

## MEMORANDUM

To: Tad Stearn, Kimley-Horn

From: Noemi Wyss AICP, Environmental Planner, Kimley-Horn  
Sophia La Herran, Environmental Analyst, Kimley-Horn

Date: December 15, 2023

Subject: 1055 Commercial Court Project – Health Risk Assessment

---

### 1.0 PURPOSE

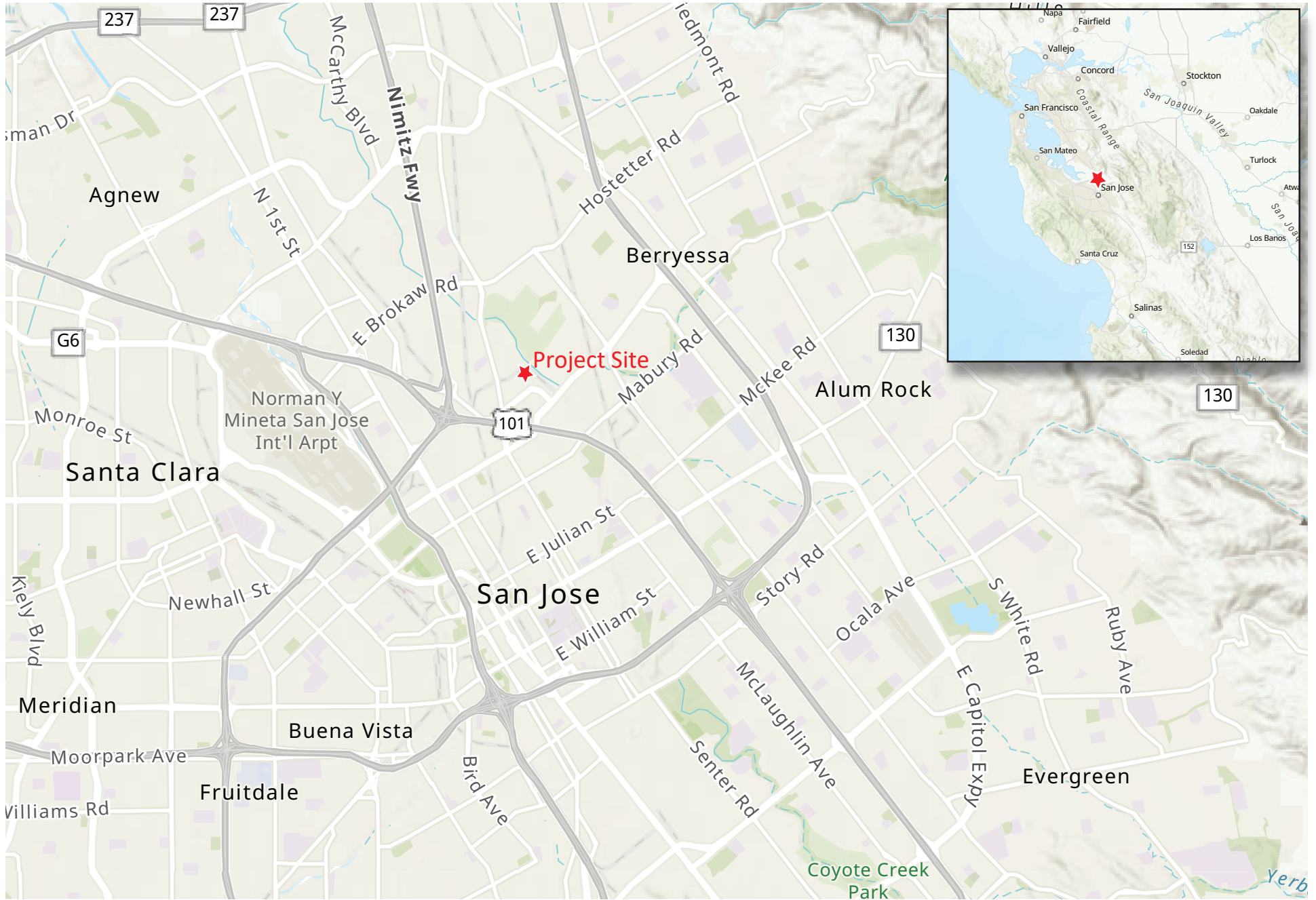
The purpose of this Health Risk Assessment (HRA) is to evaluate potential health risks associated with Toxic Air Contaminants (TAC) including Diesel Particulate Matter (DPM) resulting from the construction and operations of the 1055 Commercial Court Project (Project). This HRA was prepared in accordance with the requirements of the Bay Area Air Quality Management District (BAAQMD) and guidance from the Office of Environmental Health Hazard Assessment (OEHHA) to determine if health risks are likely to occur from the Project. The emissions modeling outputs used in this HRA are provided in **Appendix A: Modeling Data**.

### 2.0 PROJECT DESCRIPTION

The project is in the City of José (City) in the northern portion of downtown San José, California. The project site is located at 1055 Commercial Court. **Figure 1: Regional Location** and **Figure 2: Project Vicinity Map**, depict the project site in a regional and local context. The project site is located approximately 2.5 miles north of downtown San José, in an urbanized area. Surrounding land uses consist of a mix of heavy industrial, business park, residential, and open space (Coyote Creek). The proposed project site includes two existing parcels (Assessor Parcel Numbers 241-10-002 and 241-10-003) on approximately 4.88 gross acres.

The project proposes to demolish approximately 9,150 sf of existing storage buildings and sheds, remove existing Conex boxes, and add approximately 193,639 sf of paving to the property. As shown in **Figure 3: Site Plan**, the project to be developed includes a commercial vehicle storage which could include parking for private vehicle fleets, those with buses, vans, trucks, and/or automobiles, and associated vehicle maintenance on-site. It is assumed that site operations could occur seven days per week with no late-night operations (12:00 a.m. to 6:00 a.m.). While vehicles would be stored on site 24 hours per day, it is assumed that vehicle drop off and pick up in and out of the site would occur during regular daytime hours. As an industrial use with no permanent vertical structures proposed, the number of employees would be the minimum required to manage site operations, estimated at 5 to 10 employees during daytime hours and possible 1-2 security employees during other times.

Construction and demolition activities would occur in one phase over a four to six month period. Construction activities are expected to commence no earlier than spring or summer 2024.



Source: USGS, 2023

**Figure 1: Regional Location**

1055 Commercial Court  
 Technical Studies



Not to scale





Source: Nearmap, 2023

## Figure 2: Project Vicinity Map

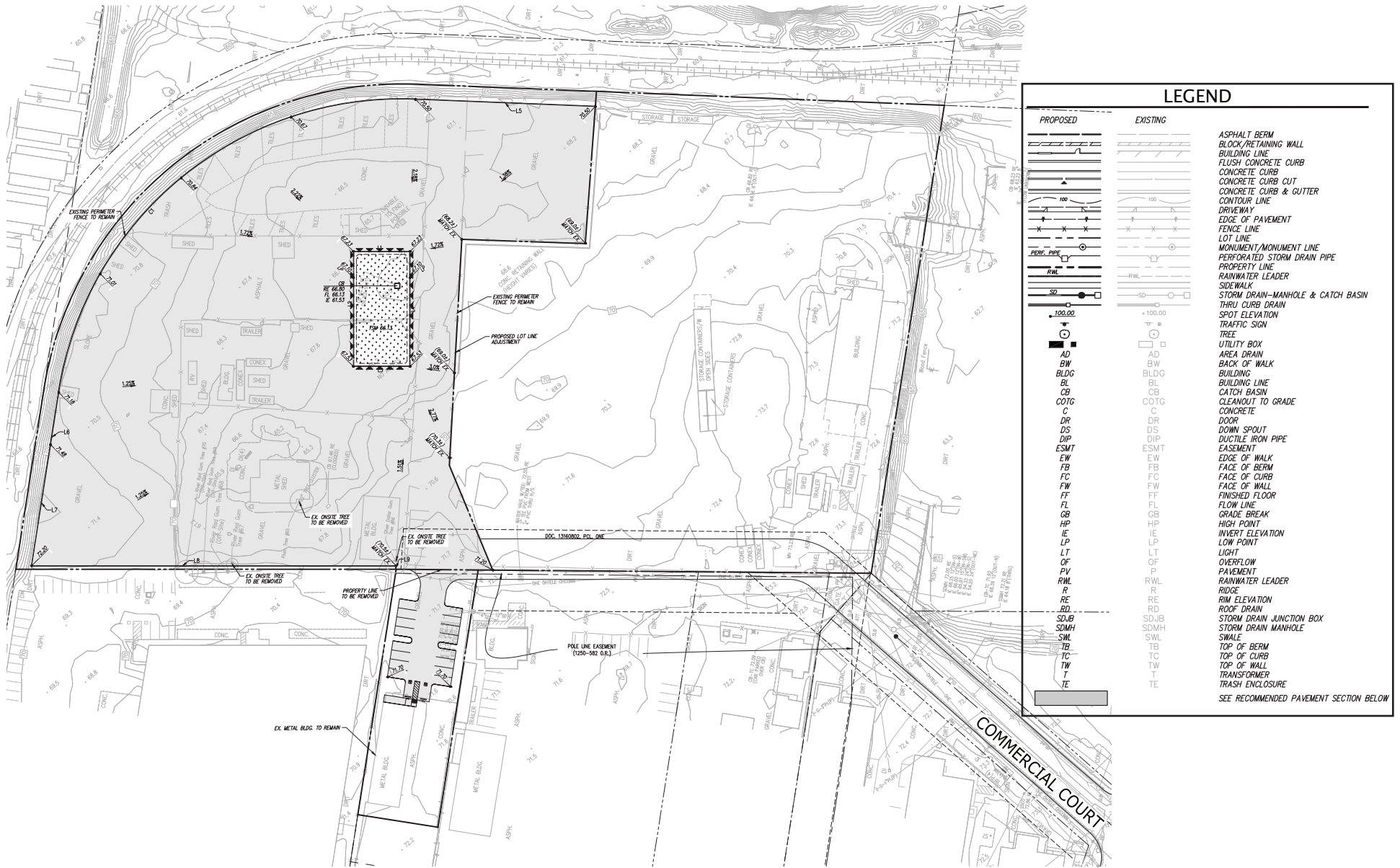
1055 Commercial Court  
Technical Studies



