cause adverse health impacts, even for sensitive individuals. The total hazard index is calculated as the sum of the hazard indexes for each TAC evaluated and the total hazard index is compared to the air district's significance thresholds to determine whether a significant non-cancer health impact from a project would occur. Typically, for residential projects located near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is DPM. For DPM, the chronic inhalation reference exposure level is 5 $\mu g/m^3$.

Annual $PM_{2.5}$ Concentrations

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

4.0
Analysis

4.1 CONSTRUCTION HEALTH RISKS

Impact

The maximum modeled annual DPM and $PM_{2.5}$ concentrations, which includes both the DPM and fugitive $PM_{2.5}$ concentrations at nearby sensitive receptors, were used to identify the maximally exposed individuals (MEIs). Results of the dispersion modeling indicate that the construction residential MEI for cancer risks is located at an apartment southeast of the project site, across from S. Winchester Boulevard. The MEI for $PM_{2.5}$ concentration would occur at the single-family home adjacent to the project site to the northwest. Additional modeling was conducted to predict the health risks associated with construction activities at the nearby senior care home. Figure 4-1, Location of Off-Site Sensitive Receptors, presents the location of the residential MEIs and the senior care home.

The maximum cancer risks, $PM_{2.5}$ concentrations, and hazard index for project-related construction activities affecting the residential MEIs and the senior care home are summarized in Table 4-1, Unmitigated Construction Health Risks at Off-site Sensitive Receptors. Detailed health risk calculations are included in Appendix B.

Table 4-1 Unmitigated Construction Health Risks at Off-site Sensitive Receptors[1]

Receptors	Cancer Risk (per million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)	Hazard Index
Maximally Exposed Individuals (MEIs)[2,3]	129.43 (infant)	0.65	0.08
Air District Single-Source Threshold	10.0	0.30	1.0
Exceeds Thresholds?	*Yes*	*Yes*	*No*
Senior Care Home	0.28 (adult)	0.06	0.01
Air District Single-Source Threshold	10.0	0.30	1.0
Exceeds Thresholds?	*No*	*No*	*No*

SOURCES: EMC Planning Group 2020 and Bay Area Air Quality Management District 2017.
NOTES:
1. Results have been rounded, and may, therefore, vary slightly.
2. The MEI for cancer risk is an apartment located to the southeast of the project site. The UTM coordinates of this MEI are 593079.50 meters Easting and 4129428.70 meters Northing (Refer to Figure 4-1).
3. The MEI for $PM_{2.5}$ concentration is a single-family home located to the northwest of the project site. The UTM coordinates of this MEI are 592931.30 meters Easting and 4129513.40 meters Northing (Refer to Figure 4-1).

According to the model results, the maximum increased cancer risks and $PM_{2.5}$ concentrations at the residential MEIs would exceed BAAQMD's threshold of significance, resulting in a potentially significant air quality impact. Mitigation is required for this impact. However, the hazard index for the residential MEIs would remain below the air district threshold. Therefore, impacts from the increase in the hazard index would be less than significant. Further, cancer risks, $PM_{2.5}$ concentrations, and the hazard index at the senior care home would be below air district thresholds and, therefore; the impacts to these senior receptors would be less than significant.

Mitigation Measures

The following mitigation measures would reduce the cancer risks and $PM_{2.5}$ concentration at the residential MEIs.

Mitigation Measures

AQ-1 During construction, the project contractor shall implement the following measures to reduce emissions of fugitive and exhaust particulate matter, subject to review and approval by the City of San José Planning Director:

a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered three times a day and at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe;

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

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

d. All vehicle speeds on unpaved roads shall be limited to 15 mph;

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

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

Source: ESRI 2020, Google Earth 2018, Monterey County GIS 2016

Figure 4-1

Location of Off-Site Sensitive Receptors

1073-1087 S. Winchester Blvd. Mixed Use - Health Risk Assessment

This side intentionally left blank.

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

h. Post a publicly visible sign with the telephone number and person to contact at the City of San José regarding dust complaints. This person shall respond and take corrective action within 48 hours. The air district's phone number shall also be visible to ensure compliance with applicable regulations;

AQ-2 The project developer shall prepare and the project contractor shall implement a plan to reduce construction particulate matter exhaust emissions by at least 94 percent. The plan shall be prepared prior to the issuance of a demolition or grading permit and shall be reviewed and approved by the City of San José Planning Director and may include the following measures:

a. All construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet EPA tier 4 emission standards for particulate matter; or

   i. Use equipment with engines that meet EPA Tier 3 standards equipped with CARB-certified Level 3 Diesel Particulate Filters that altogether achieve a 94 percent reduction in particulate matter exhaust in comparison to uncontrolled equipment; and/or

   ii. Use of alternatively fueled equipment or equipment with zero emissions (i.e. electrical equipment); and/or

   iii. Provide line power to the site during the early phases of construction to minimize the use of diesel-powered stationary equipment, such as generators.

b. The plan shall utilize the above measures or equivalent measures, and must demonstrate that particulate matter exhaust emissions would be reduced by at least 94 percent, and any alternative measures shall be subject to review and approval of the City of San José Planning Director, prior to issuance of grading permits.

The maximum cancer risks, $PM_{2.5}$ concentrations, and hazard index for project-related construction activities affecting the residential MEIs and the senior care home with implementation of mitigation measures AQ-1 and AQ-2 presented above are summarized in Table 4-2, Mitigated Construction Health Risks at Off-site Sensitive Receptors.

Table 4-2 Mitigated Construction Health Risks at Off-site Sensitive Receptors[1,2]

Receptors	Cancer Risk (per million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)	Hazard Index
Maximally Exposed Individuals (MEIs)	7.52 (infant)	0.18	<0.01
Air District Single-Source Threshold	10.0	0.30	1.0
Exceeds Thresholds?	*No*	*No*	*No*
Senior Care Home	0.02 (adult)	0.01	<0.01
Air District Single-Source Threshold	10.0	0.30	1.0
Exceeds Thresholds?	*No*	*No*	*No*

SOURCES: EMC Planning Group 2020 and Bay Area Air Quality Management District 2017.
NOTES:
1. Results have been rounded, and may, therefore, vary slightly.
2. Includes reductions due to implementation of mitigation measures AQ-1 and AQ-2.

Conclusion

Mitigation measures AQ-1 and AQ-2 require that the project contractor ensure best management practices are implemented to reduce emissions of fugitive and exhaust particulate matter and implement a plan to reduce construction particulate matter exhaust emissions by at least 94 percent. These conditions would need to be satisfied prior to issuance of grading permits. Implementation of mitigation measures AQ-1 and AQ-2 would reduce the cancer risks and $PM_{2.5}$ concentrations at off-site sensitive receptors during project construction to a less-than-significant level.

4.2 Cumulative Health Risks

Impact

A review of the project influence area indicates that the average daily traffic (ADT) on S. Winchester Boulevard and Williams Road would exceed 10,000 vehicles. Other nearby streets are assumed to have less than 10,000 vehicles per day. A review of the air district's Permitted Stationary Source Risks and Hazards GIS map tool identified one stationary source with the potential to affect the residential MEIs. Figure 4-2, TAC Sources Near the Project Site, shows the location of sources affecting the project site and MEIs.

Local Roadways

Illingworth and Rodkin prepared the *1073 S. Winchester Boulevard, San José, CA – Air Quality Roadway Assessment* (roadway assessment) to analyze potential health impacts from vehicle traffic on S. Winchester Boulevard and Williams Road. The roadway assessment involved predicting emissions for the traffic volume and mix of vehicle types on the roadways near

Source: ESRI 2020, Google Earth 2018, Monterey County GIS 2016

Figure 4-2

TAC Sources Near the Project Site

1073-1087 S. Winchester Blvd. Mixed Use - Health Risk Assessment

This side intentionally left blank.

the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks were then computed based on the modeled exposures. The roadway assessment is included as Appendix C.

Table 4-3, Roadway Health Risks at Construction MEIs, summarizes the health risks from S. Winchester Boulevard and Williams Road at the construction MEIs.

Table 4-3 Roadway Health Risks at Construction MEIs

Sources	Cancer Risk (per million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)	Hazard Index
S. Winchester Blvd. (24,470 ADT)	4.4	0.07	<0.01
Williams Road (10,820 ADT)	0.3	0.03	<0.01

SOURCE: Illingworth and Rodkin 2020

Air District Permitted Stationary Sources

Permitted stationary sources of TACs near the project site were identified using the air district's Permitted Stationary Source Risks and Hazards GIS map tool. This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts. According to the mapping tool, the gasoline dispensing station (Shell, Facility ID: 112466) at 1025 S. Winchester Boulevard is the only permitted stationary source located within a 1,000-foot radius of the project site. The gasoline dispensing station is located at a distance of approximately 623 feet or 190 meters from the construction residential MEI for cancer risks.

A Stationary Source Data Request Form was prepared and submitted to the air district. In response, the air district provided updated emissions data for the gasoline dispensing station. The updated emissions data was input into the air district Risk and Hazards Emissions Screening Calculator. The air district Risk and Hazards Emissions Screening Calculator is designed to estimate screen-level cancer risk, $PM_{2.5}$ concentrations, and health hazard index. Results of the screening calculator indicate that the maximum cancer risk associated with the gasoline dispensing station would be 0.021 cases per million. Both the $PM_{2.5}$ concentration and hazard index were found to be zero.

The mapping tool results, data request form, emissions data, and screening calculator are included as Appendix D.

Cumulative Sources

The cumulative community risk impacts at the sensitive receptors most affected by construction (i.e. the construction MEIs) are summarized in Table 4-4, Cumulative Heath Risks at Construction MEIs.

Table 4-4 Cumulative Health Risks at Construction MEIs

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)	Hazard Index
Project Construction (Unmitigated)	129.43 (infant)	0.65	0.08
Project Construction (Mitigated)[2]	7.52 (infant)	0.18	<0.01
S. Winchester Blvd. (24,470 ADT)	4.4	0.07	<0.01
Williams Road (10,820 ADT)	0.3	0.03	<0.01
Shell Gas Station (Facility ID: 112466)	0.02	0.00	0.00
Cumulative (Unmitigated)	134.15	0.75	0.08
Cumulative (Mitigated)[2]	12.24	0.28	<0.01
Air District Cumulative-Source Threshold	100.0	0.80	10.0
Exceeds Thresholds? (Unmitigated)	*Yes*	*No*	*No*
Exceeds Thresholds? (Mitigated)	*No*	*No*	*No*

SOURCE: EMC Planning Group 2020, Illingworth and Rodkin 2020.
NOTES:
1. Results have been rounded, and may, therefore, vary slightly.
2. Includes reductions due to implementation of mitigation measures AQ-1 and AQ-2.

As seen in Table 4-3, unmitigated cumulative sources would result in maximum cancer of 134.15 per million, $PM_{2.5}$ concentration of 0.75 $\mu g/m^3$, and hazard index of 0.08. Without mitigation, the project would exceed the air district's cumulative thresholds for cancer risks. Implementation of mitigation measures AQ-1 and AQ-2 would reduce the maximum cancer risk to 12.24 cases per million, $PM_{2.5}$ concentration to 0.28 $\mu g/m^3$, and hazard index to less than 0.01.

Conclusion

With the implementation of mitigation measures AQ-1 and AQ-2, the project's cumulative risks would be reduced to below air district's cumulative-source thresholds, resulting in a less than cumulatively considerable impact.

5.0
Sources

Bay Area Air Quality Management District. "Permitted Stationary Sources Risk and Hazards." Last modified March 16, 2020. https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

———. May 2017. *California Environmental Quality Act Air Quality Guidelines*. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

———. December 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment Guidelines*. https://www.baaqmd.gov/~/media/files/planning-and-research/permit-modeling/hra_guidelines_12_7_2016_clean-pdf.pdf?la=en

———. April 3, 2020. *BAAQMD Risks and Hazards Emissions Screening Calculator*. Appendix D.

California Air Resources Board. "AB 1807 – Toxics Air Contaminant Identification and Control." Accessed September 15, 2020a. https://ww2.arb.ca.gov/resources/documents/ab-1807-toxics-air-contaminant-identification-and-control

———. "Air Toxics Hot Spots Information and Assessment Act (AB 2588)." Accessed September 15, 2020b. https://ww2.arb.ca.gov/resources/documents/air-toxics-hot-spots-information-and-assessment-act-ab-2588

———. "Truck and Bus Regulation." Accessed September 15, 2020c. https://ww2.arb.ca.gov/our-work/programs/truck-and-bus-regulation/about

———. "In-Use Off-Road Diesel-Fueled Fleets Regulation." Accessed September 15, 2020d. https://ww2.arb.ca.gov/our-work/programs/use-road-diesel-fueled-fleets-regulation

City of San José. November 1, 2011. *Envision San José 2040 General Plan*. San José, CA. https://www.sanjoseca.gov/home/showdocument?id=22359

DieselNet. "United States: Nonroad Diesel Engines." Last modified December 2017. https://www.dieselnet.com/standards/us/nonroad.php

EMC Planning Group. August 11, 2020. *CalEEMod Results*. Appendix A.

Google, Inc. 2020. Google Earth.

Illingworth and Rodkin. September 17, 2020. *1073 S. Winchester Boulevard, San José, CA – Air Quality Roadway Assessment*. Cotati, CA. Appendix C.