Not to scale

**Kimley»Horn**  
Expect More. Experience Better.





PROPOSED	EXISTING	
		ASPHALT BERM
		BLOCK/RETAINING WALL
		BUILDING LINE
		FLUSH CONCRETE CURB
		CONCRETE CURB
		CONCRETE CURB CUT
		CONCRETE CURB & GUTTER
		CONTOUR LINE
		DRIVEWAY
		EDGE OF PAVEMENT
		FENCE LINE
		LOT LINE
		MONUMENT/MONUMENT LINE
		PERFORATED STORM DRAIN PIPE
		PROPERTY LINE
		RAINWATER LEADER
		SIDEWALK
		STORM DRAIN-MANHOLE & CATCH BASIN
		THRU CURB DRAIN
		SPOT ELEVATION
		TRAFFIC SIGN
		TREE
		UTILITY BOX
		AREA DRAIN
		BACK OF WALK
		BLDG
		BUILDING LINE
		CATCH BASIN
		CLEANOUT TO GRADE
		CONCRETE
		DOOR
		DOWN SPOUT
		DUCTILE IRON PIPE
		EASEMENT
		EDGE OF WALK
		FACE OF BERM
		FACE OF CURB
		FACE OF WALL
		FINISHED FLOOR
		FLOW LINE
		GRADE BREAK
		HIGH POINT
		INVERT ELEVATION
		LOW POINT
		LIGHT
		OVERFLOW
		PAVEMENT
		RAINWATER LEADER
		RIDGE
		RIM ELEVATION
		ROOF DRAIN
		STORM DRAIN JUNCTION BOX
		STORM DRAIN MANHOLE
		SWALE
		TOP OF BERM
		TOP OF CURB
		TOP OF WALL
		TRANSFORMER
		TRASH ENCLOSURE
		SEE RECOMMENDED PAVEMENT SECTION BELOW

Source: Kier + Wright, 2023

**Figure 3: Site Plan**  
 1055 Commercial Court  
 Technical Studies



Not to scale

### 3.0 ENVIRONMENTAL SETTING

#### 3.1 Climate

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

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

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

#### 3.2 Toxic Air Contaminants

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

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

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

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

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

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

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

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

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

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

**3.3 Sensitive Receptors**

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive receptors that are in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptors to the Project site are the residential communities consisting of residential communities (mobile home park and single-family residential). The three sensitive land uses nearest to the Project are shown in **Table 1: Sensitive Receptors**.

**Table 1: Sensitive Receptors**

Receptor Description	Approximate Distance and Direction from the Project
Residential Community (Mobile Home Park)	65 feet northwest
Residential Community (Single-family)	370 feet northeast
Open Space (Coyote Creek)	160 feet northeast
Distances are measured from the Project site boundary to the property line. Source: Google Earth, 2023.	

## 4.0 REGULATORY SETTING

### 4.1 Federal

#### Federal Clean Air Act

The FCAA was amended in 1990 to address the numerous air pollutants that are known to cause or may reasonably be anticipated to cause adverse effects to human health or adverse environmental effects. 188 specific pollutants and chemical groups were initially identified as HAPs, and the list has been modified over time. The FCAA Amendments included new regulatory programs to control acid deposition and for the issuance of stationary source operating permits.

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

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

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

#### Federal Emissions Standards for On-Road Trucks

To reduce emissions from on-road, heavy-duty diesel trucks, the U.S. EPA established a series of increasingly strict emission standards for new engines, starting in 1988. The U.S. EPA promulgated the final and cleanest standards with the 2007 Heavy-Duty Highway Rule.<sup>1</sup> The PM emission standard of 0.01

---

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



gram per horsepower-hour (g/hp-hr) is required for new vehicles beginning with model year 2007. Also, the NO<sub>x</sub> and nonmethane hydrocarbon (NMHC) standards of 0.20 g/hp-hr and 0.14 g/hp-hr, respectively, were phased in together between 2007 and 2010 on a percent of sales basis: 50 percent from 2007 to 2009 and 100 percent in 2010.

### **Emission Standards for Off-Road Diesel Engines**

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

## **4.2 State of California**

### **California Air Resources Board**

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

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

### **Diesel Risk Reduction Plan**

The identification of DPM as a TAC in 1998 led CARB to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (DRRP) in October 2000. The DRRP's goals include an 85 percent reduction in DPM by 2020 from the 2000 baseline.<sup>2</sup> CARB estimates that emissions of DPM in 2035 will be less than half those in 2010, further reducing statewide cancer risk and non-cancer

---

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

health effects.<sup>3</sup> The DRRP includes regulations for cleaner new diesel engines, cleaner in-use diesel engines (retrofits), and cleaner diesel fuel.

### **Truck and Bus Regulation Reducing Emissions from Existing Diesel Vehicles**

On December 12, 2008, CARB approved the Truck and Bus Regulation to significantly reduce particulate matter (PM) and oxides of nitrogen (NO<sub>x</sub>) emissions from existing diesel vehicles operating in California. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Heavier trucks must be retrofitted with PM filters beginning January 1, 2012, and older trucks must be replaced starting January 1, 2015. Effective January 1, 2023, nearly all trucks and buses are required to have 2010 model year engines or equivalent.

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

### **Heavy-Duty Vehicle Idling Emission Reduction Program**

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

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

Section 2485 and Section 2449 of Title 13 of the California Code of Regulations limits diesel-fueled motor vehicle idling to no more than five minutes. Section 2485 limits idling for diesel-fueled commercial motor vehicles with gross vehicle weight ratings of greater than 10,000 pounds that are or must be licensed to operate on publicly maintained highways and streets within California. Section 2449 limits idling for off-road diesel-fueled fleets.

---

<sup>3</sup> California Air Resources Board, *Overview: Diesel Exhaust & Health*, <https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health>, accessed August 2023.

## California Energy Commission - Title 24 Building Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in California Code of Regulations (CCR) Title 24 Part 6, were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Energy Standards include requirements for mandatory mechanical ventilation intended to improve indoor air quality in homes, and requirements for Minimum Efficiency Reporting Value (MERV) 13 air filtration on space conditioning systems, and ventilation systems that provide outside air to a dwelling's occupiable space. The Residential Compliance Manual for the 2019 Building Energy Efficiency Standards notes that air filter efficiencies of at least MERV 13 protect occupants from exposure to the smaller airborne particles (i.e., PM<sub>2.5</sub>) that are known to adversely affect respiratory health. CCR Title 24 Part 6 requires a particle size efficiency rating equal to or greater than 85 percent in the 1.0 to 0.3 µm range. The California Energy Commission (CEC) adopted the 2022 Energy Code on August 11, 2021, which was subsequently approved by the California Building Standards Commission for inclusion into the California Building Standards Code. The 2022 Title 24 standards will result in less energy use, thereby reducing air pollutant emissions associated with energy consumption across California. For example, the 2022 Title 24 standards will require efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, and strengthens ventilation standards.

## CalEnviroScreen

OEHHA has developed CalEnviroScreen 4.0, which is a mapping tool that helps identify California communities that are most affected by many sources of pollution, and where people are often especially vulnerable to pollution's effects. CalEnviroScreen uses environmental, health, and socioeconomic information to produce scores for every census tract in the State. The scores are mapped so that different communities can be compared. An area with a high score is one that experiences a much higher pollution burden than areas with low scores.

According to CalEnviroScreen, the Project site and the nearest residences to the northwest are located within Census Tract 6085504318, which is within the 80<sup>th</sup> percentile.<sup>4</sup> It should be noted that the CalEnviroScreen scores are relative to other census tracts and are not an expression of health risk, and do not provide quantitative information on increases in cumulative impacts for specific sites or projects. Further, as a comparative screening tool, the results do not provide a basis for determining when differences between scores are significant in relation to public health or the environment.

## Senate Bill 535

Senate Bill (SB) 535 directs 25 percent of the proceeds from the Greenhouse Gas Reduction Fund (i.e., funds from the AB 32 cap-and-trade program) to go to projects that provide a benefit to disadvantaged communities (DACs) (as identified by the OEHHA mapping). These funds must be used for programs that

---

<sup>4</sup> California Office of Environmental Health Hazard Assessment, *CalEnviroScreen 4.0 Results (October 2021 Update)*, <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>. Accessed October 2023.



further reduce greenhouse gas emissions. Funding programs that reduce greenhouse gas emissions would also potentially reduce exposure to other emissions including TACs. Based on OEHHA mapping, the Project site is within a SB 535 designated disadvantaged community (Census Tract 6085504318).<sup>5</sup> SB 535 does not include project specific requirements or prohibit developments in proximity to the designated communities.

### **CARB Advanced Clean Truck Regulation**

CARB adopted the Advanced Clean Truck Regulation in June 2020 requiring truck manufacturers to transition from diesel trucks and vans to electric zero-emission trucks beginning in 2024. By 2045, every new truck sold in California is required to be zero-emission. This rule directly addresses disproportionate risks and health and pollution burdens and puts California on the path for an all zero-emission short-haul drayage fleet in ports and railyards by 2035, and zero-emission “last-mile” delivery trucks and vans by 2040. The Advanced Clean Truck Regulation accelerates the transition of zero-emission medium-and heavy-duty vehicles from Class 2b to Class 8. The regulation has two components including a manufacturer sales requirement, and a reporting requirement:

- **Zero-Emission Truck Sales:** Manufacturers who certify Class 2b through 8 chassis or complete vehicles with combustion engines are required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales need to be 55 percent of Class 2b – 3 truck sales, 75 percent of Class 4 – 8 straight truck sales, and 40 percent of truck tractor sales.
- **Company and Fleet Reporting:** Large employers including retailers, manufacturers, brokers and others would be required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, would be required to report about their existing fleet operations. This information would help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

### **CARB Advanced Clean Truck Regulation**

Advanced Clean Cars combines several regulations into one package including the Low-Emission Vehicle (LEV) criteria and greenhouse gas regulations and the zero-emission vehicle (ZEV) regulation. Advanced Clean Cars I was adopted in 2012 and Advanced Clean Cars II was adopted in 2022. These regulations rapidly scale down emissions of light-duty passenger cars, pickup trucks and SUVs and require an increased number of zero-emission vehicles to meet air quality and climate change emissions goals. By 2035 all new passenger cars, trucks and SUVs sold in California will be zero emissions. The Advanced Clean Cars II regulations take the state’s already growing zero-emission vehicle market and robust motor vehicle emission control rules and augments them to meet more aggressive tailpipe emissions standards and ramp up to 100% zero-emission vehicles.

---

<sup>5</sup> California Office of Environmental Health Hazard Assessment, *SB 535 Disadvantaged Communities (2022 Update)*, <https://oehha.ca.gov/calenviroscreen/sb535>. Accessed October 2023.

## **Executive Order N-79-20**

Signed in September 2020, Executive Order N-79-20 establishes as a goal that where feasible, all new passenger cars and trucks, as well as all drayage/cargo trucks and off-road vehicles and equipment, sold in California, will be zero-emission by 2035. The executive order sets a similar goal requiring that all medium and heavy-duty vehicles will be zero-emission by 2045 where feasible. It also directs CARB to develop and propose rulemaking for passenger vehicles and trucks, medium-and heavy-duty fleets where feasible, drayage trucks, and off-road vehicles and equipment “requiring increasing volumes” of new zero emission vehicles (ZEVs) “towards the target of 100 percent.” The executive order directs the California Environmental Protection Agency, the California Geologic Energy Management Division (CalGEM), and the California Natural Resources Agency to transition and repurpose oil production facilities with a goal toward meeting carbon neutrality by 2045. Executive Order N-79-20 builds upon the CARB Advanced Clean Trucks regulation, which was adopted by CARB in July 2020.

### **4.3 Regional**

#### **Bay Area Air Quality Management District**

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

Under BAAQMD Regulation 2-1 (General Permit Requirements), Regulation 2-2 (New Source Review), and Regulation 2-5 (New Source Review), all nonexempt sources that possess the potential to emit TACs are required to obtain permits from BAAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The BAAQMD limits emissions and public exposure to TACs through a number of programs. Section 301 of Regulation 2, Rule 2 requires Best Available Control Technology (BACT) is triggered for any new or modified source with the potential to emit specific levels of pollutants. The BAAQMD prioritizes TAC-emitting stationary sources for regulation based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

#### **Community Air Risk Evaluation Program**

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

Information from the CARE program is used by the BAAQMD to design and focus effective mitigation measures in areas with highest impacts.



## 5.0 SIGNIFICANCE CRITERIA AND METHODOLOGY

### 5.1 Health Risk Analysis Thresholds

Project health risks are determined by examining the types and levels of air toxics generated and the associated impacts on factors that affect air quality. The BAAQMD publishes the CEQA Air Quality Guidelines, which were most recently updated in April 2022. The BAAQMD thresholds for air toxic emissions that are used for this project are shown below:

- **Excess (Incremental) Cancer Risk:** Emit contaminants that result in a maximum individual cancer risk (MICR) greater than 10 in one million.
- **Non-Cancer Risk:** Emit contaminants that exceed the maximum hazard index of 1.0 in one million.
- **Ambient PM<sub>2.5</sub> Concentration:** Incremental increase in average annual PM<sub>2.5</sub> concentration greater than 0.3 µg/m<sup>3</sup>

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

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

The 2022 BAAQMD CEQA Air Quality Guidelines recommend assessing impacts within 1,000 feet of the project. The 1,000-foot radius is consistent with findings in CARB's Air Quality and Land Use Handbook (2005) and the California Health & Safety Code §42301.6 (Notice for Possible Source Near School). The 2005 CARB Air Quality and Land Use Handbook found that TAC concentrations are reduced substantially at a distance 1,000 feet downwind from sources such as freeways or large distribution centers.

### 5.2 Methodology

#### Construction Sources

Construction would generate DPM emissions from the use of off-road diesel equipment required for grading and excavation, paving, and other construction activities. For construction activity, DPM is the

primary TAC of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations. Diesel exhaust from construction equipment operating at the site potentially poses a health risk to nearby sensitive receptors. The closest sensitive receptors to the Project are residences to the northwest.

Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The use of diesel-powered construction equipment would be episodic and would occur throughout the Project site. Construction activities would limit idling to no more than five minutes pursuant to Section 2485 and Section 2449 of Title 13 of the California Code of Regulations, which would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Furthermore, even during the most intense period of construction, emissions of DPM would be generated from different locations on the Project site rather than in a single location because different types of construction activities (e.g., site preparation and building construction) would not occur at the same place at the same time. Construction emissions rates for PM<sub>2.5</sub> (DPM) were calculated from the CalEEMod construction emissions modeling conducted for the Project.

As described above, PM<sub>2.5</sub> exhaust construction emissions over the entire construction period were used in AERMOD to approximate construction DPM emissions. AERMOD requires meteorological, traffic volumes, and vehicle emissions data. Meteorological data used in the HRA is discussed below. AERMOD provides concentrations in an isopleth to visually show the dispersion of the pollutant. All AERMOD assumptions, input data, and outputs are provided herein. Risk levels were calculated based on the California Office of Environmental Health Hazard Assessment (OEHHA) guidance document, *Air Toxics Hot Spots Program Risk Assessment Guidelines* (February 2015).

### Dispersion Modeling

The air dispersion modeling for the construction risk assessment was performed using U.S. EPA AERMOD dispersion model. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources (not a factor in this case). AERMOD requires hourly meteorological data consisting of wind vector, wind speed, temperature, stability class, and mixing height. AERMOD regulatory defaults, the "Urban" modeling option for the County, and "Elevated" terrain (i.e., the modeling accounted for the elevation of the project site and surrounding area) were used for this analysis. In addition, National Elevation Dataset (NED) terrain data was imported into AERMOD for the Project. Surface and upper air meteorological data is provided by BAAQMD. Surface and upper air meteorological data from the San José International Airport Monitoring Station was selected as being the most representative for meteorology based on proximity to the Project site.

AERMOD was run to obtain the period (i.e., annual) average concentration in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) at the surrounding sensitive receptors as well as workers, students, and on-site receptors. The period (annual) average concentrations were used to calculate the MICR, the maximum chronic hazard index (HI), as well as peak hourly concentrations to calculate the health impact from substances with acute non-cancer health effects. To achieve these goals, a receptor grid was placed over the Project site to cover the zone of impact. Due to the size of the Project site, nearby sensitive receptors were modeled with a

35-meter grid spacing. In addition, National Elevation Dataset (NED) terrain data was imported into AERMOD for the Project. The modeling and analysis was prepared in accordance with the BAAQMD Modeling Guidance for AERMOD<sup>6</sup>.

The emission sources in the model are line volume sources (comprised of smaller adjacent volume sources) for construction trucks. Construction line volume sources were assigned a release height of 11.2 feet (3.40 meters). A release height of 12 feet is the average stack height for trucks and the plume height is based on U.S. EPA guidance for vehicle volume sources.

The cancer risk calculations were based on applying age sensitivity weighting factors for each emissions period modeled. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. The chronic and carcinogenic health risk calculations are based on the standardized equations contained in the OEHHA Guidance Manual. Only the risk associated with the worst-case location of the proposed Project was assessed. Risk levels were calculated according to the OEHHA guidance document, *Air Toxics Hot Spots Program Risk Assessment Guidelines* (February 2015).

Note that the concentration estimate developed using this methodology is conservative and is not a specific prediction of the actual concentrations that would occur at or near the Project site at any one point in time. Receptors are often indoors and not in one location over the course of a lifetime exposure. Therefore, risk levels identified in this report represent a worst-case scenario. Actual annual average concentrations are dependent on many variables, particularly the number and type of vehicles and equipment operating at specific distances during time periods of adverse meteorology. A health risk computation was performed to determine the risk of developing an excess cancer risk calculated on these worst-case exposure duration scenarios. The chronic and carcinogenic health risk calculations are based on the standardized equations contained in the OEHHA Guidance Manual. Only the risk associated with the worst-case location of the Project was assessed (i.e., the maximally exposed individuals [MEI] identified in Section 5, below).

## Risk and Hazard Assessment

**Cancer Risk.** Based on the OEHHA methodology, residential inhalation cancer risk from annual average DPM are calculated by multiplying the daily inhalation dose, cancer potency factor (CPF), age sensitivity factor (ASF), frequency of time spent at home, and ED divided by averaging time (AT), yielding the excess cancer risk. These factors are discussed in more detail below. Exposure through inhalation (Dose-air) is a function of breathing rate, exposure frequency (EF), and concentration of substance in the air. To estimate cancer risk, the dose was estimated by applying the following formula to each ground-level concentration:

---

<sup>6</sup> Bay Area Air Quality Management District, *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*, December 2021.



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

Where:

- Dose-air = dose through inhalation (mg/kg/day)
- C<sub>air</sub> = air concentration (µg/m<sup>3</sup>) from air dispersion model
- (BR/BW) = daily breathing rate normalized to body weight (L/kg bodyweight-day)
- A = inhalation absorption factor (unitless)
- EF = exposure frequency (approximately 350 days per year for residential)
- 10<sup>-6</sup> = conversion factor (micrograms to milligrams, liters to cubic meters)

OEHHA developed ASFs to consider the increased sensitivity to carcinogens during early-life exposure. In the absence of chemical-specific data, OEHHA recommends a default ASF presented in **Table 2: Exposure Assumptions**. Fraction of time at home (FAH) during the day is used to adjust exposure duration and cancer risk from a specific facility’s emissions, based on the assumption that exposure to the facility’s emissions are not occurring away from home. OEHHA recommends the FAH values presented in **Table 2**.

**Table 2: Exposure Assumptions**

Age	Exposure Frequency (days/year)	Exposure Duration (years)	Age Sensitivity Factor <sup>1</sup> (ASF)	Fraction of Time at Home (FAH)	Daily Breathing Rate (L/kg BW-day <sup>2</sup> )
<b>Residential</b>					
Third trimester	350	0.25	10	85%	361
0 to 2 years	350	2	10	85%	1,090
Ages 2 through 8 years	350	7	3	72%	631
Ages 9 through 15 years	350	7	3	72%	572
Ages 16 and greater	350	13.75	1	73%	261
<b>Worker<sup>3</sup></b>	250	25	1	N/A	230
<b>Student<sup>3</sup></b>	180	9	3	N/A	640
1. Accounts for potential increased sensitivity to carcinogens during childhood. 2. 95 <sup>th</sup> percentile daily breathing rate normalized to body weight (L/kg body weight-day) (95 <sup>th</sup> percentile for less than two years old and 80 <sup>th</sup> percentile for two years old and greater). 3. Worker and Student breathing rates are 95 <sup>th</sup> percentile 8-hour breathing rates based on moderate intensity activity.					
Source: California Office of Environmental Health Hazard Assessment, <i>Air Toxics Program Guidance Manual for the Preparation of Health Risk Assessments</i> , February 2015.					