Office of Environmental Health Hazard Assessment (OEHHA). February 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*. https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

APPENDIX A

CalEEMod Results

Winchester Blvd Mixed Use_Proposed - Bay Area AQMD Air District, Annual

Winchester Blvd Mixed Use_Proposed

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	17.97	1000sqft	0.00	17,970.00	0
Enclosed Parking with Elevator	115.00	Space	0.63	44,112.00	0
Other Non-Asphalt Surfaces	2.60	1000sqft	0.06	2,600.00	0
Other Non-Asphalt Surfaces	4.41	1000sqft	0.10	4,409.00	0
Apartments Mid Rise	61.00	Dwelling Unit	0.00	100,733.00	174

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted PG&E CO2 Intensity Factor for 2020

Land Use - from site plans
zero out acreage of residential and office component so as to not over calculate construction emissions. Adjusted acreage of parking because site is 0.79
Construction Phase - adjusted for 20-month construction period

Trips and VMT - 1 mile nearby TAC

Demolition - demolition of existing buildings

Grading - Cut = 10,100 CY, Fill = 400 CY, Export = 9,700 CY

Vehicle Trips - trip rates adjusted per traffic consultant

Energy Use -

Land Use Change -

Sequestration - net new trees planted = 62

Construction Off-road Equipment Mitigation - Tier 4 engines, basic construction MMs

Area Mitigation -

Energy Mitigation - adjusted to account for 2019 BEES

Water Mitigation - Adjusted for MWELO

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	100.00	350.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblGrading	AcresOfGrading	5.00	0.50
tblGrading	MaterialExported	0.00	9,700.00
tblLandUse	LandUseSquareFeet	46,000.00	44,112.00
tblLandUse	LandUseSquareFeet	4,410.00	4,409.00
tblLandUse	LandUseSquareFeet	61,000.00	100,733.00
tblLandUse	LotAcreage	0.41	0.00
tblLandUse	LotAcreage	1.03	0.63
tblLandUse	LotAcreage	1.61	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblSequestration	NumberOfNewTrees	0.00	62.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	1,213.00	1,212.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00

tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblVehicleTrips	ST_TR	6.39	5.44
tblVehicleTrips	ST_TR	2.46	9.74
tblVehicleTrips	SU_TR	5.86	5.44
tblVehicleTrips	SU_TR	1.05	9.74
tblVehicleTrips	WD_TR	6.65	5.44
tblVehicleTrips	WD_TR	11.03	9.74

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0758	0.8259	0.7535	1.3600e-003	0.0189	0.0355	0.0545	6.5600e-003	0.0329	0.0395	0.0000	121.2646	121.2646	0.0312	0.0000	122.0435
2023	0.8943	0.8215	0.8701	1.5100e-003	7.2600e-003	0.0360	0.0432	1.9800e-003	0.0332	0.0352	0.0000	133.1215	133.1215	0.0371	0.0000	134.0500
Maximum	**0.8943**	**0.8259**	**0.8701**	**1.5100e-003**	**0.0189**	**0.0360**	**0.0545**	**6.5600e-003**	**0.0332**	**0.0395**	**0.0000**	**133.1215**	**133.1215**	**0.0371**	**0.0000**	**134.0500**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0314	0.5822	0.8318	1.3600e-003	0.0117	1.9700e-003	0.0137	3.8200e-003	1.9600e-003	5.7800e-003	0.0000	121.2645	121.2645	0.0312	0.0000	122.0434
2023	0.8485	0.6072	0.9569	1.5100e-003	7.2600e-003	2.1900e-003	9.4500e-003	1.9800e-003	2.1900e-003	4.1700e-003	0.0000	133.1214	133.1214	0.0371	0.0000	134.0498
Maximum	**0.8485**	**0.6072**	**0.9569**	**1.5100e-003**	**0.0117**	**2.1900e-003**	**0.0137**	**3.8200e-003**	**2.1900e-003**	**5.7800e-003**	**0.0000**	**133.1214**	**133.1214**	**0.0371**	**0.0000**	**134.0498**

	ROG	NOx	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	**9.30**	**27.81**	**-10.18**	**0.00**	**27.60**	**94.18**	**76.34**	**32.08**	**93.72**	**86.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**4-1-2022**	**6-30-2022**	0.3134	0.2219
2	**7-1-2022**	**9-30-2022**	0.2955	0.1971
3	**10-1-2022**	**12-31-2022**	0.2945	0.1961
4	**1-1-2023**	**3-31-2023**	0.2613	0.1863
5	**4-1-2023**	**6-30-2023**	0.2650	0.1891
6	**7-1-2023**	**9-30-2023**	0.2679	0.1912
		Highest	0.3134	0.2219

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7027	8.4700e-003	0.6478	4.1000e-004		0.0302	0.0302		0.0302	0.0302	2.7810	1.8846	4.6656	5.1900e-003	1.8000e-004	4.8496
Energy	4.4300e-003	0.0387	0.0225	2.4000e-004		3.0600e-003	3.0600e-003		3.0600e-003	3.0600e-003	0.0000	153.0969	153.0969	0.0118	3.0600e-003	154.3042

Mobile	0.1089	0.4961	1.2360	4.7700e-003	0.4408	3.8900e-003	0.4447	0.1183	3.6300e-003	0.1219	0.0000	438.8710	438.8710	0.0149	0.0000	439.2435
Waste						0.0000	0.0000		0.0000	0.0000	9.0879	0.0000	9.0879	0.5371	0.0000	22.5149
Water						0.0000	0.0000		0.0000	0.0000	2.2742	7.1570	9.4312	0.2343	5.6600e-003	16.9762
Total	**0.8160**	**0.5433**	**1.9063**	**5.4200e-003**	**0.4408**	**0.0372**	**0.4780**	**0.1183**	**0.0369**	**0.1552**	**14.1430**	**601.0095**	**615.1525**	**0.8032**	**8.9000e-003**	**637.8884**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7027	8.4700e-003	0.6478	4.1000e-004		0.0302	0.0302		0.0302	0.0302	2.7810	1.8846	4.6656	5.1900e-003	1.8000e-004	4.8496
Energy	3.4100e-003	0.0298	0.0169	1.9000e-004		2.3600e-003	2.3600e-003		2.3600e-003	2.3600e-003	0.0000	131.0910	131.0910	0.0104	2.6300e-003	132.1350
Mobile	0.1089	0.4961	1.2360	4.7700e-003	0.4408	3.8900e-003	0.4447	0.1183	3.6300e-003	0.1219	0.0000	438.8710	438.8710	0.0149	0.0000	439.2435
Waste						0.0000	0.0000		0.0000	0.0000	9.0879	0.0000	9.0879	0.5371	0.0000	22.5149
Water						0.0000	0.0000		0.0000	0.0000	2.2742	7.0317	9.3058	0.2343	5.6600e-003	16.8498
Total	**0.8150**	**0.5343**	**1.9007**	**5.3700e-003**	**0.4408**	**0.0365**	**0.4773**	**0.1183**	**0.0362**	**0.1545**	**14.1430**	**578.8783**	**593.0214**	**0.8018**	**8.4700e-003**	**615.5928**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.13**	**1.64**	**0.29**	**0.92**	**0.00**	**1.88**	**0.15**	**0.00**	**1.90**	**0.45**	**0.00**	**3.68**	**3.60**	**0.17**	**4.83**	**3.50**

2.3 Vegetation

Vegetation

	CO2e

Category	MT
New Trees	43.8960
Total	**43.8960**

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	4/1/2022	4/28/2022	5	20	
2	Site Preparation	Site Preparation	4/29/2022	5/12/2022	5	10	
3	Grading	Grading	5/13/2022	6/9/2022	5	20	
4	Building Construction	Building Construction	6/9/2022	10/11/2023	5	350	
5	Paving	Paving	10/12/2023	11/8/2023	5	20	
6	Architectural Coating	Architectural Coating	11/9/2023	12/6/2023	5	20	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.79

Residential Indoor: 203,984; Residential Outdoor: 67,995; Non-Residential Indoor: 26,955; Non-Residential Outdoor: 8,985; Striped

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	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
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	4	10.00	0.00	44.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	1,212.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	71.00	18.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.8000e-003	0.0000	4.8000e-003	7.3000e-004	0.0000	7.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0900e-003	0.0641	0.0747	1.2000e-004		3.3800e-003	3.3800e-003		3.2300e-003	3.2300e-003	0.0000	10.4136	10.4136	1.9200e-003	0.0000	10.4617
Total	**7.0900e-003**	**0.0641**	**0.0747**	**1.2000e-004**	**4.8000e-003**	**3.3800e-003**	**8.1800e-003**	**7.3000e-004**	**3.2300e-003**	**3.9600e-003**	**0.0000**	**10.4136**	**10.4136**	**1.9200e-003**	**0.0000**	**10.4617**

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	4.0000e-005	2.1200e-003	3.2000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.2790	0.2790	3.0000e-005	0.0000	0.2798
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	9.0000e-005	4.0000e-005	5.5000e-004	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0768	0.0768	0.0000	0.0000	0.0769
Total	**1.3000e-004**	**2.1600e-003**	**8.7000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.3559**	**0.3559**	**3.0000e-005**	**0.0000**	**0.3567**

Mitigated Construction On-Site

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

Fugitive Dust					2.1600e-003	0.0000	2.1600e-003	3.3000e-004	0.0000	3.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3700e-003	0.0455	0.0794	1.2000e-004		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	10.4136	10.4136	1.9200e-003	0.0000	10.4616
Total	**2.3700e-003**	**0.0455**	**0.0794**	**1.2000e-004**	**2.1600e-003**	**1.8000e-004**	**2.3400e-003**	**3.3000e-004**	**1.8000e-004**	**5.1000e-004**	**0.0000**	**10.4136**	**10.4136**	**1.9200e-003**	**0.0000**	**10.4616**

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	4.0000e-005	2.1200e-003	3.2000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.2790	0.2790	3.0000e-005	0.0000	0.2798
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	9.0000e-005	4.0000e-005	5.5000e-004	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0768	0.0768	0.0000	0.0000	0.0769
Total	**1.3000e-004**	**2.1600e-003**	**8.7000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.3559**	**0.3559**	**3.0000e-005**	**0.0000**	**0.3567**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9000e-003	0.0347	0.0198	5.0000e-005		1.2900e-003	1.2900e-003		1.1800e-003	1.1800e-003	0.0000	4.2752	4.2752	1.3800e-003	0.0000	4.3098
Total	**2.9000e-003**	**0.0347**	**0.0198**	**5.0000e-005**	**2.7000e-004**	**1.2900e-003**	**1.5600e-003**	**3.0000e-005**	**1.1800e-003**	**1.2100e-003**	**0.0000**	**4.2752**	**4.2752**	**1.3800e-003**	**0.0000**	**4.3098**

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	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0192	0.0192	0.0000	0.0000	0.0192
Total	**2.0000e-005**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0192**	**0.0192**	**0.0000**	**0.0000**	**0.0192**

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					1.2000e-004	0.0000	1.2000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.9000e-004	0.0155	0.0293	5.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	4.2752	4.2752	1.3800e-003	0.0000	4.3098
Total	**8.9000e-004**	**0.0155**	**0.0293**	**5.0000e-005**	**1.2000e-004**	**8.0000e-005**	**2.0000e-004**	**1.0000e-005**	**8.0000e-005**	**9.0000e-005**	**0.0000**	**4.2752**	**4.2752**	**1.3800e-003**	**0.0000**	**4.3098**

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	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0192	0.0192	0.0000	0.0000	0.0192
Total	**2.0000e-005**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0192**	**0.0192**	**0.0000**	**0.0000**	**0.0192**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0800e-003	0.0000	8.0800e-003	4.2200e-003	0.0000	4.2200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.0900e-003	0.0641	0.0747	1.2000e-004		3.3800e-003	3.3800e-003		3.2300e-003	3.2300e-003	0.0000	10.4136	10.4136	1.9200e-003	0.0000	10.4617
Total	**7.0900e-003**	**0.0641**	**0.0747**	**1.2000e-004**	**8.0800e-003**	**3.3800e-003**	**0.0115**	**4.2200e-003**	**3.2300e-003**	**7.4500e-003**	**0.0000**	**10.4136**	**10.4136**	**1.9200e-003**	**0.0000**	**10.4617**

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	1.1400e-003	0.0585	8.9200e-003	8.0000e-005	5.2000e-004	5.0000e-005	5.7000e-004	1.5000e-004	4.0000e-005	1.9000e-004	0.0000	7.6862	7.6862	8.8000e-004	0.0000	7.7081
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	9.0000e-005	4.0000e-005	5.5000e-004	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0768	0.0768	0.0000	0.0000	0.0769

Total	**1.2300e-003**	**0.0585**	**9.4700e-003**	**8.0000e-005**	**5.9000e-004**	**5.0000e-005**	**6.5000e-004**	**1.7000e-004**	**4.0000e-005**	**2.1000e-004**	**0.0000**	**7.7630**	**7.7630**	**8.8000e-004**	**0.0000**	**7.7850**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.6300e-003	0.0000	3.6300e-003	1.9000e-003	0.0000	1.9000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3700e-003	0.0455	0.0794	1.2000e-004		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	10.4136	10.4136	1.9200e-003	0.0000	10.4616
Total	**2.3700e-003**	**0.0455**	**0.0794**	**1.2000e-004**	**3.6300e-003**	**1.8000e-004**	**3.8100e-003**	**1.9000e-003**	**1.8000e-004**	**2.0800e-003**	**0.0000**	**10.4136**	**10.4136**	**1.9200e-003**	**0.0000**	**10.4616**

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	1.1400e-003	0.0585	8.9200e-003	8.0000e-005	5.2000e-004	5.0000e-005	5.7000e-004	1.5000e-004	4.0000e-005	1.9000e-004	0.0000	7.6862	7.6862	8.8000e-004	0.0000	7.7081
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	9.0000e-005	4.0000e-005	5.5000e-004	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0768	0.0768	0.0000	0.0000	0.0769
Total	**1.2300e-003**	**0.0585**	**9.4700e-003**	**8.0000e-005**	**5.9000e-004**	**5.0000e-005**	**6.5000e-004**	**1.7000e-004**	**4.0000e-005**	**2.1000e-004**	**0.0000**	**7.7630**	**7.7630**	**8.8000e-004**	**0.0000**	**7.7850**