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

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

- Risk<sub>inh-res</sub> = residential inhalation cancer risk (potential chances per million)
- Dose<sub>air</sub> = daily dose through inhalation (mg/kg-day)
- CPF = inhalation cancer potency factor (mg/kg-day<sup>-1</sup>)
- ASF = age sensitivity factor for a specified age group (unitless)
- ED = exposure duration (years)
- AT = averaging time of lifetime cancer risk (years)
- FAH = fraction of time spent at home (unitless)

**Chronic Non-Cancer Hazard.** Non-cancer chronic impacts are calculated by dividing the annual average concentration by the REL for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. According to OEHHA, the REL for DPM is 5 and the target organ is the respiratory system. The following equation was used to determine the non-cancer risk:

$$\text{Hazard Index} = C_i / \text{REL}_i$$

$C_i$  = concentration in the air of substance  $i$  (annual average concentration in  $\mu\text{g}/\text{m}^3$ )  
 $\text{REL}_i$  = chronic noncancer Reference Exposure Level for substance ( $\mu\text{g}/\text{m}^3$ )

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

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

**Health Risk Computation.** A health risk computation was performed to determine the risk of developing an excess cancer risk calculated on a 30-year exposure scenario using the approach and the daily breathing rates, age sensitivity factors, exposure duration, and fraction of time at home described in the OEHHA *Air Toxics Program Guidance Manual for the Preparation of Health Risk Assessments* (February 2015) (refer to **Table 2**). Health risks were analyzed at the point of maximum impact and are a conservative estimate. The pollutant concentrations are then used to estimate the long-term cancer health risks to an individual as well as the non-cancer chronic health index.

## 6.0 POTENTIAL HEALTH RISK IMPACTS

CARB identified DPM as a TAC in 1998. Mobile sources (including trucks, buses, automobiles, trains, ships, and farm equipment) are by far the largest source of diesel emissions. Diesel exhaust is emitted from a broad range of on- and off-road diesel engines. As the Project includes construction activities near sensitive receptors (i.e., within the BAAQMD 1,000-foot zone of influence) an analysis of health risk impacts from TACs was performed for construction.

### 6.1 Construction Carcinogenic Risk

Construction-related activities would result in Project-generated emissions of DPM from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g. demolition, clearing, grading); paving; application of architectural coatings; on-road truck travel; and other miscellaneous activities. For construction activity, DPM is the primary toxic air contaminant of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations. Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors.

**Table 3: Construction Carcinogenic Risk Assessment** shows the health risk for construction of the Project. Project construction would occur for a period of approximately four to six months. However, the health risk computation was performed to determine the risk of developing an excess cancer risk calculated on a 3-year exposure scenario, beginning with the third trimester, as recommended by the BAAQMD, and thus is conservative.<sup>7</sup>

As shown in **Table 3**, the unmitigated construction risk at residential and worker receptors would be 36.81 and 2.89 in one million, respectively. Therefore, the maximum unmitigated construction cancer risk at the residential receptor would exceed the BAAQMD threshold of 10 in one million. The Project would implement Mitigation Measure HRA-1 to reduce cancer risk. Mitigation Measure HRA-1 requires the use of construction equipment that would meet CARB Tier 4 Final emissions standards or similarly effective equipment in order to reduce diesel exhaust construction emissions. Implementation of Mitigation Measure HRA-1 would reduce cancer risk from Project construction to below the BAAQMD's 10 in one million threshold; refer to **Table 3**. Therefore, the Project's cancer risk would not exceed the BAAQMD's 10 in one million threshold and impacts associated with carcinogenic risk would be less than significant with mitigation.

---

<sup>7</sup> The BAAQMD recommends that the cancer risk be evaluated assuming that the average daily dose for short-term exposure lasts a minimum of three years for projects lasting three years or less (BAAQMD, *BAAQMD Air Toxics NSR Program Health Risk Assessment Guidelines*, December 2016).



**Table 3: Construction Carcinogenic Risk Assessment**

Exposure Scenario	Risk per Million		Exceeds Significance Threshold?
	Cancer Risk <sup>1</sup>	Significance Threshold	
<b>Unmitigated</b>			
Residential Receptors (west of site)	36.81	10	Yes
Worker Receptors (southwest of site)	2.89	10	No
<b>Mitigated</b>			
Residential Receptors (west of site)	2.07	10	No
Worker Receptors (southwest of site)	0.21	10	No
1. The reported annual pollutant concentration is at the closest maximally exposed individual (MEI) to the Project site.			
Source: Refer to <a href="#">Appendix A: Modeling Data</a> .			

As described above, worst-case construction risk levels based on AERMOD and conservative assumptions would be below the BAAQMD’s thresholds for construction with Mitigation Measure HRA-1. Therefore, construction risk levels would be less than significant with implementation of the identified mitigation measure.

**Mitigation Measures:**

**HRA-1** Prior to issuance of any demolition, grading, and/or building permits (whichever occurs earliest), the project applicant shall prepare and submit a construction operations plan that includes specifications of the equipment to be used during construction to the Director of Planning, Building and Code Enforcement or the Director’s Designee. The plan shall be accompanied by a letter signed by a qualified air quality specialist, verifying that the equipment included in the plan meets the standards set forth below.

- For all construction equipment larger than 25 horsepower operating on the site for more than two days continuously or 20 total hours, shall, at a minimum meet U.S. EPA Tier 4 Final emission standards.
- If Tier 4 Final equipment is not available, all construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA emission standards for Tier 3 engines and include particulate matter (PM) emissions control equivalent to CARB Level 3 verifiable diesel emission control devices that altogether achieve an 85 percent reduction in PM exhaust and 40 percent reduction in NO<sub>x</sub> in comparison to uncontrolled equipment.

The construction operations plan prepared by the contractor shall identify how the contractor will achieve the measures outlines in this mitigation measure. The plan shall include, but not be limited to the following:

- List of activities and estimated timing.
- Equipment that would be used for each activity.
- Manufacturer’s specifications for each equipment that provides the emissions level; or the manufacturer’s specifications for devices that would be added to each piece of equipment to ensure the emissions level meet the thresholds in the mitigation measure.

The project applicant shall include this requirement in applicable bid documents and require compliance as a condition of contract. A copy of each equipment unit's certified tier specification and CARB or BAAQMD operating permit (if applicable) should be available upon request at the time of mobilization of each applicable unit of equipment. The City shall require periodic reporting and provision of written documentation by contractors to ensure compliance and shall conduct regular inspections to the maximum extent feasible to ensure compliance.

The construction contractor(s) shall maintain equipment maintenance records for the construction portion of the project. All construction equipment must be tuned and maintained in compliance with the manufacturer's recommended maintenance schedule and specifications. Upon request for inspection, construction contractor(s) shall make available all maintenance records for equipment used on site within one business day (either hardcopy or electronic versions)..

## 6.2 Construction Non-Carcinogenic Hazard

The significance thresholds for TAC exposure also require an evaluation of non-cancer risk stated in terms of a hazard index. Non-cancer chronic impacts are calculated by dividing the annual average concentration by the REL for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. RELs are designed to protect sensitive individuals within the population. The primary TAC emitted during construction is DPM. According to OEHHA, the REL for DPM is 5 and the target organ is the respiratory system.<sup>8</sup>

Chronic and acute non-carcinogenic impacts are shown in **Table 4: Construction Chronic Hazard Assessment**. A chronic hazard index of 1.0 is considered individually significant. The hazard index is calculated by dividing the chronic exposure by the reference exposure level. The chronic hazard was calculated based on the highest annual average concentration at the maximally exposed individual receptor. It should be noted that there is no acute REL for DPM and acute health risk cannot be calculated. **Table 4** shows that the non-carcinogenic hazards associated with unmitigated and mitigated scenarios would not exceed the acceptable limits of 1.0.

---

<sup>8</sup> California Office of Environmental Health Hazard Assessment, *OEHHA Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary*, available at <https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary>.

**Table 4: Construction Chronic Hazard Assessment**

Exposure Scenario	Annual Concentration ( $\mu\text{g}/\text{m}^3$ ) <sup>1</sup>	Chronic Hazard
<b>Unmitigated</b>		
Residential Receptors (west of site)	0.12	0.02
Worker Receptors (southwest of site)	0.09	0.02
<i>BAAQMD Threshold</i>	<i>N/A</i>	<i>1.0</i>
<b>Threshold Exceeded?</b>	<b>N/A</b>	<b>No</b>
<b>Mitigated</b>		
Residential Receptors (west of site)	0.01	0.001
Worker Receptors (southwest of site)	0.01	0.001
<i>BAAQMD Threshold</i>	<i>N/A</i>	<i>1.0</i>
<b>Threshold Exceeded?</b>	<b>N/A</b>	<b>No</b>
1. The reported pollutant concentration is at the closest receptor (maximally exposed individual). 2. DPM is the primary TAC occurring during construction. There is no acute REL for DPM and acute health risk cannot be calculated.		
Source: Refer to <a href="#">Appendix A: Modeling Data</a> .		

### 6.3 Operational Toxic Air Contaminants

Operational emissions from the proposed Project would result from mobile sources (i.e., motor vehicle use) and area sources (such as the use of landscape maintenance equipment, consumer products, and architectural coatings). As discussed in the Project’s *Air Quality and Greenhouse Gas Emissions Memorandum* (Kimley-Horn, October 2023), the majority of these emissions would be generated by vehicle travel occurring off-site from diesel and gasoline-powered vehicles trips to and from the Project site. The Project is intended to provide parking for private vehicle fleets, those with buses, vans, trucks, and/or automobiles, and associated vehicle maintenance equipment. The modeling and analysis results did not identify a substantial generation of TACs from diesel powered vehicles. Light-duty and gasoline-powered vehicles are not a substantial source of TAC emissions (e.g., DPM). Therefore, operational emissions would not be considered a substantial source of TACs and this impact related to operational TAC emissions would be less than significant based on BAAQMD thresholds.

### 6.4 Cumulative Health Impacts

Stationary sources within a 1,000-foot radius of the Project site were reviewed using BAAQMD’s Stationary Source Screening Analysis Tools. There were no stationary sources located within a 1,000-foot radius of the Project site. **Table 5: Cumulative Operational Health Risk**, provides the emissions from the existing nearby highway, roadway, and rail sources.



**Table 5: Cumulative Operational Health Risk**

Emissions Sources	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Cancer Risk (per million)	Hazard
Major Street Sources	0.03	1.34	0.12
Highway Sources	0.37	18.25	1.48
Railway Services	0.003	1.82	0.012
<b>Cumulative Health Risk Values</b>	<b>0.40</b>	<b>21.41</b>	<b>1.61</b>
<i>BAAQMD Cumulative Threshold</i>	<i>0.8</i>	<i>100</i>	<i>10</i>
<b>Threshold Exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: BAAQMD’s Stationary Source Screening Analysis Tools, 2023.

Cumulative impacts are defined as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. As described above, the Project is 65 feet away from the closest sensitive receptors and would be within the zone of influence as defined by the BAAQMD. Worst-case PM<sub>2.5</sub> concentrations associated with existing cumulative conditions would not exceed the BAAQMD’s thresholds, refer to **Table 5**. The cancer risk and hazard levels would also remain below the BAAQMD cumulative thresholds. Therefore, the project’s cumulative impacts will be less than significant.

**6.5 Conclusion**

As described above, impacts related to incremental excess cancer risk would be less than significant with implementation of Mitigation Measure HRA-1. Additionally, non-carcinogenic hazards are calculated to be within acceptable limits. Project and related project total PM<sub>2.5</sub> concentrations, cancer risk, chronic hazard, and acute hazard would not exceed BAAQMD cumulative thresholds. The Project’s health risk impacts would not be cumulatively considerable.

## 7.0 REFERENCES

1. Bay Area Air Quality Management District, *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*, December 2021.
2. Bay Area Air Quality Management District, *BAAQMD Health Risk Assessment Modeling Protocol*, December 2020.
3. Bay Area Air Quality Management District, *California Environmental Air Quality Act Air Quality Guidelines*, April 2022.
4. California Air Pollution Control Officers Association, *Health Risk Assessment for Proposed Land Use Projects*, July 2009.
5. California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005.
6. California Air Resources Board Research Division and University of California, Berkeley, *Activity Patterns of California Residents*, May 1991.
7. California Air Resources Board, *Overview: Diesel Exhaust & Health*, available at: <https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health>, accessed August 2023.
8. California Air Resources Board, *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October 2000.
9. California Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidelines*, August 2003.
10. California Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidance Manual for Preparation of Health Risk Assessments*, February 2015.
11. California Office of Environmental Health Hazard Assessment, *CalEnviroScreen 4.0*, [https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4\\_0/](https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0/), accessed October 2023.
12. California Office of Environmental Health Hazard Assessment, *SB 535 Disadvantaged Communities (2022 Update)*, <https://oehha.ca.gov/calenviroscreen/sb535>, accessed October 2023.
13. City of San José, *Envision San José 2040 General Plan FEIR*, 2011.
14. Health Effects Institute, *Advanced Collaborative Emissions Study (ACES): Lifetime Cancer and Non-Cancer Assessment in Rats Exposed to New-Technology Diesel Exhaust*, January 2015.
15. Lakes Environmental, *AERMOD View Gaussian Plume Air Dispersion Model*, Version 11.2.0
16. Ralph Propper, et al., *Ambient and Emission Trends of Toxic Air Contaminants in California*, Environmental Science and Technology, September 2015.
17. United States Environmental Protection Agency, *Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*, Final Rule. 40 Code of Federal Regulations, Parts 69, 80, and 86. January 18, 2001.
18. United States Environmental Protection Agency, *Exposure Factors Handbook: 2011 Edition*, September 2011.

# Appendix A

## Modeling Data

---

**CONSTRUCTION (UNMITIGATED)**

**AERMOD Location**

**Construction Duration (days)**  
**2024**  
 116

**Number of Months**  
**Total**  
 4  
 116

576188.72 m E  
 4147652.66 m N

<b>2024</b>		<b>Days</b>	<b>Vendor</b>	<b>Hauling</b>	<b>Vendor</b>	<b>Hauling</b>
Demo	2/1/2024 - 2/28/2024	20	0	30	0	602
Site Prep	03/01/2024 - 3/15/2024	11	0	0	0	0
Grading	4/01/2024 - 4/26/2024	20	0	7	0	148
Paving	4/29/2024 - 6/30/2024	45	0	0	0	0
Arch	6/1/2024 - 6/30/2024	20				

**On-Site Construction PM2.5 Exhaust (tons/yr)**

Year	Phase	Unmitigated
2024	Demo	0.009756187
2024	Site Prep	0.008094291
2024	Grading	0.007713672
2024	Paving	0.006751632
2024	Arch	0.000293196
<b>Total 2024</b>		<b>3.26E-02</b>

**Off-Site Construction PM2.5 Exhaust (tons/yr)**

Year	Phase	Unmitigated
2024	Demo	0.000265437
2024	Site Prep	0.00E+00
2024	Grading	6.52568E-05
2024	Paving	0.00E+00
2024	Arch	0.00E+00
<b>Total 2024</b>		<b>3.31E-04</b>

**Construction  
 Group: ONSITE**

**PM2.5 Exhaust Onsite**

Year	Tons/Year	g/s	Weighted Average On-Site Rate	
			Average On-Site Rate	AERMOD Unitized Rate (g/s)
2024	3.26E-02	0.008855	8.85E-03	1

**Group: OFFSITE**

Year	Trips		Miles		Weighted
	Vendor	Hauling	Vendor	Hauling	Trip length
2024	0	750	8.4	20	20.00

**PM2.5 Exhaust Off-Site**

Year	Tons/Year	g/s	Weighted Average	
			g/s per mile	Off-Site Rate
2024	0.0003	0.000090	4.48994E-06	4.49E-06

**Group: OFFSITE**

Roadway	Speed	Length (meters)	Length (Miles)	Emissions	Emission Rate	AERMOD Unitized
				(g/sec per mile)	(g/sec)	Rate (g/s)
Commercial Court	30	552.4	0.34	4.49E-06	1.54E-06	1.00
					1.54E-06	1.00E+00



CONSTRUCTION RISK (UNMITIGATED)

CONSTRUCTION RISK (UNMITIGATED)

Table with columns: Discrete, Onsite, Offsite, Concentration (AVERAGE CONC), Residential Date, Risk by Age Group. Rows include various project identifiers and numerical data points.

CONSTRUCTION RISK (UNMITIGATED)

Table with 10 columns: ID, Name, Address, City, State, Zip, Risk Score, Risk Category, Risk Description, and Mitigation Status. The table contains 378 rows of data, each representing a different construction project with associated risk information.



CONSTRUCTION RISK (UNMITIGATED)

57R UCRTs	58R UCRTs	59R UCRTs	60R UCRTs	61R UCRTs	62R UCRTs	63R UCRTs	64R UCRTs	65R UCRTs	66R UCRTs	67R UCRTs	68R UCRTs	69R UCRTs	70R UCRTs	71R UCRTs	72R UCRTs	73R UCRTs	74R UCRTs	75R UCRTs	76R UCRTs	77R UCRTs	78R UCRTs	79R UCRTs	80R UCRTs	81R UCRTs	82R UCRTs	83R UCRTs	84R UCRTs	85R UCRTs	86R UCRTs	87R UCRTs	88R UCRTs	89R UCRTs	90R UCRTs	91R UCRTs	92R UCRTs	93R UCRTs	94R UCRTs	95R UCRTs	96R UCRTs	97R UCRTs	98R UCRTs	99R UCRTs	100R UCRTs						
58R UCRTs	59R UCRTs	60R UCRTs	61R UCRTs	62R UCRTs	63R UCRTs	64R UCRTs	65R UCRTs	66R UCRTs	67R UCRTs	68R UCRTs	69R UCRTs	70R UCRTs	71R UCRTs	72R UCRTs	73R UCRTs	74R UCRTs	75R UCRTs	76R UCRTs	77R UCRTs	78R UCRTs	79R UCRTs	80R UCRTs	81R UCRTs	82R UCRTs	83R UCRTs	84R UCRTs	85R UCRTs	86R UCRTs	87R UCRTs	88R UCRTs	89R UCRTs	90R UCRTs	91R UCRTs	92R UCRTs	93R UCRTs	94R UCRTs	95R UCRTs	96R UCRTs	97R UCRTs	98R UCRTs	99R UCRTs	100R UCRTs							
101R UCRTs	102R UCRTs	103R UCRTs	104R UCRTs	105R UCRTs	106R UCRTs	107R UCRTs	108R UCRTs	109R UCRTs	110R UCRTs	111R UCRTs	112R UCRTs	113R UCRTs	114R UCRTs	115R UCRTs	116R UCRTs	117R UCRTs	118R UCRTs	119R UCRTs	120R UCRTs	121R UCRTs	122R UCRTs	123R UCRTs	124R UCRTs	125R UCRTs	126R UCRTs	127R UCRTs	128R UCRTs	129R UCRTs	130R UCRTs	131R UCRTs	132R UCRTs	133R UCRTs	134R UCRTs	135R UCRTs	136R UCRTs	137R UCRTs	138R UCRTs	139R UCRTs	140R UCRTs	141R UCRTs	142R UCRTs	143R UCRTs	144R UCRTs	145R UCRTs	146R UCRTs	147R UCRTs	148R UCRTs	149R UCRTs	150R UCRTs



CONSTRUCTION RISK (UNMITIGATED)

Table with columns for ID, coordinates (X, Y, Z), and risk scores (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100). The table contains 100 rows of numerical data representing construction risk assessments for various locations.



Worker Risk (Unmitigated)

Construction

Mitigated

On-Site Off-Site  
Emissions Rate (g/s): 8.85E-03 1.54E-06

Discrete Receptor ID

Table with columns: X, Y, Concentration (µg/m³) at 1 g/s, Construction, Worker Dose, Worker Risk. Rows include discrete receptor IDs 1 through 161, with associated coordinates and various metrics.