3.5 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	0.0504	0.5164	0.5257	8.4000e-004		0.0273	0.0273		0.0252	0.0252	0.0000	73.6086	73.6086	0.0238	0.0000	74.2037
Total	**0.0504**	**0.5164**	**0.5257**	**8.4000e-004**		**0.0273**	**0.0273**		**0.0252**	**0.0252**	**0.0000**	**73.6086**	**73.6086**	**0.0238**	**0.0000**	**74.2037**

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	1.9900e-003	0.0838	0.0196	1.1000e-004	1.2200e-003	6.0000e-005	1.2800e-003	3.6000e-004	6.0000e-005	4.1000e-004	0.0000	10.4056	10.4056	1.0600e-003	0.0000	10.4320
Worker	4.9200e-003	2.1000e-003	0.0285	4.0000e-005	3.8600e-003	5.0000e-005	3.9200e-003	1.0300e-003	5.0000e-005	1.0800e-003	0.0000	4.0100	4.0100	1.5000e-004	0.0000	4.0137
Total	**6.9100e-003**	**0.0859**	**0.0481**	**1.5000e-004**	**5.0800e-003**	**1.1000e-004**	**5.2000e-003**	**1.3900e-003**	**1.1000e-004**	**1.4900e-003**	**0.0000**	**14.4156**	**14.4156**	**1.2100e-003**	**0.0000**	**14.4457**

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	0.0175	0.3292	0.5852	8.4000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	73.6085	73.6085	0.0238	0.0000	74.2036
Total	**0.0175**	**0.3292**	**0.5852**	**8.4000e-004**		**1.3700e-003**	**1.3700e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**73.6085**	**73.6085**	**0.0238**	**0.0000**	**74.2036**

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	1.9900e-003	0.0838	0.0196	1.1000e-004	1.2200e-003	6.0000e-005	1.2800e-003	3.6000e-004	6.0000e-005	4.1000e-004	0.0000	10.4056	10.4056	1.0600e-003	0.0000	10.4320
Worker	4.9200e-003	2.1000e-003	0.0285	4.0000e-005	3.8600e-003	5.0000e-005	3.9200e-003	1.0300e-003	5.0000e-005	1.0800e-003	0.0000	4.0100	4.0100	1.5000e-004	0.0000	4.0137
Total	**6.9100e-003**	**0.0859**	**0.0481**	**1.5000e-004**	**5.0800e-003**	**1.1000e-004**	**5.2000e-003**	**1.3900e-003**	**1.1000e-004**	**1.4900e-003**	**0.0000**	**14.4156**	**14.4156**	**1.2100e-003**	**0.0000**	**14.4457**

3.5 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	0.0642	0.6515	0.7204	1.1600e-003		0.0325	0.0325		0.0299	0.0299	0.0000	101.7116	101.7116	0.0329	0.0000	102.5340
Total	**0.0642**	**0.6515**	**0.7204**	**1.1600e-003**		**0.0325**	**0.0325**		**0.0299**	**0.0299**	**0.0000**	**101.7116**	**101.7116**	**0.0329**	**0.0000**	**102.5340**

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	2.1300e-003	0.0992	0.0241	1.4000e-004	1.6800e-003	4.0000e-005	1.7200e-003	4.9000e-004	4.0000e-005	5.3000e-004	0.0000	13.8916	13.8916	1.1600e-003	0.0000	13.9208
Worker	6.2400e-003	2.5700e-003	0.0357	6.0000e-005	5.3400e-003	7.0000e-005	5.4100e-003	1.4300e-003	7.0000e-005	1.4900e-003	0.0000	5.3292	5.3292	1.8000e-004	0.0000	5.3337
Total	**8.3700e-003**	**0.1018**	**0.0598**	**2.0000e-004**	**7.0200e-003**	**1.1000e-004**	**7.1300e-003**	**1.9200e-003**	**1.1000e-004**	**2.0200e-003**	**0.0000**	**19.2208**	**19.2208**	**1.3400e-003**	**0.0000**	**19.2544**

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	0.0242	0.4546	0.8082	1.1600e-003		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	101.7114	101.7114	0.0329	0.0000	102.5338
Total	**0.0242**	**0.4546**	**0.8082**	**1.1600e-003**		**1.8900e-003**	**1.8900e-003**		**1.8900e-003**	**1.8900e-003**	**0.0000**	**101.7114**	**101.7114**	**0.0329**	**0.0000**	**102.5338**

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	2.1300e-003	0.0992	0.0241	1.4000e-004	1.6800e-003	4.0000e-005	1.7200e-003	4.9000e-004	4.0000e-005	5.3000e-004	0.0000	13.8916	13.8916	1.1600e-003	0.0000	13.9208
Worker	6.2400e-003	2.5700e-003	0.0357	6.0000e-005	5.3400e-003	7.0000e-005	5.4100e-003	1.4300e-003	7.0000e-005	1.4900e-003	0.0000	5.3292	5.3292	1.8000e-004	0.0000	5.3337
Total	**8.3700e-003**	**0.1018**	**0.0598**	**2.0000e-004**	**7.0200e-003**	**1.1000e-004**	**7.1300e-003**	**1.9200e-003**	**1.1000e-004**	**2.0200e-003**	**0.0000**	**19.2208**	**19.2208**	**1.3400e-003**	**0.0000**	**19.2544**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.1100e-003	0.0551	0.0702	1.1000e-004		2.6400e-003	2.6400e-003		2.4700e-003	2.4700e-003	0.0000	9.3992	9.3992	2.7400e-003	0.0000	9.4677
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.1100e-003**	**0.0551**	**0.0702**	**1.1000e-004**		**2.6400e-003**	**2.6400e-003**		**2.4700e-003**	**2.4700e-003**	**0.0000**	**9.3992**	**9.3992**	**2.7400e-003**	**0.0000**	**9.4677**

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	1.6000e-004	6.0000e-005	8.9000e-004	0.0000	1.3000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1331	0.1331	0.0000	0.0000	0.1332

Total	**1.6000e-004**	**6.0000e-005**	**8.9000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1331**	**0.1331**	**0.0000**	**0.0000**	**0.1332**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6300e-003	0.0400	0.0690	1.1000e-004		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	9.3992	9.3992	2.7400e-003	0.0000	9.4677
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6300e-003**	**0.0400**	**0.0690**	**1.1000e-004**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**9.3992**	**9.3992**	**2.7400e-003**	**0.0000**	**9.4677**

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	1.6000e-004	6.0000e-005	8.9000e-004	0.0000	1.3000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1331	0.1331	0.0000	0.0000	0.1332
Total	**1.6000e-004**	**6.0000e-005**	**8.9000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1331**	**0.1331**	**0.0000**	**0.0000**	**0.1332**

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	0.8135					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.8154**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

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	1.2000e-004	5.0000e-005	6.9000e-004	0.0000	1.0000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1035	0.1035	0.0000	0.0000	0.1036
Total	**1.2000e-004**	**5.0000e-005**	**6.9000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1035**	**0.1035**	**0.0000**	**0.0000**	**0.1036**

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	0.8135					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4000e-004	0.0106	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.8140**	**0.0106**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

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	1.2000e-004	5.0000e-005	6.9000e-004	0.0000	1.0000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1035	0.1035	0.0000	0.0000	0.1036
Total	**1.2000e-004**	**5.0000e-005**	**6.9000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1035**	**0.1035**	**0.0000**	**0.0000**	**0.1036**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1089	0.4961	1.2360	4.7700e-003	0.4408	3.8900e-003	0.4447	0.1183	3.6300e-003	0.1219	0.0000	438.8710	438.8710	0.0149	0.0000	439.2435

Unmitigated	0.1089	0.4961	1.2360	4.7700e-003	0.4408	3.8900e-003	0.4447	0.1183	3.6300e-003	0.1219	0.0000	438.8710	438.8710	0.0149	0.0000	439.2435

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	331.84	331.84	331.84	766,420	766,420
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	175.03	175.03	175.03	418,273	418,273
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	506.87	506.87	506.87	1,184,693	1,184,693

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Enclosed Parking with Elevator	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
General Office Building	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Other Non-Asphalt Surfaces	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	97.3180	97.3180	9.7300e-003	2.0100e-003	98.1613
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	109.2758	109.2758	0.0109	2.2600e-003	110.2227
NaturalGas Mitigated	3.4100e-003	0.0298	0.0169	1.9000e-004		2.3600e-003	2.3600e-003		2.3600e-003	2.3600e-003	0.0000	33.7730	33.7730	6.5000e-004	6.2000e-004	33.9737
NaturalGas Unmitigated	4.4300e-003	0.0387	0.0225	2.4000e-004		3.0600e-003	3.0600e-003		3.0600e-003	3.0600e-003	0.0000	43.8210	43.8210	8.4000e-004	8.0000e-004	44.0815

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					
Apartments Mid Rise	527006	2.8400e-003	0.0243	0.0103	1.6000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	28.1231	28.1231	5.4000e-004	5.2000e-004	28.2902
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	294169	1.5900e-003	0.0144	0.0121	9.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	15.6980	15.6980	3.0000e-004	2.9000e-004	15.7913
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.4300e-003**	**0.0387**	**0.0224**	**2.5000e-004**		**3.0600e-003**	**3.0600e-003**		**3.0600e-003**	**3.0600e-003**	**0.0000**	**43.8210**	**43.8210**	**8.4000e-004**	**8.1000e-004**	**44.0815**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	426641	2.3000e-003	0.0197	8.3700e-003	1.3000e-004		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	22.7672	22.7672	4.4000e-004	4.2000e-004	22.9025
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	206242	1.1100e-003	0.0101	8.4900e-003	6.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004	0.0000	11.0058	11.0058	2.1000e-004	2.0000e-004	11.0712
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.4100e-003**	**0.0298**	**0.0169**	**1.9000e-004**		**2.3600e-003**	**2.3600e-003**		**2.3600e-003**	**2.3600e-003**	**0.0000**	**33.7730**	**33.7730**	**6.5000e-004**	**6.2000e-004**	**33.9737**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	251829	33.1261	3.3100e-003	6.9000e-004	33.4131
Enclosed Parking with Elevator	258496	34.0031	3.4000e-003	7.0000e-004	34.2977
General Office Building	320405	42.1467	4.2100e-003	8.7000e-004	42.5119
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**109.2758**	**0.0109**	**2.2600e-003**	**110.2227**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	245739	32.3249	3.2300e-003	6.7000e-004	32.6051
Enclosed Parking with Elevator	206621	27.1792	2.7200e-003	5.6000e-004	27.4148
General Office Building	287466	37.8138	3.7800e-003	7.8000e-004	38.1415
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**97.3180**	**9.7300e-003**	**2.0100e-003**	**98.1613**

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	0.7027	8.4700e-003	0.6478	4.1000e-004		0.0302	0.0302		0.0302	0.0302	2.7810	1.8846	4.6656	5.1900e-003	1.8000e-004	4.8496
Unmitigated	0.7027	8.4700e-003	0.6478	4.1000e-004		0.0302	0.0302		0.0302	0.0302	2.7810	1.8846	4.6656	5.1900e-003	1.8000e-004	4.8496

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	0.0814					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4669					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1408	3.2400e-003	0.1938	3.9000e-004		0.0277	0.0277		0.0277	0.0277	2.7810	1.1423	3.9233	4.4700e-003	1.8000e-004	4.0893
Landscaping	0.0137	5.2300e-003	0.4540	2.0000e-005		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	0.7424	0.7424	7.2000e-004	0.0000	0.7603
Total	**0.7027**	**8.4700e-003**	**0.6478**	**4.1000e-004**		**0.0302**	**0.0302**		**0.0302**	**0.0302**	**2.7810**	**1.8846**	**4.6656**	**5.1900e-003**	**1.8000e-004**	**4.8496**

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	0.0814					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4669					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1408	3.2400e-003	0.1938	3.9000e-004		0.0277	0.0277		0.0277	0.0277	2.7810	1.1423	3.9233	4.4700e-003	1.8000e-004	4.0893
Landscaping	0.0137	5.2300e-003	0.4540	2.0000e-005		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	0.7424	0.7424	7.2000e-004	0.0000	0.7603
Total	**0.7027**	**8.4700e-003**	**0.6478**	**4.1000e-004**		**0.0302**	**0.0302**		**0.0302**	**0.0302**	**2.7810**	**1.8846**	**4.6656**	**5.1900e-003**	**1.8000e-004**	**4.8496**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.3058	0.2343	5.6600e-003	16.8498
Unmitigated	9.4312	0.2343	5.6600e-003	16.9762

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.9744 / 2.5056	5.2433	0.1299	3.1400e-003	9.4267
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	3.19388 / 1.95754	4.1878	0.1044	2.5200e-003	7.5494
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**9.4312**	**0.2343**	**5.6600e-003**	**16.9762**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.9744 / 2.35276	5.1730	0.1299	3.1400e-003	9.3558
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	3.19388 / 1.83813	4.1329	0.1044	2.5200e-003	7.4940
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**9.3058**	**0.2343**	**5.6600e-003**	**16.8498**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9.0879	0.5371	0.0000	22.5149
Unmitigated	9.0879	0.5371	0.0000	22.5149

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	28.06	5.6959	0.3366	0.0000	14.1114
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	16.71	3.3920	0.2005	0.0000	8.4035
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**9.0879**	**0.5371**	**0.0000**	**22.5149**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	28.06	5.6959	0.3366	0.0000	14.1114
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	16.71	3.3920	0.2005	0.0000	8.4035
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**9.0879**	**0.5371**	**0.0000**	**22.5149**

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

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	43.8960	0.0000	0.0000	43.8960

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	62	43.8960	0.0000	0.0000	43.8960
Total		**43.8960**	**0.0000**	**0.0000**	**43.8960**