**Residential Exposure**

**Construction (Unmitigated)**

Location	X	Y	X, Y	Rec #	Concentration	Construction Risk	Risk Per Million	Threshold	
Residences to the West	598404.85	4136606.55	598404.85, 4136606.55	807	0.120234078	3.68135E-05	36.81349987	1.00E-05	Exceed
Residences to the South	598368.85	4136334.55	598368.85, 4136334.55	423	0.005350445	1.63821E-06	1.638209496	1.00E-05	LTS

**Worker Exposure**

**Construction (Unmitigated)**

Location	X	Y	X, Y	Rec #	Concentration	Construction Risk	Risk Per Million	Threshold	
Workers to the SW	598404.85	4136487.55	598404.85, 4136487.55	659	0.092717456	2.89202E-06	2.89202E+00	2.00E-05	LTS

**Table XX: Carcinogenic Risk Assessment**

Exposure Scenario	Cancer Risk (Risk per Million) <sup>1,2</sup>	Significance Threshold (Risk per Million)	Exceeds Significance Threshold?
<b>Construction</b>			
Unmitigated Residential	36.81	10	Yes
Unmitigated Worker	2.89	10	No

**Table XX: Chronic Hazard Assessment**

Exposure Scenario	Annual Concentration ( $\mu\text{g}/\text{m}^3$ ) <sup>1,2</sup>	Chronic Hazard <sup>1</sup>
<b>Construction</b>		
Residential	0.1202	0.0240
Worker	0.0927	0.0185
<b>Operations</b>		
Residential (Unmitigated)	0.0000	0.0000
Worker (Unmitigated)	0.0000	0.0000
Residential (Mitigated)	0.0000	0.0000
Worker (Mitigated)	0.0000	0.0000
SCAQMD Threshold	N/A	1
Threshold Exceeded?	N/A	No

<sup>1</sup> Refer to Appendix A. According to OEHHA, the REL for DPM is 5 and the target organ is the respiratory system.

<sup>2</sup> The reported pollutant concentration is at the closest receptor (maximally exposed individual receptor).

REL (DPM): 5

Hazard Index = Ci/RELi



**CONSTRUCTION (MITIGATED)**

**Construction Duration (days)**  
**2024**  
 116

**Number of Months**  
**Total**  
 4  
 116

**AERMOD Location**  
 576188.72 m E  
 4147652.66 m N

<b>2024</b>		<b>Days</b>	<b>Vendor</b>	<b>Hauling</b>	<b>Vendor</b>	<b>Hauling</b>
Demo	2/1/2024 - 2/28/2024	20	0	30	0	602
Site Prep	03/01/2024 - 3/15/2024	11	0	0	0	0
Grading	4/01/2024 - 4/26/2024	20	0	3	0	66
Paving	4/29/2024 - 6/30/2024	45	0	0	0	0
Arch	6/1/2024 - 6/30/2024	20				

**On-Site Construction PM2.5 Exhaust (tons/yr)**

Year	Phase	Unmitigated
2024	Demo	0.000632691
2024	Site Prep	0.000547798
2024	Grading	0.000554507
2024	Paving	0.000530485
2024	Arch	2.34925E-05
<b>Total 2026</b>		<b>2.29E-03</b>

**Off-Site Construction PM2.5 Exhaust (tons/yr)**

Year	Phase	Unmitigated
2024	Demo	0.000265437
2024	Site Prep	0.00E+00
2024	Grading	6.52568E-05
2024	Paving	0.00E+00
2024	Arch	0.00E+00
<b>Total 2026</b>		<b>3.31E-04</b>

**Construction  
 Group: ONSITE**

**PM2.5 Exhaust Onsite**

Year	Tons/Year	g/s	Weighted	
			Average On-Site Rate	AERMOD Unitized Rate (g/s)
2024	2.29E-03	0.000622	6.22E-04	1

**Group: OFFSITE**

Year	Trips		Miles		Weighted Trip length
	Vendor	Hauling	Vendor	Hauling	
2024	0	668	8.4	20	20.00

**PM2.5 Exhaust Off-Site**

Year	Tons/Year	g/s	Weighted Average	
			g/s per mile	Off-Site Rate
2024	0.0003	0.000090	4.48994E-06	4.49E-06

**Group: OFFSITE**

Roadway	Speed	Length (meters)	Length (Miles)	Emissions (g/sec per mile)	Emission Rate (g/sec)	AERMOD Unitized Rate (g/s)
						1.00
Commercial Court	30	552.4	0.34	4.49E-06	1.54E-06	1.00E+00
					1.54E-06	1.00E+00

CONSTRUCTION RISK (MITIGATED)

CONSTRUCTION RISK (MITIGATED)

Mitigated  
Onsite Offsite  
6.22E+04 1.54E+05

Table with columns: Decore, Receptor ID, X, Y, Z, Distance (Onsite, Offsite, Total), Concentration (Average Conc), Residential Date, Risk by Age Group, and Total Risk. The table lists 183 receptors and their associated risk data across various parameters.

CONSTRUCTION RISK (UNMITIGATED)

Table with 15 columns: UICRT, UICRT, UICRT, UICRT, UICRT, UICRT, UICRT, UICRT, UICRT, UICRT, UICRT, UICRT, UICRT, UICRT, UICRT. The table contains a dense grid of numerical data representing construction risk metrics for various UICRT categories.

CONSTRUCTION RISK (UNMITIGATED)

Table with columns for project ID, location, and various risk metrics. The table contains multiple rows of data for each project, showing different risk scenarios and their corresponding values.









Worker Risk (Unmitigated)

Construction

Mitigated

On-Site 6.23E-04  
Off-Site 1.54E-06

Discrete Receptor ID

X	Y	Concentration [µg/m <sup>3</sup> ] at 1 g/s		Construction		Total	Construction	Construction
		On-Site	Off-Site	On-Site	Off-Site			
1 UCART1	598778.05	4136096.55	598778.05	0.13208	0.44408	7.81704E-05	5.4E-08	2.54E-09
2 UCART1	598796.85	4136096.55	598796.85	0.13208	0.44408	8.098E-05	6.84E-07	1.66188E-05
3 UCART1	598814.65	4136096.55	598814.65	0.13494	0.50974	8.387E-05	7.88E-07	8.46095E-05
4 UCART1	598832.45	4136096.55	598832.45	0.13694	0.45924	8.679E-05	8.13E-07	8.7703E-05
5 UCART1	598850.25	4136096.55	598850.25	0.14434	0.68833	8.972E-05	1.08E-06	9.0728E-05
6 UCART1	598868.05	4136096.55	598868.05	0.14903	0.83643	9.263E-05	1.29E-06	9.3920E-05
7 UCART1	598885.85	4136096.55	598885.85	0.15258	0.91845	9.546E-05	1.57E-06	9.7094E-05
8 UCART1	598903.65	4136096.55	598903.65	0.15796	1.25513	9.818E-05	1.93E-06	0.000100117
9 UCART1	598921.45	4136096.55	598921.45	0.16224	1.54317	0.0001008	2.38E-06	0.000100321
10 UCART1	598939.25	4136096.55	598939.25	0.16678	1.87928	0.0001016	2.92E-06	0.000100629
11 UCART1	598957.05	4136096.55	598957.05	0.17139	2.36376	0.0001026	3.64E-06	0.000110173
12 UCART1	598974.85	4136096.55	598974.85	0.17603	3.01752	0.0001036	4.65E-06	0.000114232
13 UCART1	598992.65	4136096.55	598992.65	0.18166	3.57185	0.0001046	5.90E-06	0.000118418
14 UCART1	599010.45	4136096.55	599010.45	0.18735	4.59093	0.0001056	7.59E-06	0.000122491
15 UCART1	599028.25	4136096.55	599028.25	0.19383	3.91176	0.0001066	6.03E-06	0.000126006
16 UCART1	599046.05	4136096.55	599046.05	0.20081	3.65175	0.0001076	5.63E-06	0.000129522
17 UCART1	599063.85	4136096.55	599063.85	0.20851	3.05287	0.0001086	4.70E-06	0.000133037
18 UCART1	599081.65	4136096.55	599081.65	0.21721	3.45378	0.0001096	5.32E-06	0.000136552
19 UCART1	599099.45	4136096.55	599099.45	0.22634	2.87974	0.0001106	4.61E-06	0.000140067
20 UCART1	599117.25	4136096.55	599117.25	0.23608	3.05287	0.0001116	4.70E-06	0.000143582
21 UCART1	599135.05	4136096.55	599135.05	0.25009	2.868	0.0001126	4.42E-06	0.000147097
22 UCART1	599152.85	4136096.55	599152.85	0.26141	2.87974	0.0001136	4.16E-06	0.000150612
23 UCART1	599170.65	4136096.55	599170.65	0.27717	2.54008	0.0001146	3.91E-06	0.000154127
24 UCART1	599188.45	4136096.55	599188.45	0.29185	2.93532	0.0001156	3.69E-06	0.000157642
25 UCART1	599206.25	4136096.55	599206.25	0.30722	2.65966	0.0001166	3.49E-06	0.000161157
26 UCART1	599224.05	4136096.55	599224.05	0.32278	2.12361	0.0001176	3.27E-06	0.000164672
27 UCART1	599241.85	4136096.55	599241.85	0.33808	1.95967	0.0001186	3.08E-06	0.000168187
28 UCART1	599259.65	4136096.55	599259.65	0.35271	1.81705	0.0001196	2.92E-06	0.000171702
29 UCART1	599277.45	4136111.55	599277.45	0.1343	0.47903	8.348E-05	6.61E-07	8.41737E-05
30 UCART1	599295.25	4136111.55	599295.25	0.13951	0.62125	8.674E-05	7.38E-07	8.74729E-05
31 UCART1	599313.05	4136111.55	599313.05	0.14474	0.57219	8.998E-05	8.02E-07	2.8E-06
32 UCART1	599330.85	4136111.55	599330.85	0.15005	0.67626	9.327E-05	1.04E-06	9.5479E-05
33 UCART1	599348.65	4136111.55	599348.65	0.15539	0.81574	9.658E-05	1.26E-06	9.7942E-05
34 UCART1	599366.45	4136111.55	599366.45	0.16079	1.00995	9.994E-05	1.54E-06	0.000101422
35 UCART1	599384.25	4136111.55	599384.25	0.16613	1.28977	0.000103	1.99E-06	0.000105248
36 UCART1	599402.05	4136111.55	599402.05	0.17136	1.70385	0.0001046	2.63E-06	0.000109117
37 UCART1	599419.85	4136111.55	599419.85	0.17654	2.296	0.000106	3.28E-06	0.000112992
38 UCART1	599437.65	4136111.55	599437.65	0.18121	3.02245	0.0001074	4.66E-06	0.000116779
39 UCART1	599455.45	4136111.55	599455.45	0.18582	4.21211	0.0001088	6.20E-06	0.000120422
40 UCART1	599473.25	4136111.55	599473.25	0.19035	5.39225	0.0001102	8.01E-06	0.000124065
41 UCART1	599491.05	4136111.55	599491.05	0.19481	5.84672	0.0001116	9.01E-06	0.000127848
42 UCART1	599508.85	4136111.55	599508.85	0.19914	6.50173	0.000113	1.02E-06	0.000131631
43 UCART1	599526.65	4136111.55	599526.65	0.20334	7.548	0.0001144	1.15E-06	0.000135414
44 UCART1	599544.45	4136111.55	599544.45	0.20743	8.91558	0.0001158	1.31E-06	0.000139207
45 UCART1	599562.25	4136111.55	599562.25	0.21133	5.00847	0.0001172	1.45E-06	0.000143000
46 UCART1	599580.05	4136111.55	599580.05	0.21504	6.16175	0.0001186	1.61E-06	0.000146793
47 UCART1	599597.85	4136111.55	599597.85	0.21858	8.7865	0.00012	1.77E-06	0.000150586
48 UCART1	599615.65	4136111.55	599615.65	0.22193	4.90908	0.0001214	1.94E-06	0.000154379
49 UCART1	599633.45	4136111.55	599633.45	0.22509	6.16175	0.0001228	2.12E-06	0.000158172
50 UCART1	599651.25	4136111.55	599651.25	0.22808	3.31229	0.0001242	2.31E-06	0.000161965
51 UCART1	599669.05	4136111.55	599669.05	0.23094	3.07901	0.0001256	2.51E-06	0.000165758
52 UCART1	599686.85	4136111.55	599686.85	0.23362	2.87974	0.000127	2.72E-06	0.000169551
53 UCART1	599704.65	4136111.55	599704.65	0.23622	2.60227	0.0001284	2.94E-06	0.000173344
54 UCART1	599722.45	4136111.55	599722.45	0.23863	2.50278	0.0001298	3.16E-06	0.000177137
55 UCART1	599740.25	4136111.55	599740.25	0.24086	2.39646	0.0001312	3.39E-06	0.000180930
56 UCART1	599758.05	4136111.55	599758.05	0.24293	2.28314	0.0001326	3.63E-06	0.000184723
57 UCART1	599775.85	4136111.55	599775.85	0.24483	2.16277	0.000134	3.87E-06	0.000188516
58 UCART1	599793.65	4136111.55	599793.65	0.24656	2.03524	0.0001354	4.12E-06	0.000192309
59 UCART1	599811.45	4136111.55	599811.45	0.24813	1.90251	0.0001368	4.37E-06	0.000196102
60 UCART1	599829.25	4136111.55	599829.25	0.24954	1.76558	0.0001382	4.63E-06	0.000199895
61 UCART1	599847.05	4136111.55	599847.05	0.25079	1.62435	0.0001396	4.89E-06	0.000203688
62 UCART1	599864.85	4136111.55	599864.85	0.25188	1.47882	0.000141	5.16E-06	0.000207481
63 UCART1	599882.65	4136111.55	599882.65	0.25281	1.32909	0.0001424	5.44E-06	0.000211274
64 UCART1	599900.45	4136111.55	599900.45	0.25358	1.17536	0.0001438	5.72E-06	0.000215067
65 UCART1	599918.25	4136111.55	599918.25	0.25421	1.01763	0.0001452	6.01E-06	0.000218860
66 UCART1	599936.05	4136111.55	599936.05	0.25469	0.85590	0.0001466	6.31E-06	0.000222653
67 UCART1	599953.85	4136111.55	599953.85	0.25493	0.68917	0.000148	6.62E-06	0.000226446
68 UCART1	599971.65	4136111.55	599971.65	0.25493	0.51744	0.0001494	6.94E-06	0.000230239
69 UCART1	599989.45	4136111.55	599989.45	0.25471	0.34171	0.0001508	7.27E-06	0.000234032
70 UCART1	600007.25	4136111.55	600007.25	0.25428	0.16198	0.0001522	7.61E-06	0.000237825
71 UCART1	600025.05	4136111.55	600025.05	0.25363	0.07525	0.0001536	7.96E-06	0.000241618
72 UCART1	600042.85	4136111.55	600042.85	0.25276	0.07525	0.000155	8.32E-06	0.000245411
73 UCART1	600060.65	4136111.55	600060.65	0.25167	0.07525	0.0001564	8.69E-06	0.000249204
74 UCART1	600078.45	4136111.55	600078.45	0.25036	0.07525	0.0001578	9.07E-06	0.000253007
75 UCART1	600096.25	4136111.55	600096.25	0.24883	0.07525	0.0001592	9.46E-06	0.000256800
76 UCART1	600114.05	4136111.55	600114.05	0.24708	0.07525	0.0001606	9.86E-06	0.000260593
77 UCART1	600131.85	4136111.55	600131.85	0.24511	0.07525	0.000162	1.027E-05	0.000264386
78 UCART1	600149.65	4136111.55	600149.65	0.24291	0.07525	0.0001634	1.089E-05	0.000268179
79 UCART1	600167.45	4136111.55	600167.45	0.24048	0.07525	0.0001648	1.153E-05	0.000271972
80 UCART1	600185.25	4136111.55	600185.25	0.23783	0.07525	0.0001662	1.219E-05	0.000275765
81 UCART1	600203.05	4136111.55	600203.05	0.23496	0.07525	0.0001676	1.287E-05	0.000279558
82 UCART1	600220.85	4136111.55	600220.85	0.23187	0.07525	0.000169	1.357E-05	0.000283351
83 UCART1	600238.65	4136111.55	600238.65	0.22856	0.07525	0.0001704	1.429E-05	0.000287144
84 UCART1	600256.45	4136111.55	600256.45	0.22503	0.07525	0.0001718	1.503E-05	0.000290937
85 UCART1	600274.25	4136111.55	600274.25	0.22128	0.07525	0.0001732	1.579E-05	0.000294730
86 UCART1	600292.05	4136111.55	600292.05	0.21731	0.07525	0.0001746	1.657E-05	0.000298523
87 UCART1	600309.85	4136111.55	600309.85	0.21312	0.07525	0.000176	1.737E-05	0.000302316
88 UCART1	600327.65	4136111.55	600327.65	0.20871	0.07525	0.0001774	1.819E-05	0.000306109
89 UCART1	600345.45	4136111.55	600345.45	0.20408	0.07525	0.0001788	1.904E-05	0.000309902
90 UCART1	600363.25	4136111.55	600363.25	0.19923	0.07525	0.0001802	1.992E-05	0.000313695
91 UCART1	600381.05	4136111.55	600381.05	0.19416	0.07525	0.0001816	2.083E-05	0.000317488
92 UCART1	600398.85	4136111.55	600398.85	0.18887	0.07525	0.000183	2.177E-05	0.000321281
93 UCART1	600416.65	4136111.55	600416.65	0.18336	0.07525	0.0001844	2.274E-05	0.000325074
94 UCART1	600434.45	4136111.55	600434.45	0.17763	0.07525	0.0001858	2.374E-05	0.000328867
95 UCART1	600452.25	4136111.55	600452.25	0.17168	0.07525	0.0001872	2.477E-05	0.000332660
96 UCART1	600470.05	4136111.55	600470.05	0.16551	0.07525	0.0001886	2.583E-05	0.000336453