APPENDIX B

CONSTRUCTION HEALTH RISK CALCULATIONS

1073-1087 S. Winchester Blvd. Mixed Use Project

DPM Emissions and Modeling Emissions Rates - Unmitigated

Emissions Model	Acitivity	DPM (tons/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emissions Rate ($g/s/m^2$)
2022	Construction	0.0355	CON_DPM	71	0.021613	2.72E-03	3270	8.33E-07
2023	Construction	0.0360	CON_DPM	72	0.021918	2.76E-03	3270	8.45E-07
Total		0.0715		143	0.043531	5.48E-03		

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

$PM_{2.5}$ Emissions and Modeling Emissions Rates - Unmitigated

Emissions Model	Acitivity	$PM_{2.5}$ (tons/year)	Area Source	$PM_{2.5}$ Emissions (lb/yr)	$PM_{2.5}$ Emissions (lb/hr)	$PM_{2.5}$ Emissions (g/s)	Modeled Area (m^2)	$PM_{2.5}$ Emissions Rate ($g/s/m^2$)
2022	Construction	6.56E-03	CON_FUG	13.12	0.003994	5.03E-04	3270	1.54E-07
2023	Construction	1.98E-03	CON_FUG	3.96	0.001205	1.52E-04	3270	4.64E-08
Total		0.00854		17.08	0.005199	6.55E-04		

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

1073-1087 S. Winchester Blvd. Mixed Use Project

DPM Emissions and Modeling Emissions Rates - Mitigated

Emissions Model	Acitivity	DPM (tons/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emissions Rate ($g/s/m^2$)
2022	Construction	1.97E-03	CON_DPM	3.94	0.001199	1.51E-04	3270	4.62E-08
2023	Construction	2.19E-03	CON_DPM	4.38	0.001333	1.68E-04	3270	5.14E-08
Total		0.00416		8.32	0.002533	3.19E-04		

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

$PM_{2.5}$ Emissions and Modeling Emissions Rates - Unmitigated

Emissions Model	Acitivity	$PM_{2.5}$ (tons/year)	Area Source	$PM_{2.5}$ Emissions (lb/yr)	$PM_{2.5}$ Emissions (lb/hr)	$PM_{2.5}$ Emissions (g/s)	Modeled Area (m^2)	$PM_{2.5}$ Emissions Rate ($g/s/m^2$)
2022	Construction	3.82E-03	CON_FUG	7.64	0.002326	2.93E-04	3270	8.96E-08
2023	Construction	1.98E-03	CON_FUG	3.96	0.001205	1.52E-04	3270	4.64E-08
Total		0.0058		11.6	0.003531	4.45E-04		

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

1073-1087 S. Winchester Blvd. Mixed Use Project

Construction Health Impact Summary

Maximum Impacts at MEI location - Unmitigated

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index	Maximum Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
	Exhaust PM_{10}/DPM ($\mu g/m^3$)	Fugitive $PM_{2.5}$ ($\mu g/m^3$)	Infant/Child	Adult		
2022	0.3758	0.2752	66.82	1.08	0.075	0.65
2023	0.3812	0.0829	62.61	1.09	0.076	0.46
Total	-	-	**129.43**	**2.17**	-	-
Maximum	**0.3812**	**0.2752**	-	-	**0.076**	**0.65**

Maximum Impacts at MEI location - With Mitigation

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index	Maximum Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
	Exhaust PM_{10}/DPM ($\mu g/m^3$)	Fugitive $PM_{2.5}$ ($\mu g/m^3$)	Infant/Child	Adult		
2022	0.0208	0.1601	3.71	0.06	0.004	0.18
2023	0.0232	0.0829	3.81	0.07	0.005	0.11
Total	-	-	**7.52**	**0.13**	-	-
Maximum	**0.0232**	**0.1601**	-	-	**0.005**	**0.18**

-Tier 4 Mitigation

1073-1087 S. Winchester Blvd. Mixed Use Project

Construction Health Impact Summary

Maximum Impacts at Caring Hearts Senior Care Home - Unmitigated

Emissions Year	Maximum Concentrations		Cancer Risk (per million)	Hazard Index	Maximum Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
	Exhaust PM_{10}/DPM ($\mu g/m^3$)	Fugitive $PM_{2.5}$ ($\mu g/m^3$)	Adult		
2022	0.0477	0.0117	0.14	0.010	0.06
2023	0.0484	0.0035	0.14	0.010	0.05
Total	**-**	**-**	**0.28**	**-**	**-**
Maximum	**0.0484**	**0.0117**	**-**	**0.010**	**0.06**

Maximum Impacts at Caring Hearts Senior Care Home - Mitigated

Emissions Year	Maximum Concentrations		Cancer Risk (per million)	Hazard Index	Maximum Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
	Exhaust PM_{10}/DPM ($\mu g/m^3$)	Fugitive $PM_{2.5}$ ($\mu g/m^3$)	Adult		
2022	0.0027	0.0068	0.01	0.001	0.01
2023	0.0030	0.0035	0.01	0.001	0.01
Total	**-**	**-**	**0.02**	**-**	**-**
Maximum	**0.0030**	**0.0068**	**-**	**0.001**	**0.01**

-Tier 4 Mitigation

APPENDIX C

ROADWAY ASSESSMENT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

429 East Cotati Avenue
Cotati, California 94931

Tel: 707-794-0400 *Fax: 707-794-0405*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

M E M O

Date: September 17, 2020

To: Polaris Kinison Brown
Principal Planner
EMC Planning Group, Inc.
301 Lighthouse Avenue, Suite C
Monterey, CA 93940

From: Casey Divine &
James Reyff
Illingworth & Rodkin, Inc.
429 East Cotati Avenue
Cotati, CA 94931

Via E-mail: kinisonbrown@emcplanning.com

SUBJECT: **1073 S. Winchester Boulevard, San José, CA –**
Air Quality Roadway Assessment I&R Job# 20-118

This memo reports the community risk impacts from nearby roadways of the mixed-use project proposed at 1073 S. Winchester Boulevard in San José, California. Illingworth & Rodkin, Inc. (I&R) understands that the project proposes to demolish the existing uses located on the site and to construct a 6-story, mixed-use building consisting of 61 condo units, 17,970-sf of commercial use, and 115 parking spaces. EMC Planning Group (EMC) conducted the air quality construction health risk assessment and identified the maximally exposed individual (MEI) where the maximum cancer risk, non-cancer risk, and $PM_{2.5}$ concentrations occurred from project construction activities. I&R analyzed the project's traffic data and calculated the community risk impacts at the MEI and at the new project sensitive receptors (residents) from any roadway within 1,000-ft of the project site with average daily traffic that exceeded 10,000 vehicles. Two roadways were identified for analysis: S. Winchester Boulevard and Williams Road.

Local Roadways Analysis

A refined analysis of potential health impacts from vehicle traffic on S. Winchester Boulevard and Williams Road was conducted. The refined analysis involved predicting emissions for the traffic volume and mix of vehicle types on both roadways near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks are then computed based on the modeled exposures. *Attachment 1* includes a description of how community risk

impacts, including cancer risk are computed.

Traffic Emissions Modeling

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on both roadways using the Caltrans version of the CARB EMission FACtors 2017 (EMFAC2017) emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (e.g., TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for $PM_{2.5}$. All $PM_{2.5}$ emissions from all vehicles were used, rather than just the $PM_{2.5}$ fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and diesel powered) produce $PM_{2.5}$. Additionally, $PM_{2.5}$ emissions from vehicle tire and brake wear and from re-entrained roadway dust were included in these emissions. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (i.e., Santa Clara County), type of road, truck percentage (CT-EMFAC2017 Santa Clara County default truck percentages), traffic mix assigned by CT-EMFAC2017 for the county, year of analysis, and season. The CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2024. Year 2024 emissions were conservatively assumed as being representative of conditions over the time period that cancer risks are evaluated (30 years).

The ADTs on S. Winchester Boulevard and Williams Road were based on the AM and PM peak-hour background plus project traffic volumes data provided in the project's traffic report.[1] Traffic volumes were then assumed to increase one percent per year from the year of volumes counts to the operational year. The estimated ADT on S. Winchester Boulevard would be 24,470 vehicles and the estimated ADT on Williams Road would be 10,820 vehicles. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[2] which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for both roadways. Average travel speeds of 40 miles per hour (mph) on S. Winchester Boulevard and 30-mph on Williams Road were used for all hours of the day. The S. Winchester Boulevard speed was based on posted speed limit signs. The Williams Road speed was based on the average of the two posted speed limits on each side of the roadway intersection at S. Winchester Boulevard. The first year of occupation was assumed to be 2024.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the EPA AERMOD model. TAC and $PM_{2.5}$ emissions from traffic on S. Winchester Boulevard and Williams Road within about 1,000 feet of the project site were evaluated. Vehicle traffic on the roadways was modeled using a series of adjacent volume sources along a line (line volume sources); with line segments used for on northbound and southbound travel on S. Winchester Boulevard and

1 Hexagon Transportation Consultants, Inc. *1073 South Winchester Mixed-Use Development Transportation Analysis*. May 26, 2020.

2 The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2017 does not include Burden type output with hour by hour traffic volume information.

eastbound and westbound travel on Williams Road. The modeled roadway segments are shown in Figure 1.

A five-year data set (2013-2017) of hourly meteorological data from the San José International Airport was used for the modeling. Other inputs to the model included road geometries and elevations, hourly traffic emissions, and the MEI and project site receptor locations. Concentrations were calculated at the construction MEIs with receptor heights of 5 feet (1.5 meters) to represent the breathing heights of residents on the first floor. Concentrations were calculated at the project site residents with receptor heights of 20 feet (6.1 meters) and 30 feet (9.1 meters) to represent the breathing heights of the first level that residential units were located on the second and third floors.

Results from risk impacts from S. Winchester Boulevard and Williams Road are listed in Table 1 for the construction MEI receptors and Table 2 for the new on-site project sensitive receptors**.** Figure 1 shows the nearby roadway sources, MEI locations, and location of the on-site residential sensitive receptors that would be introduced by the project. Details of the roadway emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 2*.

Table 1. Roadway Risk Impacts at Construction MEIs

Source	Maximum Cancer Risk* (per million)	Annual $PM_{2.5}$ Concentration* ($\mu g/m^3$)	Hazard Index
S. Winchester Boulevard, ADT 24,470	4.4	0.07	<0.01
Williams Road, ADT 10,820	0.3	0.03	<0.01

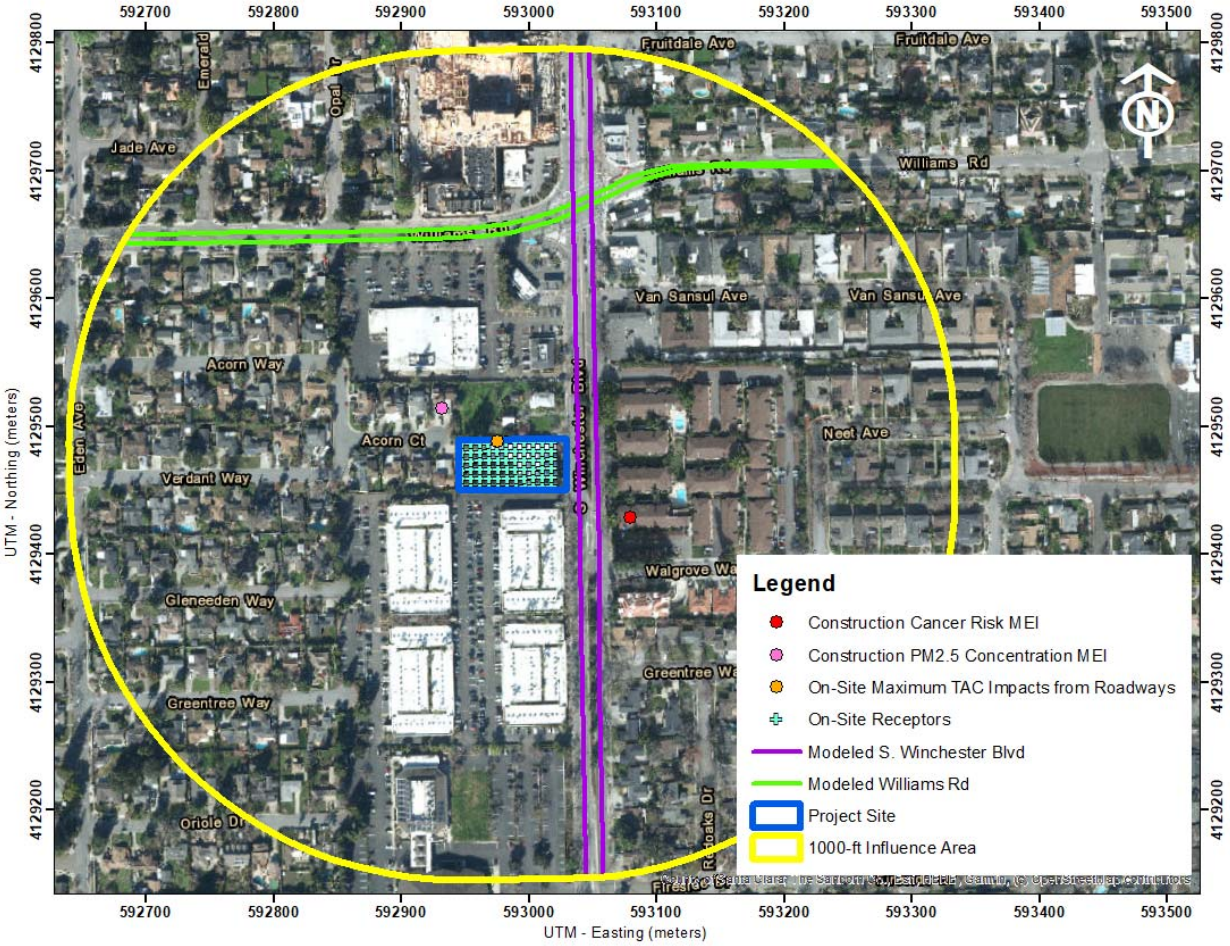
* Maximum cancer risk and maximum $PM_{2.5}$ concentration occur at different receptor locations.

Table 2. Roadway Risk Impacts at On-site Sensitive Receptors

Source	Maximum Cancer Risk (per million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)	Hazard Index
S. Winchester Boulevard, ADT 24,470*	1.4	0.08	<0.01
Williams Road, ADT 10,820*	0.3	0.02	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*

*Receptor on second floor

Figure 1. Construction MEI Locations, On-site Project Sensitive Receptor Locations, Modeled Roadways, and Maximum Roadway TAC Impacts



Supporting Documentation

Attachment 1 is the methodology used to compute community risk impacts, including the methods to compute lifetime cancer risk from exposure to project emissions.

Attachment 2 includes the community risk calculations, modeling results, and health risk calculations from roadway sources affecting the project and construction MEIs, including refined roadway modeling. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[3] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[4] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[5] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

Potential increased cancer risk from inhalation of TACs is calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency and duration of exposure. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day) or liters per kilogram of body weight per 8-hour period for the case of worker or school child exposures. As recommended by the BAAQMD for residential exposures, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, BAAQMD recommends using the 95th percentile 8-hour breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of

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

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

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

30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD. For school children a 9-year exposure period is recommended by the BAAQMD.

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

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

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

Where:

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

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

Where:

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

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

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

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

Non-Cancer Hazards

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

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

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: Roadway Risk Calculations

S. Winchester Boulevard Traffic Emissions and Health Risk Calculations

File Name:	1073 S Winchester Blvd Santa Clara (SF) - 2024 - Annual.EF
CT-EMFAC2017 Version:	1.0.2.27401
Run Date:	9/15/2020 13:48
Area:	Santa Clara (SF)
Analysis Year:	2024
Season:	Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.026	0.495	0.505
Truck 2	0.036	0.937	0.048
Non-Truck	0.938	0.014	0.955

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

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph
PM2.5	0.009055	0.005937	0.004059	0.002926	0.002242	0.001833	0.001603	0.001499	0.001493
TOG	0.187931	0.123609	0.082483	0.057954	0.043756	0.034879	0.029177	0.025607	0.023582
Diesel PM	0.001252	0.001022	0.000793	0.000637	0.00055	0.000516	0.000522	0.000565	0.000641

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

Pollutant Name	Emission Factor
TOG	1.314612

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

Pollutant Name	Emission Factor
PM2.5	0.002189

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

Pollutant Name	Emission Factor
PM2.5	0.017344

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

Pollutant Name	Emission Factor
PM2.5	0.016811

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

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - S. Winchester Boulevard
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_SB_WIN	S. Winchester Boulevard Southbound	SB	3	650.2	0.40	17.0	55.7	3.4	40	12,235
DPM_NB_WN	S. Winchester Boulevard Northbound	NB	2	647.8	0.40	13.3	43.7	3.4	40	12,235
									Total	24,470

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.00057			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and DPM Emissions - DPM_SB_WIN

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.90%	477	3.02E-05	9	6.42%	785	4.98E-05	17	5.62%	687	4.36E-05
2	2.58%	316	2.00E-05	10	7.34%	897	5.69E-05	18	3.27%	400	2.53E-05
3	2.87%	351	2.22E-05	11	6.42%	785	4.98E-05	19	2.35%	287	1.82E-05
4	3.32%	407	2.58E-05	12	6.88%	841	5.34E-05	20	0.86%	105	6.67E-06
5	2.18%	266	1.69E-05	13	6.25%	764	4.85E-05	21	3.09%	379	2.40E-05
6	3.38%	414	2.62E-05	14	6.19%	757	4.80E-05	22	4.13%	505	3.20E-05
7	6.02%	736	4.67E-05	15	5.10%	624	3.96E-05	23	2.52%	309	1.96E-05
8	4.64%	568	3.60E-05	16	3.78%	463	2.93E-05	24	0.92%	112	7.11E-06
								Total		12,235	

2024 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_NB_WN

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.90%	477	3.01E-05	9	6.42%	785	4.96E-05	17	5.62%	687	4.34E-05
2	2.58%	316	1.99E-05	10	7.34%	897	5.67E-05	18	3.27%	400	2.52E-05
3	2.87%	351	2.21E-05	11	6.42%	785	4.96E-05	19	2.35%	287	1.82E-05
4	3.32%	407	2.57E-05	12	6.88%	841	5.32E-05	20	0.86%	105	6.64E-06
5	2.18%	266	1.68E-05	13	6.25%	764	4.83E-05	21	3.09%	379	2.39E-05
6	3.38%	414	2.61E-05	14	6.19%	757	4.78E-05	22	4.13%	505	3.19E-05
7	6.02%	736	4.65E-05	15	5.10%	624	3.94E-05	23	2.52%	309	1.95E-05
8	4.64%	568	3.59E-05	16	3.78%	463	2.92E-05	24	0.92%	112	7.09E-06
								Total		12,235	

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - S. Winchester Boulevard
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM2.5_SB_WIN	S. Winchester Boulevard Southbound	SB	3	650.2	0.40	17.0	56	1.3	40	12,235
PM2.5_NB_WIN	S. Winchester Boulevard Northbound	NB	2	647.8	0.40	13.3	44	1.3	40	12,235
									Total	24,470

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.001499			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_SB_WIN

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	141	2.37E-05	9	7.11%	870	1.46E-04	17	7.39%	904	1.52E-04
2	0.42%	51	8.60E-06	10	4.39%	537	9.03E-05	18	8.18%	1000	1.68E-04
3	0.41%	50	8.36E-06	11	4.66%	571	9.60E-05	19	5.70%	697	1.17E-04
4	0.26%	32	5.38E-06	12	5.89%	720	1.21E-04	20	4.27%	523	8.80E-05
5	0.50%	61	1.03E-05	13	6.15%	753	1.27E-04	21	3.26%	399	6.70E-05
6	0.90%	111	1.86E-05	14	6.04%	739	1.24E-04	22	3.30%	403	6.79E-05
7	3.79%	464	7.80E-05	15	7.01%	858	1.44E-04	23	2.46%	301	5.07E-05
8	7.76%	950	1.60E-04	16	7.14%	873	1.47E-04	24	1.87%	228	3.84E-05
								Total		12,235	

2024 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_NB_WIN

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	141	2.36E-05	9	7.11%	870	1.46E-04	17	7.39%	904	1.51E-04
2	0.42%	51	8.57E-06	10	4.39%	537	8.99E-05	18	8.18%	1000	1.68E-04
3	0.41%	50	8.33E-06	11	4.66%	571	9.57E-05	19	5.70%	697	1.17E-04
4	0.26%	32	5.36E-06	12	5.89%	720	1.21E-04	20	4.27%	523	8.77E-05
5	0.50%	61	1.02E-05	13	6.15%	753	1.26E-04	21	3.26%	399	6.68E-05
6	0.90%	111	1.85E-05	14	6.04%	739	1.24E-04	22	3.30%	403	6.76E-05
7	3.79%	464	7.77E-05	15	7.01%	858	1.44E-04	23	2.46%	301	5.05E-05
8	7.76%	950	1.59E-04	16	7.14%	873	1.46E-04	24	1.87%	228	3.83E-05
								Total		12,235	

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - S. Winchester Boulevard
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_SB_WIN	S. Winchester Boulevard Southbound	SB	3	650.2	0.40	17.0	56	1.3	40	12,235
TEXH_NB_WIN	S. Winchester Boulevard Northbound	NB	2	647.8	0.40	13.3	44	1.3	40	12,235
									Total	24,470

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.02561			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_SB_WIN

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	141	4.05E-04	9	7.11%	870	2.50E-03	17	7.39%	904	2.60E-03
2	0.42%	51	1.47E-04	10	4.39%	537	1.54E-03	18	8.18%	1000	2.87E-03
3	0.41%	50	1.43E-04	11	4.66%	571	1.64E-03	19	5.70%	697	2.00E-03
4	0.26%	32	9.20E-05	12	5.89%	720	2.07E-03	20	4.27%	523	1.50E-03
5	0.50%	61	1.76E-04	13	6.15%	753	2.16E-03	21	3.26%	399	1.15E-03
6	0.90%	111	3.18E-04	14	6.04%	739	2.12E-03	22	3.30%	403	1.16E-03
7	3.79%	464	1.33E-03	15	7.01%	858	2.47E-03	23	2.46%	301	8.65E-04
8	7.76%	950	2.73E-03	16	7.14%	873	2.51E-03	24	1.87%	228	6.56E-04
								Total		12,235	

2024 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_NB_WIN

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	141	4.03E-04	9	7.11%	870	2.49E-03	17	7.39%	904	2.59E-03
2	0.42%	51	1.46E-04	10	4.39%	537	1.54E-03	18	8.18%	1000	2.86E-03
3	0.41%	50	1.42E-04	11	4.66%	571	1.63E-03	19	5.70%	697	2.00E-03
4	0.26%	32	9.16E-05	12	5.89%	720	2.06E-03	20	4.27%	523	1.50E-03
5	0.50%	61	1.75E-04	13	6.15%	753	2.16E-03	21	3.26%	399	1.14E-03
6	0.90%	111	3.17E-04	14	6.04%	739	2.11E-03	22	3.30%	403	1.15E-03
7	3.79%	464	1.33E-03	15	7.01%	858	2.46E-03	23	2.46%	301	8.62E-04
8	7.76%	950	2.72E-03	16	7.14%	873	2.50E-03	24	1.87%	228	6.54E-04
								Total		12,235	

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - S. Winchester Boulevard
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_SB_WIN	S. Winchester Boulevard Southbound	SB	3	650.2	0.40	17.0	56	1.3	40	12,235
TEVAP_NB_WIN	S. Winchester Boulevard Northbound	NB	2	647.8	0.40	13.3	44	1.3	40	12,235
									Total	24,470

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle per Hour (g/hour)	1.31461			
Emissions per Vehicle per Mile (g/VMT)	0.03287			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_SB_WIN

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	141	5.20E-04	9	7.11%	870	3.21E-03	17	7.39%	904	3.33E-03
2	0.42%	51	1.88E-04	10	4.39%	537	1.98E-03	18	8.18%	1000	3.69E-03
3	0.41%	50	1.83E-04	11	4.66%	571	2.11E-03	19	5.70%	697	2.57E-03
4	0.26%	32	1.18E-04	12	5.89%	720	2.66E-03	20	4.27%	523	1.93E-03
5	0.50%	61	2.25E-04	13	6.15%	753	2.78E-03	21	3.26%	399	1.47E-03
6	0.90%	111	4.08E-04	14	6.04%	739	2.72E-03	22	3.30%	403	1.49E-03
7	3.79%	464	1.71E-03	15	7.01%	858	3.17E-03	23	2.46%	301	1.11E-03
8	7.76%	950	3.50E-03	16	7.14%	873	3.22E-03	24	1.87%	228	8.42E-04
								Total		12,235	

2024 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_NB_WIN

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	141	5.18E-04	9	7.11%	870	3.20E-03	17	7.39%	904	3.32E-03
2	0.42%	51	1.88E-04	10	4.39%	537	1.97E-03	18	8.18%	1000	3.68E-03
3	0.41%	50	1.83E-04	11	4.66%	571	2.10E-03	19	5.70%	697	2.56E-03
4	0.26%	32	1.18E-04	12	5.89%	720	2.65E-03	20	4.27%	523	1.92E-03
5	0.50%	61	2.25E-04	13	6.15%	753	2.77E-03	21	3.26%	399	1.46E-03
6	0.90%	111	4.06E-04	14	6.04%	739	2.71E-03	22	3.30%	403	1.48E-03
7	3.79%	464	1.70E-03	15	7.01%	858	3.15E-03	23	2.46%	301	1.11E-03
8	7.76%	950	3.49E-03	16	7.14%	873	3.21E-03	24	1.87%	228	8.39E-04
								Total		12,235	

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - S. Winchester Boulevard
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_SB_WIN	S. Winchester Boulevard Southbound	SB	3	650.2	0.40	17.0	56	1.3	40	12,235
FUG_NB_WIN	S. Winchester Boulevard Northbound	NB	2	647.8	0.40	13.3	44	1.3	40	12,235
									Total	24,470

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00219			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01734			
Road Dust - Emissions per Vehicle (g/VMT)	0.01681			
otal Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03634			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_SB_WIN

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	141	5.75E-04	9	7.11%	870	3.55E-03	17	7.39%	904	3.69E-03
2	0.42%	51	2.08E-04	10	4.39%	537	2.19E-03	18	8.18%	1000	4.08E-03
3	0.41%	50	2.03E-04	11	4.66%	571	2.33E-03	19	5.70%	697	2.84E-03
4	0.26%	32	1.31E-04	12	5.89%	720	2.94E-03	20	4.27%	523	2.13E-03
5	0.50%	61	2.49E-04	13	6.15%	753	3.07E-03	21	3.26%	399	1.63E-03
6	0.90%	111	4.51E-04	14	6.04%	739	3.01E-03	22	3.30%	403	1.65E-03
7	3.79%	464	1.89E-03	15	7.01%	858	3.50E-03	23	2.46%	301	1.23E-03
8	7.76%	950	3.87E-03	16	7.14%	873	3.56E-03	24	1.87%	228	9.31E-04
								Total		12,235	

2024 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_NB_WIN

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	141	5.73E-04	9	7.11%	870	3.54E-03	17	7.39%	904	3.67E-03
2	0.42%	51	2.08E-04	10	4.39%	537	2.18E-03	18	8.18%	1000	4.07E-03
3	0.41%	50	2.02E-04	11	4.66%	571	2.32E-03	19	5.70%	697	2.83E-03
4	0.26%	32	1.30E-04	12	5.89%	720	2.93E-03	20	4.27%	523	2.13E-03
5	0.50%	61	2.48E-04	13	6.15%	753	3.06E-03	21	3.26%	399	1.62E-03
6	0.90%	111	4.49E-04	14	6.04%	739	3.00E-03	22	3.30%	403	1.64E-03
7	3.79%	464	1.88E-03	15	7.01%	858	3.49E-03	23	2.46%	301	1.22E-03
8	7.76%	950	3.86E-03	16	7.14%	873	3.55E-03	24	1.87%	228	9.28E-04
								Total		12,235	

1073 S. Winchester Blvd, San Jose, CA - S. Winchester Blvd Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Cancer Risk and PM2.5 Concentration MEI Receptors

Emission Year	2024
Receptor Information	Construction Cancer Risk & PM2.5 Concentration MEI receptor
Number of Receptors	2 at construction MEI locations
Receptor Height	1.5 meters for both
Receptor Distances	At Construction MEI locations

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

Construction Cancer Risk MEI - Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0044	0.2564	0.32819

* Concentrations at construction cancer risk MEI receptor

Construction PM2.5 Concentration MEI - Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.06692	0.06426	0.00266

* Concentrations at construction PM2.5 MEI receptor

1073. S. Winchester Blvd, San Jose, CA - S. Winchester Blvd Traffic Cancer Risk
Impacts at Construction Cancer Risk MEI - 1.5 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2024	10	0.0044	0.2564	0.3282	0.060	0.020	0.0015	0.08
1	1	0 - 1	2024	10	0.0044	0.2564	0.3282	0.723	0.240	0.0181	0.98
2	1	1 - 2	2025	10	0.0044	0.2564	0.3282	0.723	0.240	0.0181	0.98
3	1	2 - 3	2026	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
4	1	3 - 4	2027	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
5	1	4 - 5	2028	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
6	1	5 - 6	2029	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
7	1	6 - 7	2030	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
8	1	7 - 8	2031	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
9	1	8 - 9	2032	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
10	1	9 - 10	2033	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
11	1	10 - 11	2034	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
12	1	11 - 12	2035	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
13	1	12 - 13	2036	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
14	1	13 - 14	2037	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
15	1	14 - 15	2038	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
16	1	15 - 16	2039	3	0.0044	0.2564	0.3282	0.114	0.038	0.0029	0.15
17	1	16-17	2040	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
18	1	17-18	2041	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
19	1	18-19	2042	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
20	1	19-20	2043	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
21	1	20-21	2044	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
22	1	21-22	2045	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
23	1	22-23	2046	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
24	1	23-24	2047	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
25	1	24-25	2048	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
26	1	25-26	2049	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
27	1	26-27	2050	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
28	1	27-28	2051	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
29	1	28-29	2052	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
30	1	29-30	2053	1	0.0044	0.2564	0.3282	0.013	0.004	0.0003	0.02
Total Increased Cancer Risk								3.27	1.090	0.082	**4.4**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.001	0.06	0.07

* Third trimester of pregnancy

1073 S. Winchester Blvd, San Jose, CA - S. Winchester Blvd Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 2nd Floor Residential Receptors (6.1 meter receptor height)

Emission Year	2024
Receptor Information	Maximum On-Site Receptor
Number of Receptors	66
Receptor Height	6.1 meters
Receptor Distances	7 meter grid spacing in residential areas

Meteorological Conditions

BAAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

MEI Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00161	0.05402	0.06913

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.07966	0.0765	0.00316

1073. S. Winchester Blvd, San Jose, CA - S. Winchester Blvd Traffic Cancer Risk
Impacts at On-Site 3rd Floor Residential Receptors - 6.1 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2024	10	0.0016	0.0540	0.0691	0.022	0.004	0.0003	0.03
1	1	0 - 1	2024	10	0.0016	0.0540	0.0691	0.264	0.051	0.0038	0.32
2	1	1 - 2	2025	10	0.0016	0.0540	0.0691	0.264	0.051	0.0038	0.32
3	1	2 - 3	2026	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
4	1	3 - 4	2027	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
5	1	4 - 5	2028	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
6	1	5 - 6	2029	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
7	1	6 - 7	2030	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
8	1	7 - 8	2031	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
9	1	8 - 9	2032	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
10	1	9 - 10	2033	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
11	1	10 - 11	2034	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
12	1	11 - 12	2035	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
13	1	12 - 13	2036	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
14	1	13 - 14	2037	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
15	1	14 - 15	2038	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
16	1	15 - 16	2039	3	0.0016	0.0540	0.0691	0.042	0.008	0.0006	0.05
17	1	16-17	2040	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
18	1	17-18	2041	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
19	1	18-19	2042	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
20	1	19-20	2043	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
21	1	20-21	2044	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
22	1	21-22	2045	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
23	1	22-23	2046	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
24	1	23-24	2047	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
25	1	24-25	2048	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
26	1	25-26	2049	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
27	1	26-27	2050	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
28	1	27-28	2051	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
29	1	28-29	2052	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
30	1	29-30	2053	1	0.0016	0.0540	0.0691	0.005	0.001	0.0001	0.01
Total Increased Cancer Risk								1.20	0.230	0.017	**1.4**

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

* Third trimester of pregnancy

Williams Road Traffic Emissions and Health Risk Calculations

File Name: 1073 S Winchester Blvd Santa Clara (SF) - 2024 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 9/15/2020 13:48
Area: Santa Clara (SF)
Analysis Year: 2024
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.026	0.495	0.505
Truck 2	0.036	0.937	0.048
Non-Truck	0.938	0.014	0.955

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

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph
PM2.5	0.009055	0.005937	0.004059	0.002926	0.002242	0.001833	0.001603	0.001499	0.001493
TOG	0.187931	0.123609	0.082483	0.057954	0.043756	0.034879	0.029177	0.025607	0.023582
Diesel PM	0.001252	0.001022	0.000793	0.000637	0.00055	0.000516	0.000522	0.000565	0.000641

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

Pollutant Name	Emission Factor
TOG	1.314612

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

Pollutant Name	Emission Factor
PM2.5	0.002189

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

Pollutant Name	Emission Factor
PM2.5	0.017344

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

Pollutant Name	Emission Factor
PM2.5	0.016811

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

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - Williams Road
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_EB_WIL	Williams Road Eastbound	EB	1	575.0	0.36	9.7	31.7	3.4	30	5,410
DPM_WB_WL	Williams Road Westbound	WB	1	567.1	0.35	9.7	31.7	3.4	30	5,410
									Total	10,820

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.00052			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and DPM Emissions - DPM_EB_WIL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.90%	211	1.08E-05	9	6.42%	347	1.78E-05	17	5.62%	304	1.56E-05
2	2.58%	140	7.14E-06	10	7.34%	397	2.03E-05	18	3.27%	177	9.05E-06
3	2.87%	155	7.94E-06	11	6.42%	347	1.78E-05	19	2.35%	127	6.51E-06
4	3.32%	180	9.21E-06	12	6.88%	372	1.91E-05	20	0.86%	47	2.38E-06
5	2.18%	118	6.03E-06	13	6.25%	338	1.73E-05	21	3.09%	167	8.57E-06
6	3.38%	183	9.37E-06	14	6.19%	335	1.71E-05	22	4.13%	223	1.14E-05
7	6.02%	326	1.67E-05	15	5.10%	276	1.41E-05	23	2.52%	136	6.99E-06
8	4.64%	251	1.29E-05	16	3.78%	205	1.05E-05	24	0.92%	50	2.54E-06
								Total		5,410	

2024 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_WB_WL

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.90%	211	1.06E-05	9	6.42%	347	1.75E-05	17	5.62%	304	1.53E-05
2	2.58%	140	7.05E-06	10	7.34%	397	2.00E-05	18	3.27%	177	8.93E-06
3	2.87%	155	7.83E-06	11	6.42%	347	1.75E-05	19	2.35%	127	6.42E-06
4	3.32%	180	9.08E-06	12	6.88%	372	1.88E-05	20	0.86%	47	2.35E-06
5	2.18%	118	5.95E-06	13	6.25%	338	1.71E-05	21	3.09%	167	8.46E-06
6	3.38%	183	9.24E-06	14	6.19%	335	1.69E-05	22	4.13%	223	1.13E-05
7	6.02%	326	1.64E-05	15	5.10%	276	1.39E-05	23	2.52%	136	6.89E-06
8	4.64%	251	1.27E-05	16	3.78%	205	1.03E-05	24	0.92%	50	2.51E-06
								Total		5,410	

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - Williams Road
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM2.5_EB_WIL	Williams Road Eastbound	EB	1	575.0	0.36	9.7	32	1.3	30	5,410
PM2.5_WB_WIL	Williams Road Westbound	WB	1	567.1	0.35	9.7	32	1.3	30	5,410
									Total	10,820

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.001833			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_EB_WIL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	62	1.13E-05	9	7.11%	385	7.00E-05	17	7.39%	400	7.27E-05
2	0.42%	23	4.11E-06	10	4.39%	237	4.32E-05	18	8.18%	442	8.05E-05
3	0.41%	22	4.00E-06	11	4.66%	252	4.59E-05	19	5.70%	308	5.61E-05
4	0.26%	14	2.57E-06	12	5.89%	319	5.80E-05	20	4.27%	231	4.21E-05
5	0.50%	27	4.92E-06	13	6.15%	333	6.05E-05	21	3.26%	176	3.21E-05
6	0.90%	49	8.89E-06	14	6.04%	327	5.94E-05	22	3.30%	178	3.24E-05
7	3.79%	205	3.73E-05	15	7.01%	380	6.90E-05	23	2.46%	133	2.42E-05
8	7.76%	420	7.64E-05	16	7.14%	386	7.02E-05	24	1.87%	101	1.84E-05
								Total		5,410	

2024 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_WB_WIL

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	62	1.12E-05	9	7.11%	385	6.90E-05	17	7.39%	400	7.17E-05
2	0.42%	23	4.05E-06	10	4.39%	237	4.26E-05	18	8.18%	442	7.94E-05
3	0.41%	22	3.94E-06	11	4.66%	252	4.53E-05	19	5.70%	308	5.53E-05
4	0.26%	14	2.54E-06	12	5.89%	319	5.72E-05	20	4.27%	231	4.15E-05
5	0.50%	27	4.85E-06	13	6.15%	333	5.97E-05	21	3.26%	176	3.16E-05
6	0.90%	49	8.77E-06	14	6.04%	327	5.86E-05	22	3.30%	178	3.20E-05
7	3.79%	205	3.68E-05	15	7.01%	380	6.81E-05	23	2.46%	133	2.39E-05
8	7.76%	420	7.54E-05	16	7.14%	386	6.93E-05	24	1.87%	101	1.81E-05
								Total		5,410	

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - Williams Road
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_EB_WIL	Williams Road Eastbound	EB	1	575.0	0.36	9.7	32	1.3	30	5,410
TEXH_WB_WIL	Williams Road Westbound	WB	1	567.1	0.35	9.7	32	1.3	30	5,410
									Total	10,820

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.03488			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EB_WIL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	62	2.16E-04	9	7.11%	385	1.33E-03	17	7.39%	400	1.38E-03
2	0.42%	23	7.82E-05	10	4.39%	237	8.21E-04	18	8.18%	442	1.53E-03
3	0.41%	22	7.60E-05	11	4.66%	252	8.74E-04	19	5.70%	308	1.07E-03
4	0.26%	14	4.90E-05	12	5.89%	319	1.10E-03	20	4.27%	231	8.01E-04
5	0.50%	27	9.36E-05	13	6.15%	333	1.15E-03	21	3.26%	176	6.10E-04
6	0.90%	49	1.69E-04	14	6.04%	327	1.13E-03	22	3.30%	178	6.17E-04
7	3.79%	205	7.10E-04	15	7.01%	380	1.31E-03	23	2.46%	133	4.61E-04
8	7.76%	420	1.45E-03	16	7.14%	386	1.34E-03	24	1.87%	101	3.49E-04
								Total		5,410	

2024 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_WB_WIL

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	62	2.13E-04	9	7.11%	385	1.31E-03	17	7.39%	400	1.36E-03
2	0.42%	23	7.71E-05	10	4.39%	237	8.10E-04	18	8.18%	442	1.51E-03
3	0.41%	22	7.50E-05	11	4.66%	252	8.62E-04	19	5.70%	308	1.05E-03
4	0.26%	14	4.83E-05	12	5.89%	319	1.09E-03	20	4.27%	231	7.90E-04
5	0.50%	27	9.23E-05	13	6.15%	333	1.14E-03	21	3.26%	176	6.02E-04
6	0.90%	49	1.67E-04	14	6.04%	327	1.12E-03	22	3.30%	178	6.09E-04
7	3.79%	205	7.00E-04	15	7.01%	380	1.30E-03	23	2.46%	133	4.55E-04
8	7.76%	420	1.43E-03	16	7.14%	386	1.32E-03	24	1.87%	101	3.45E-04
								Total		5,410	

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - Williams Road
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_EB_WIL	Williams Road Eastbound	EB	1	575.0	0.36	9.7	32	1.3	30	5,410
TEVAP_WB_WIL	Williams Road Westbound	WB	1	567.1	0.35	9.7	32	1.3	30	5,410
									Total	10,820

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle per Hour (g/hour)	1.31461			
Emissions per Vehicle per Mile (g/VMT)	0.04382			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EB_WIL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	62	2.71E-04	9	7.11%	385	1.67E-03	17	7.39%	400	1.74E-03
2	0.42%	23	9.83E-05	10	4.39%	237	1.03E-03	18	8.18%	442	1.92E-03
3	0.41%	22	9.55E-05	11	4.66%	252	1.10E-03	19	5.70%	308	1.34E-03
4	0.26%	14	6.15E-05	12	5.89%	319	1.39E-03	20	4.27%	231	1.01E-03
5	0.50%	27	1.18E-04	13	6.15%	333	1.45E-03	21	3.26%	176	7.66E-04
6	0.90%	49	2.13E-04	14	6.04%	327	1.42E-03	22	3.30%	178	7.76E-04
7	3.79%	205	8.92E-04	15	7.01%	380	1.65E-03	23	2.46%	133	5.79E-04
8	7.76%	420	1.83E-03	16	7.14%	386	1.68E-03	24	1.87%	101	4.39E-04
								Total		5,410	

2024 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_WB_WIL

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	62	2.67E-04	9	7.11%	385	1.65E-03	17	7.39%	400	1.71E-03
2	0.42%	23	9.69E-05	10	4.39%	237	1.02E-03	18	8.18%	442	1.90E-03
3	0.41%	22	9.42E-05	11	4.66%	252	1.08E-03	19	5.70%	308	1.32E-03
4	0.26%	14	6.07E-05	12	5.89%	319	1.37E-03	20	4.27%	231	9.92E-04
5	0.50%	27	1.16E-04	13	6.15%	333	1.43E-03	21	3.26%	176	7.56E-04
6	0.90%	49	2.10E-04	14	6.04%	327	1.40E-03	22	3.30%	178	7.65E-04
7	3.79%	205	8.80E-04	15	7.01%	380	1.63E-03	23	2.46%	133	5.71E-04
8	7.76%	420	1.80E-03	16	7.14%	386	1.66E-03	24	1.87%	101	4.33E-04
								Total		5,410	

1073 S. Winchester Blvd - On- and Off-site Residential
Cumulative Operation - Williams Road
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_EB_WIL	Williams Road Eastbound	EB	1	575.0	0.36	9.7	32	1.3	30	5,410
FUG_WB_WIL	Williams Road Westbound	WB	1	567.1	0.35	9.7	32	1.3	30	5,410
									Total	10,820

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00219			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01734			
Road Dust - Emissions per Vehicle (g/VMT)	0.01681			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03634			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_EB_WIL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	62	2.25E-04	9	7.11%	385	1.39E-03	17	7.39%	400	1.44E-03
2	0.42%	23	8.15E-05	10	4.39%	237	8.56E-04	18	8.18%	442	1.60E-03
3	0.41%	22	7.92E-05	11	4.66%	252	9.10E-04	19	5.70%	308	1.11E-03
4	0.26%	14	5.10E-05	12	5.89%	319	1.15E-03	20	4.27%	231	8.34E-04
5	0.50%	27	9.75E-05	13	6.15%	333	1.20E-03	21	3.26%	176	6.36E-04
6	0.90%	49	1.76E-04	14	6.04%	327	1.18E-03	22	3.30%	178	6.43E-04
7	3.79%	205	7.40E-04	15	7.01%	380	1.37E-03	23	2.46%	133	4.80E-04
8	7.76%	420	1.52E-03	16	7.14%	386	1.39E-03	24	1.87%	101	3.64E-04
								Total		5,410	

2024 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_WB_WIL

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	62	2.22E-04	9	7.11%	385	1.37E-03	17	7.39%	400	1.42E-03
2	0.42%	23	8.04E-05	10	4.39%	237	8.44E-04	18	8.18%	442	1.57E-03
3	0.41%	22	7.81E-05	11	4.66%	252	8.98E-04	19	5.70%	308	1.10E-03
4	0.26%	14	5.03E-05	12	5.89%	319	1.13E-03	20	4.27%	231	8.23E-04
5	0.50%	27	9.62E-05	13	6.15%	333	1.18E-03	21	3.26%	176	6.27E-04
6	0.90%	49	1.74E-04	14	6.04%	327	1.16E-03	22	3.30%	178	6.34E-04
7	3.79%	205	7.30E-04	15	7.01%	380	1.35E-03	23	2.46%	133	4.74E-04
8	7.76%	420	1.49E-03	16	7.14%	386	1.37E-03	24	1.87%	101	3.59E-04
								Total		5,410	

1073 S. Winchester Blvd, San Jose, CA - Williams Rd Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Cancer Risk and PM2.5 Concentration MEI Receptors

Emission Year	2024
Receptor Information	Construction Cancer Risk & PM2.5 Concentration MEI receptor
Number of Receptors	2 at construction MEI locations
Receptor Height	1.5 meters for both
Receptor Distances	At Construction MEI locations

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

Construction Cancer Risk MEI - Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00025	0.01706	0.02143

* Concentrations at construction cancer risk MEI receptor

Construction PM2.5 Concentration MEI - Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.03189	0.03036	0.00153

* Concentrations at construction PM2.5 Concentration MEI receptor

1073. S. Winchester Blvd, San Jose, CA - Williams Rd Traffic Cancer Risk
Impacts at Construction Cancer Risk MEI - 1.5 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2024	10	0.0003	0.0171	0.0214	0.003	0.001	0.0001	0.00
1	1	0 - 1	2024	10	0.0003	0.0171	0.0214	0.041	0.016	0.0012	0.06
2	1	1 - 2	2025	10	0.0003	0.0171	0.0214	0.041	0.016	0.0012	0.06
3	1	2 - 3	2026	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
4	1	3 - 4	2027	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
5	1	4 - 5	2028	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
6	1	5 - 6	2029	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
7	1	6 - 7	2030	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
8	1	7 - 8	2031	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
9	1	8 - 9	2032	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
10	1	9 - 10	2033	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
11	1	10 - 11	2034	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
12	1	11 - 12	2035	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
13	1	12 - 13	2036	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
14	1	13 - 14	2037	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
15	1	14 - 15	2038	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
16	1	15 - 16	2039	3	0.0003	0.0171	0.0214	0.006	0.003	0.0002	0.01
17	1	16-17	2040	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
18	1	17-18	2041	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
19	1	18-19	2042	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
20	1	19-20	2043	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
21	1	20-21	2044	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
22	1	21-22	2045	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
23	1	22-23	2046	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
24	1	23-24	2047	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
25	1	24-25	2048	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
26	1	25-26	2049	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
27	1	26-27	2050	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
28	1	27-28	2051	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
29	1	28-29	2052	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
30	1	29-30	2053	1	0.0003	0.0171	0.0214	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.19	0.072	0.005	**0.3**

Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
0.0001	0.03	0.03

* Third trimester of pregnancy

1073 S. Winchester Blvd, San Jose, CA - Williams Rd Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 2nd Floor Residential Receptors (6.1 meter receptor height)

Emission Year	2024
Receptor Information	Maximum On-Site Receptor
Number of Receptors	66
Receptor Height	6.1 meters
Receptor Distances	7 meter grid spacing in residential areas

Meteorological Conditions

BAAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

MEI Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00029	0.0204	0.02562

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.02233	0.02126	0.00107

1073. S. Winchester Blvd, San Jose, CA - Williams Rd Traffic Cancer Risk
Impacts at On-Site 3rd Floor Residential Receptors - 6.1 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2024	10	0.0003	0.0204	0.0256	0.004	0.002	0.0001	0.01
1	1	0 - 1	2024	10	0.0003	0.0204	0.0256	0.048	0.019	0.0014	0.07
2	1	1 - 2	2025	10	0.0003	0.0204	0.0256	0.048	0.019	0.0014	0.07
3	1	2 - 3	2026	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
4	1	3 - 4	2027	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
5	1	4 - 5	2028	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
6	1	5 - 6	2029	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
7	1	6 - 7	2030	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
8	1	7 - 8	2031	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
9	1	8 - 9	2032	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
10	1	9 - 10	2033	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
11	1	10 - 11	2034	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
12	1	11 - 12	2035	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
13	1	12 - 13	2036	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
14	1	13 - 14	2037	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
15	1	14 - 15	2038	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
16	1	15 - 16	2039	3	0.0003	0.0204	0.0256	0.007	0.003	0.0002	0.01
17	1	16-17	2040	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
18	1	17-18	2041	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
19	1	18-19	2042	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
20	1	19-20	2043	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
21	1	20-21	2044	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
22	1	21-22	2045	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
23	1	22-23	2046	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
24	1	23-24	2047	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
25	1	24-25	2048	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
26	1	25-26	2049	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
27	1	26-27	2050	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
28	1	27-28	2051	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
29	1	28-29	2052	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
30	1	29-30	2053	1	0.0003	0.0204	0.0256	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.22	0.087	0.006	**0.3**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.02	0.02

* Third trimester of pregnancy

APPENDIX D

STATIONARY SOURCE RESULTS

FID	OBJECTID	FACID	Name	Address	City	St	Zip	County	Cancer	Hazard	PM_25	Type	Latitude	Longitude	x	y
8730	8,730	112466	Winchester	1025 S Wir	San Jose	CA	95128	Santa Clara	26.68	0.12	0	Gas Dispen	37.309	-121.95	-1.4E+07	4482196

Stationary Source Data Request

Instructions

Please provide all contact and project information and submit this form with a printout of the Stationary Source Risk and Hazards Screening Report (instructions below) available via the Permitted Stationary Source Risk and Hazards GIS map to Areana Flores at aflores@baaqmd.gov. **This form is not applicable for school projects.** Please submit a Public Records Request for all data requests related to school projects.

Information

Contact Name	Tanya Kalaskar	Project Name	1087-1073 S. Winchester Blvd Mixed Use Project
Affiliation	EMC Planning Group	Address	1073 S. Winchester Blvd
Phone	2134773824	City	San Jose
Email	tanyakalaskar@gmail.com	County	Santa Clara
Date	6/17/2020	Type (residential, commercial, mixed use, industrial, etc.)	Mixed Use

Fill in requested data parameters and additional comments below:

Emission data (in lbs/day) for Winchester Shell (Facility ID: 112466) located at 1025 S Winchester Blvd, San Jose, CA 95128.

Process for retrieving screening report:

1. Go to GIS map
2. Click on the "screening" widget (top left)
3. Click on "draw"
4. Select draw mode
5. Draw parcel of interest
6. Click "report"
7. Download CSV and print pdf

Revised 4.30.2020

Facility ID	Facility Name	Period Start Date	Period End Dat	Device ID	Device Name	Maximum	Hours Per	Days Per W	Weeks Per	Category	Type	Sub Type	Material ID	Material Type	Density	Material U	Usage Unit	Pollutant I	Pollutant	Factor	Factor Poll	Factor Usa	Factor Units	Factor Bas	Unabated Annual Er	Unabated Daily Er	Unabated Hourly Er	Emissions U	Abated Annual Er	Abated Daily Er	Abated Hourly Er	Emission Un	Material U	Pollutant	Conversion Factor
112466	Winchester Shell	1/31/2019	1/31/2020	S1	Gasoline Dispensin	24	12	7	52	Gasoline Dispensing	Gasoline Dispensing O		S51	Gasoline - Unleaded	5.1	599999	Gallons	41	Benzene	0.00284	lbs/usage	Thousand	lbs/1,000 gallo	Other	1.703997241	4.68E-03	0.000390109	lbs	1.703997241	4.68E-03	0.000390109	lbs	0.001		1
112466	Winchester Shell	1/31/2019	1/31/2020	S1	Gasoline Dispensin	24	12	7	52	Gasoline Dispensing	Gasoline Dispensing O		S51	Gasoline - Unleaded	5.1	599999	Gallons	148	Hexane	0.0112	lbs/usage	Thousand	lbs/1,000 gallo	Other	6.719989119	1.85E-02	0.001538459	lbs	6.719989119	1.85E-02	0.001538459	lbs	0.001		1
112466	Winchester Shell	1/31/2019	1/31/2020	S1	Gasoline Dispensin	24	12	7	52	Gasoline Dispensing	Gasoline Dispensing O		S51	Gasoline - Unleaded	5.1	599999	Gallons	293	Toluene	0.0272	lbs/usage	Thousand	lbs/1,000 gallo	Other	16.31997358	4.48E-02	0.003736258	lbs	16.31997358	4.48E-02	0.003736258	lbs	0.001		1
112466	Winchester Shell	1/31/2019	1/31/2020	S1	Gasoline Dispensin	24	12	7	52	Gasoline Dispensing	Gasoline Dispensing O		S51	Gasoline - Unleaded	5.1	599999	Gallons	307	Xylene	0.0227	lbs/usage	Thousand	lbs/1,000 gallo	Other	13.61997795	3.74E-02	0.003118127	lbs	13.61997795	3.74E-02	0.003118127	lbs	0.001		1
112466	Winchester Shell	1/31/2019	1/31/2020	S1	Gasoline Dispensin	24	12	7	52	Gasoline Dispensing	Gasoline Dispensing O		S51	Gasoline - Unleaded	5.1	599999	Gallons	333	Ethylbenzene	0.00405	lbs/usage	Thousand	lbs/1,000 gallo	Other	2.429996065	6.68E-03	0.000556318	lbs	2.429996065	6.68E-03	0.000556318	lbs	0.001		1
112466	Winchester Shell	1/31/2019	1/31/2020	S1	Gasoline Dispensin	24	12	7	52	Gasoline Dispensing	Gasoline Dispensing O		S51	Gasoline - Unleaded	5.1	599999	Gallons	10007	Precursor Organic Compounds (PO	0.67	lbs/usage	Thousand	lbs/1,000 gallo	Other	401.9993491	1.10E+00	0.092032818	lbs	401.9993491	1.10E+00	0.092032818	lbs	0.001		1

Step 1:

Plant Name	Winchester Shell
Plant No.	112466

Step 2:
Estimate Distance

What is the distance (m) from the facility boundary to the MEI?	190

Step 3:
Enter Emissions Data

Step 4:
Specify Source Type

Does facility have only diesel backup generators?	no
Is this analysis for a gas station?	yes

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

Step 5:
Read Estimates

Total Cancer Risk	0.021	per 1,000,000
Total Chronic Hazard	0.000	
Total PM2.5 Concentration	0.000	µg/m^3

Chemical Name	CAS No. (dashes removed)	Rate (lb/day)	Risk (# / 1,000,000)	Hazard (index)	Concentration (µg/m3)
Fine Particulate Matter (PM2.5)					
1,1,1-Trichloroethane	71556	0.00E+00			
1,1,2,2-Tetrachloroethane	79345	0.00E+00			
1,1,2-Trichloroethane	79005	0.00E+00			
1,1-Dichloroethane	75343	0.00E+00			
1,1-Dichloroethylene	75354	0.00E+00			
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268879	0.00E+00			
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001020	0.00E+00			
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822469	0.00E+00			
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562394	0.00E+00			
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673897	0.00E+00			
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227286	0.00E+00			
1,2,3,4,7,8-Hexachlorodibenzofuran	70648269	0.00E+00			
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653857	0.00E+00			
1,2,3,6,7,8-Hexachlorodibenzofuran	57117449	0.00E+00			
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408743	0.00E+00			
1,2,3,7,8,9-Hexachlorodibenzofuran	72918219	0.00E+00			
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321764	0.00E+00			
1,2,3,7,8-Pentachlorodibenzofuran	57117416	0.00E+00			
1,2-Dibromo-3-chloropropane	96128	0.00E+00			
1,2-Dibromoethane	106934	0.00E+00			
1,2-Dichloroethane	107062	0.00E+00			
1,2-Epoxybutane	106887	0.00E+00			
1,3-Butadiene	106990	0.00E+00			
1,3-Propane sultone	1120714	0.00E+00			
1,4-Dichlorobenzene	106467	0.00E+00			
1,4-Dioxane	123911	0.00E+00			
1,6-Dinitropyrene	42397648	0.00E+00			
1,8-Dinitropyrene	42397659	0.00E+00			
1-Nitropyrene	5522430	0.00E+00			
2',3,4,4',5-PeCB	65510443	0.00E+00			
2,3',4,4',5,5'-HxCB	52663726	0.00E+00			
2,3',4,4',5-PeCB	31508006	0.00E+00			
2,3,3',4,4',5'-HxCB	69782907	0.00E+00			
2,3,3',4,4',5,5'-HpCB	39635319	0.00E+00			
2,3,3',4,4',5-HxCB	38380084	0.00E+00			
2,3,3',4,4'-PeCB	32598144	0.00E+00			
2,3,4,4',5-PeCB	74472370	0.00E+00			
2,3,4,6,7,8-hexachlorodibenzofuran	60851345	0.00E+00			
2,3,4,7,8-Pentachlorodibenzofuran	57117314	0.00E+00			
2,3,7,8-Tetrachlorodibenzo-p-dioxin and related compc	1746016	0.00E+00			
2,3,7,8-Tetrachlorodibenzofuran	51207319	0.00E+00			
2,4,6-Trichlorophenol	88062	0.00E+00			
2,4-Diaminoanisole	615054	0.00E+00			
2,4-Diaminotoluene	95807	0.00E+00			
2,4-Dinitrotoluene	121142	0.00E+00			
2-Aminoanthraquinone	117793	0.00E+00			
2-Nitrofluorene	607578	0.00E+00			
3,3',4,4',5,5'-HxCB	32774166	0.00E+00			
3,3',4,4',5-PeCB	57465288	0.00E+00			
3,3',4,4'-TCB	32598133	0.00E+00			
3,3-Dichlorobenzidine	91941	0.00E+00			
3,4,4'5-TCB	70362504	0.00E+00			
3-Methylcholanthrene	56495	0.00E+00			
4,4-Methylene bis(2-chloroaniline)	101144	0.00E+00			
4,4-Methylenedianiline	101779	0.00E+00			
4-Chloro-ortho-phenylenediamine	95830	0.00E+00			
4-Dimethylaminoazobenzene	60117	0.00E+00			
4-Nitropyrene	57835924	0.00E+00			
5-Methylchrysene	3697243	0.00E+00			
5-Nitroacenaphthene	602879	0.00E+00			
6-Nitrochrysene	7496028	0.00E+00			
7,12-Dimethylbenz(a)anthracene	57976	0.00E+00			
7H-dibenzo(c,g)carbazole	194592	0.00E+00			
Acetaldehyde	75070	0.00E+00			
Acetamide	60355	0.00E+00			
Acrolein	107028	0.00E+00			
Acrylamide	79061	0.00E+00			
Acrylic Acid	79107	0.00E+00			
Acrylonitrile	107131	0.00E+00			
Allyl chloride	107051	0.00E+00			
Ammonia	7664417	0.00E+00			
Aniline	62533	0.00E+00			

Arsenic	7440382	0.00E+00			
Arsine	7784421	0.00E+00			
Asbestos [1/(100 PCM fibers/m^3)]^-1	1332214	0.00E+00			
Benz(a)anthracene	56553	0.00E+00			
Benzene	71432	4.68E-03	5.98E-01	2.95E-03	
Benzidine	92875	0.00E+00			
Benzo(a)pyrene	50328	0.00E+00			
Benzo(b)fluoranthene	205992	0.00E+00			
Benzo(j)fluoranthene	205823	0.00E+00			
Benzo(k)fluoranthene	207089	0.00E+00			
Benzyl Chloride	100447	0.00E+00			
Beryllium	7440417	0.00E+00			
Bis(2-chloroethyl) Ether	111444	0.00E+00			
Bis(2-chloromethyl) Ether	542881	0.00E+00			
Cadmium	7440439	0.00E+00			
Caprolactam	105602	0.00E+00			
Carbon Disulfide	75150	0.00E+00			
Carbon Monoxide	630080	0.00E+00			
Carbon Tetrachloride	56235	0.00E+00			
Carbonyl Sulfide	463581	0.00E+00			
Chlorinated paraffins (Avg. chain length C12; approx. 6(	108171262	0.00E+00			
Chlorine	7782505	0.00E+00			
Chlorine Dioxide	10049044	0.00E+00			
Chlorite	7758192	0.00E+00			
Chlorobenzene	108907	0.00E+00			
Chlorodibromomethane	124481	0.00E+00			
Chloroethane (Ethyl Chloride)	75003	0.00E+00			
Chloroform	67663	0.00E+00			
Chloropicrin	76062	0.00E+00			
Chromic Trioxide	1333820	0.00E+00			
Chromium-hexavalent	18540299	0.00E+00			
Barium chromate2	10294403	0.00E+00			
Calcium chromate2	13765190	0.00E+00			
Lead chromate2	7758976	0.00E+00			
Sodium dichromate2	10588019	0.00E+00			
Strontium chromate2	7789062	0.00E+00			
CHROMIC TRIOXIDE (as chromic acid mist)	1333820	0.00E+00			
Chrysene	218019	0.00E+00			
Copper	7440508	0.00E+00			
Copper and Copper Compounds	7440508	0.00E+00			
Cresol Mixtures	1319773	0.00E+00			
Cupferron	135206	0.00E+00			
Cyanide	57125	0.00E+00			
Di(2-ethylhexyl)phthalate	117817	0.00E+00			
Dibenz(a-h)acridine	226368	0.00E+00			
Dibenz(a-h)anthracene	53703	0.00E+00			
Dibenz(a-j)acridine	224420	0.00E+00			
Dibenzo(a-e)pyrene	192654	0.00E+00			
Dibenzo(a-h)pyrene	189640	0.00E+00			
Dibenzo(a-i)pyrene	189559	0.00E+00			
Dibenzo(a-l)pyrene	191300	0.00E+00			
Diesel Exhaust Particulate	85105	0.00E+00			
Diethanolamine	111422	0.00E+00			
Dimethylformamide	68122	0.00E+00			
Direct Black 38 (Technical Grade)	1937377	0.00E+00			
Direct Blue 6 (Technical Grade)	2602462	0.00E+00			
Direct Brown 95 (Technical Grade)	16071866	0.00E+00			
Epichlorohydrin	106898	0.00E+00			
Ethylbenzene	100414	6.68E-03	7.43E-02	6.31E-06	
Ethylene Glycol	107211	0.00E+00			
Ethylene Glycol Monobutyl Ether	111762	0.00E+00			
Ethylene Glycol Monoethyl Ether	110805	0.00E+00			
Ethylene Glycol Monoethyl Ether Acetate	111159	0.00E+00			
Ethylene Glycol Monomethyl Ether	109864	0.00E+00			
Ethylene Glycol Monomethyl Ether Acetate	110496	0.00E+00			
Ethylene Oxide	75218	0.00E+00			
Ethylene Thiourea	96457	0.00E+00			
Fluorides	1101	0.00E+00			
Formaldehyde (gas)	50000	0.00E+00			
Glutaraldehyde	111308	0.00E+00			
Hexachlorobenzene	118741	0.00E+00			
Hexachlorocyclohexane (Technical Grade)	608731	0.00E+00			
Hexachlorocyclohexane- Alpha Isomer	319846	0.00E+00			
Hexachlorocyclohexane- Beta Isomer	319857	0.00E+00			
Hexachlorocyclohexane- Gamma Isomer	58899	0.00E+00			
Hydrazine	302012	0.00E+00			
Hydrogen Chloride	7647010	0.00E+00			
Hydrogen Cyanide	74908	0.00E+00			
Hydrogen Fluoride	7664393	0.00E+00			
Hydrogen Selenide	7783075	0.00E+00			
Hydrogen Sulfide	7783064	0.00E+00			
Indeno(1-2-3-c-d)pyrene	193395	0.00E+00			
Isophorone	78591	0.00E+00			
Isopropyl Alcohol	67630	0.00E+00			
Lead Acetate	301042	0.00E+00			
Lead and Lead Compounds	7439921	0.00E+00			
Lead Phosphate	7446277	0.00E+00			
Lead Subacetate	1335326	0.00E+00			
m-CRESOL	108394	0.00E+00			
m-XYLENE	108383	0.00E+00			

Maleic Anhydride	108316	0.00E+00		
Manganese & Manganese Compounds	7439965	0.00E+00		
Mercury (Inorganic)	7439976	0.00E+00		
Mercuric chloride	7487947	0.00E+00		
Methanol	67561	0.00E+00		
Methyl Bromide	74839	0.00E+00		
Methyl Ethyl Ketone	78933	0.00E+00		
Methyl Isocyanate	624839	0.00E+00		
Methyl Tertiary Butyl Ether	1634044	0.00E+00		
Methylene Chloride (Dichloromethane)	75092	0.00E+00		
Methylene Diphenyl Isocyanate (MDI)	101688	0.00E+00		
Michlers Ketone	90948	0.00E+00		
n-Hexane	110543	1.85E-02	4.99E-06	
n-Nitroso-n-methylethylamine	10595956	0.00E+00		
n-Nitrosodi-n-Butylamine	924163	0.00E+00		
n-Nitrosodi-n-Propylamine	621647	0.00E+00		
n-Nitrosodiethylamine	55185	0.00E+00		
n-Nitrosodimethylamine	62759	0.00E+00		
n-Nitrosodiphenylamine	86306	0.00E+00		
n-Nitrosomorpholine	59892	0.00E+00		
n-Nitrosopiperidine	100754	0.00E+00		
n-Nitrosopyrrolidine	930552	0.00E+00		
Naphthalene	91203	0.00E+00		
Nickel and Nickel Compounds	7440020	0.00E+00		
Nickel acetate	373024	0.00E+00		
Nickel carbonate	3333673	0.00E+00		
Nickel carbonyl	13463393	0.00E+00		
Nickel hydroxide	12054487	0.00E+00		
Nickelocene	1271289	0.00E+00		
Nickel Oxide	1313991	0.00E+00		
Nickel Refinery Dust	1146	0.00E+00		
Nickel Subsulfide	12035722	0.00E+00		
Nitric Acid	7697372	0.00E+00		
Nitrogen Dioxide	10102440	0.00E+00		
o-CRESOL	95487	0.00E+00		
o-XYLENE	95476	0.00E+00		
Oleum	8014957	0.00E+00		
Ozone	10028156	0.00E+00		
p-Chloro-o-toluidine	95692	0.00E+00		
p-Cresidine	120718	0.00E+00		
p-CRESOL	106445	0.00E+00		
p-Nitrosodiphenylamine	156105	0.00E+00		
p-XYLENE	106423	0.00E+00		
Pentachlorophenol	87865	0.00E+00		
Perchloroethylene	127184	0.00E+00		
Phenol	108952	0.00E+00		
Phosgene	75445	0.00E+00		
Phosphine	7803512	0.00E+00		
Phosphoric Acid	7664382	0.00E+00		
Phthalic Anhydride	85449	0.00E+00		
Polychlorinated Biphenyls	1336363	0.00E+00		
Potassium Bromate	7758012	0.00E+00		
Propylene	115071	0.00E+00		
Propylene Glycol Monomethyl Ether	107982	0.00E+00		
Propylene oxide	75569	0.00E+00		
Selenium	7782492	0.00E+00		
Selenium sulfide	7446346	0.00E+00		
Silica (crystalline, respirable)	7631869	0.00E+00		
Sodium hydroxide	1310732	0.00E+00		
Styrene	100425	0.00E+00		
Sulfates	9960	0.00E+00		
Sulfur Dioxide	7446095	0.00E+00		
Sulfuric Acid	7664939	0.00E+00		
Sulfur Trioxide	7446719	0.00E+00		
Tertiary-butyl acetate	540885	0.00E+00		
Tetrachloroethylene	127184	0.00E+00		
Thioacetamide	62555	0.00E+00		
Toluene	108883	4.48E-02	2.82E-04	
Toluene Diisocyanates	26471625	0.00E+00		
Toluene Diisocyanates (2,4 and 2, 6)	584849	0.00E+00		
Toluene Diisocyanates (2,4 and 2, 6)	91087	0.00E+00		
Trichloroethylene	79016	0.00E+00		
Triethylamine	121448	0.00E+00		
Urethane	51796	0.00E+00		
Vanadium pentoxide	1314621	0.00E+00		
Vinyl acetate	108054	0.00E+00		
Vinyl chloride	75014	0.00E+00		
Xylenes (technical mixture of m, o, p-isomers)	1330207	3.74E-02	1.01E-04	
Vanadium	7440622	0.00E+00		
TOTAL UNADJUSTED Risk Values		**0.673**	**0.003**	**0.000**