162 UCART1	598662.85	4136181.55	598662.85	4136181.55	0.50947	1.51107	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
163 UCART1	598674.85	4136181.55	598674.85	4136181.55	0.50921	1.51148	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
164 UCART1	598686.85	4136181.55	598686.85	4136181.55	0.56509	1.50818	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
165 UCART1	598700.85	4136181.55	598700.85	4136181.55	0.59007	1.50699	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
166 UCART1	598714.85	4136181.55	598714.85	4136181.55	0.61002	1.50448	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
167 UCART1	598728.85	4136181.55	598728.85	4136181.55	0.63431	1.50152	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
168 UCART1	598742.85	4136181.55	598742.85	4136181.55	0.65143	1.49877	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
169 UCART1	598756.85	4136181.55	598756.85	4136181.55	0.67148	1.49621	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
170 UCART1	598770.85	4136181.55	598770.85	4136181.55	0.69444	1.49379	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
171 UCART1	598784.85	4136181.55	598784.85	4136181.55	0.72044	1.49148	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
172 UCART1	598798.85	4136181.55	598798.85	4136181.55	0.74949	1.48928	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
173 UCART1	598812.85	4136181.55	598812.85	4136181.55	0.78169	1.48718	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
174 UCART1	598826.85	4136181.55	598826.85	4136181.55	0.81714	1.48518	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
175 UCART1	598840.85	4136181.55	598840.85	4136181.55	0.85594	1.48328	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
176 UCART1	598854.85	4136181.55	598854.85	4136181.55	0.89819	1.48148	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
177 UCART1	598868.85	4136181.55	598868.85	4136181.55	0.94399	1.47978	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
178 UCART1	598882.85	4136181.55	598882.85	4136181.55	0.99344	1.47818	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
179 UCART1	598896.85	4136181.55	598896.85	4136181.55	1.04664	1.47668	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
180 UCART1	598910.85	4136181.55	598910.85	4136181.55	1.10379	1.47528	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
181 UCART1	598924.85	4136181.55	598924.85	4136181.55	1.16489	1.47398	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
182 UCART1	598938.85	4136181.55	598938.85	4136181.55	1.22994	1.47278	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
183 UCART1	598952.85	4136181.55	598952.85	4136181.55	1.29894	1.47168	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
184 UCART1	598966.85	4136181.55	598966.85	4136181.55	1.37189	1.47068	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
185 UCART1	598980.85	4136181.55	598980.85	4136181.55	1.44879	1.46978	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
186 UCART1	598994.85	4136181.55	598994.85	4136181.55	1.52964	1.46898	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
187 UCART1	599008.85	4136181.55	599008.85	4136181.55	1.61444	1.46828	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
188 UCART1	599022.85	4136181.55	599022.85	4136181.55	1.70319	1.46768	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
189 UCART1	599036.85	4136181.55	599036.85	4136181.55	1.79589	1.46718	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
190 UCART1	599050.85	4136181.55	599050.85	4136181.55	1.89254	1.46678	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
191 UCART1	599064.85	4136181.55	599064.85	4136181.55	1.99314	1.46638	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
192 UCART1	599078.85	4136181.55	599078.85	4136181.55	2.09769	1.46608	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
193 UCART1	599092.85	4136181.55	599092.85	4136181.55	2.20619	1.46578	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
194 UCART1	599106.85	4136181.55	599106.85	4136181.55	2.31864	1.46548	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
195 UCART1	599120.85	4136181.55	599120.85	4136181.55	2.43494	1.46518	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
196 UCART1	599134.85	4136181.55	599134.85	4136181.55	2.55509	1.46488	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
197 UCART1	599148.85	4136181.55	599148.85	4136181.55	2.67909	1.46458	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
198 UCART1	599162.85	4136181.55	599162.85	4136181.55	2.80694	1.46428	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
199 UCART1	599176.85	4136181.55	599176.85	4136181.55	2.93864	1.46398	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
200 UCART1	599190.85	4136181.55	599190.85	4136181.55	3.07419	1.46368	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
201 UCART1	599204.85	4136181.55	599204.85	4136181.55	3.21349	1.46338	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
202 UCART1	599218.85	4136181.55	599218.85	4136181.55	3.35644	1.46308	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
203 UCART1	599232.85	4136181.55	599232.85	4136181.55	3.50294	1.46278	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
204 UCART1	599246.85	4136181.55	599246.85	4136181.55	3.65299	1.46248	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
205 UCART1	599260.85	4136181.55	599260.85	4136181.55	3.80649	1.46218	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
206 UCART1	599274.85	4136181.55	599274.85	4136181.55	3.97344	1.46188	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
207 UCART1	599288.85	4136181.55	599288.85	4136181.55	4.14384	1.46158	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
208 UCART1	599302.85	4136181.55	599302.85	4136181.55	4.32769	1.46128	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
209 UCART1	599316.85	4136181.55	599316.85	4136181.55	4.52499	1.46098	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
210 UCART1	599330.85	4136181.55	599330.85	4136181.55	4.73574	1.46068	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
211 UCART1	599344.85	4136181.55	599344.85	4136181.55	4.95994	1.46038	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
212 UCART1	599358.85	4136181.55	599358.85	4136181.55	5.19749	1.46008	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
213 UCART1	599372.85	4136181.55	599372.85	4136181.55	5.44829	1.45978	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
214 UCART1	599386.85	4136181.55	599386.85	4136181.55	5.71234	1.45948	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
215 UCART1	599400.85	4136181.55	599400.85	4136181.55	5.98954	1.45918	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
216 UCART1	599414.85	4136181.55	599414.85	4136181.55	6.27979	1.45888	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
217 UCART1	599428.85	4136181.55	599428.85	4136181.55	6.58299	1.45858	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
218 UCART1	599442.85	4136181.55	599442.85	4136181.55	6.89914	1.45828	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
219 UCART1	599456.85	4136181.55	599456.85	4136181.55	7.22814	1.45798	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
220 UCART1	599470.85	4136181.55	599470.85	4136181.55	7.57089	1.45768	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
221 UCART1	599484.85	4136181.55	599484.85	4136181.55	7.92819	1.45738	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
222 UCART1	599498.85	4136181.55	599498.85	4136181.55	8.29994	1.45708	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
223 UCART1	599512.85	4136181.55	599512.85	4136181.55	8.68614	1.45678	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
224 UCART1	599526.85	4136181.55	599526.85	4136181.55	9.08674	1.45648	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
225 UCART1	599540.85	4136181.55	599540.85	4136181.55	9.50164	1.45618	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
226 UCART1	599554.85	4136181.55	599554.85	4136181.55	9.93014	1.45588	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
227 UCART1	599568.85	4136181.55	599568.85	4136181.55	10.37224	1.45558	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
228 UCART1	599582.85	4136181.55	599582.85	4136181.55	10.82894	1.45528	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
229 UCART1	599596.85	4136181.55	599596.85	4136181.55	11.29924	1.45498	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
230 UCART1	599610.85	4136181.55	599610.85	4136181.55	11.78314	1.45468	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
231 UCART1	599624.85	4136181.55	599624.85	4136181.55	12.28064	1.45438	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
232 UCART1	599638.85	4136181.55	599638.85	4136181.55	12.79174	1.45408	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
233 UCART1	599652.85	4136181.55	599652.85	4136181.55	13.31644	1.45378	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
234 UCART1	599666.85	4136181.55	599666.85	4136181.55	13.85474	1.45348	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
235 UCART1	599680.85	4136181.55	599680.85	4136181.55	14.40664	1.45318	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
236 UCART1	599694.85	4136181.55	599694.85	4136181.55	14.97204	1.45288	0.0003167	7.91E-06	0.00024576	2.1E-07	1.0E-08
237 UCART1	599708.85	4136181									

334 UCART1	598368.85	4136283.55	598368.85	4136283.55	0.44676	2.38842	0.0002777	3.838	0.00	0.000281325	1.96	0.77	8.89
335 UCART1	598368.85	4136283.55	598368.85	4136283.55	0.4739	2.6214	0.0002777	3.838	0.00	0.000281325	1.96	0.77	8.89
336 UCART1	598404.85	4136283.55	598404.85	4136283.55	0.51246	3.24493	0.0003185	5.006	0.00	0.000325328	2.16	0.77	1.06
337 UCART1	598422.85	4136283.55	598422.85	4136283.55	0.5461	3.82044	0.0003394	5.896	0.00	0.000345938	2.37	0.77	1.10
338 UCART1	598440.85	4136283.55	598440.85	4136283.55	0.58458	4.40773	0.0003608	6.988	0.00	0.000367408	2.61	0.77	1.15
339 UCART1	598458.85	4136283.55	598458.85	4136283.55	0.61991	5.00483	0.0003833	8.316	0.00	0.000393643	2.87	0.77	1.21
340 UCART1	598476.85	4136283.55	598476.85	4136283.55	0.66792	5.62784	0.0004152	1.016	0.00	0.000425216	3.16	0.77	1.30
341 UCART1	598494.85	4136283.55	598494.85	4136283.55	0.7182	6.28442	0.0004578	1.246	0.00	0.000464971	3.47	0.77	1.40
342 UCART1	598512.85	4136283.55	598512.85	4136283.55	0.80084	10.21843	0.0004978	1.576	0.00	0.000519322	3.82	0.77	1.48
343 UCART1	598530.85	4136283.55	598530.85	4136283.55	0.8312	13.9569	0.0005249	2.105	0.00	0.000569118	4.17	0.77	1.58
344 UCART1	598548.85	4136283.55	598548.85	4136283.55	0.97145	18.8925	0.0006038	3.021	0.00	0.000646088	4.67	0.77	1.68
345 UCART1	598566.85	4136283.55	598566.85	4136283.55	1.06109	16.6896	0.0006595	2.888	0.00	0.000682292	4.67	0.77	1.18
346 UCART1	598584.85	4136283.55	598584.85	4136283.55	1.14702	24.0272	0.0007129	3.708	0.00	0.00074994	5.07	0.77	1.28
347 UCART1	598602.85	4136283.55	598602.85	4136283.55	1.244	19.1242	0.0007629	3.048	0.00	0.000819111	5.37	0.77	1.37
348 UCART1	598620.85	4136283.55	598620.85	4136283.55	1.2852	13.4905	0.0008009	2.088	0.00	0.00087188	5.47	0.77	1.46
349 UCART1	598638.85	4136283.55	598638.85	4136283.55	1.3395	9.9939	0.000831	1.528	0.00	0.000924627	5.67	0.77	1.55
350 UCART1	598656.85	4136283.55	598656.85	4136283.55	1.3757	7.768	0.000851	1.105	0.00	0.000967643	5.77	0.77	1.64
351 UCART1	598674.85	4136283.55	598674.85	4136283.55	1.3915	5.9637	0.0008649	9.176	0.00	0.000974112	5.87	0.77	1.73
352 UCART1	598692.85	4136283.55	598692.85	4136283.55	1.4037	4.7062	0.0008704	7.346	0.00	0.00097757	5.97	0.77	1.82
353 UCART1	598710.85	4136283.55	598710.85	4136283.55	1.3938	3.9636	0.0008699	5.946	0.00	0.000976225	6.07	0.77	1.91
354 UCART1	598728.85	4136300.55	598728.85	4136300.55	0.21082	0.49484	0.00013	7.637	0.00	0.000131801	8.76	0.08	4.1E-09
355 UCART1	598818.85	4136300.55	598818.85	4136300.55	0.2295	0.5006	0.00014	8.637	0.00	0.000141527	9.46	0.08	4.4E-09
356 UCART1	598906.85	4136300.55	598906.85	4136300.55	0.2484	0.5069	0.00015	9.817	0.00	0.000151655	1.02	0.07	4.8E-09
357 UCART1	598924.85	4136300.55	598924.85	4136300.55	0.2647	0.7261	0.00016	1.126	0.00	0.000165629	1.17	0.07	5.2E-09
358 UCART1	598942.85	4136300.55	598942.85	4136300.55	0.2869	0.8123	0.00017	1.286	0.00	0.000174979	1.27	0.07	5.6E-09
359 UCART1	598960.85	4136300.55	598960.85	4136300.55	0.3118	0.9705	0.00018	1.478	0.00	0.000184831	1.37	0.07	6.1E-09
360 UCART1	598978.85	4136300.55	598978.85	4136300.55	0.33796	1.1262	0.00021	1.708	0.00	0.000211763	1.47	0.07	6.6E-09
361 UCART1	598996.85	4136300.55	598996.85	4136300.55	0.3705	1.2748	0.00024	1.964	0.00	0.000243084	1.57	0.07	7.2E-09
362 UCART1	599014.85	4136300.55	599014.85	4136300.55	0.3991	1.4644	0.00027	2.266	0.00	0.000272681	1.67	0.07	7.8E-09
363 UCART1	599032.85	4136300.55	599032.85	4136300.55	0.4312	1.6143	0.00031	2.616	0.00	0.000317362	1.77	0.07	8.5E-09
364 UCART1	599050.85	4136300.55	599050.85	4136300.55	0.4708	1.9349	0.00034	3.014	0.00	0.000347945	1.87	0.07	9.3E-09
365 UCART1	599068.85	4136300.55	599068.85	4136300.55	0.5114	2.3368	0.00039	3.478	0.00	0.000392709	1.97	0.07	1.0E-08
366 UCART1	599086.85	4136300.55	599086.85	4136300.55	0.559	2.6777	0.00043	4.026	0.00	0.00043938	2.07	0.07	1.1E-08
367 UCART1	599104.85	4136300.55	599104.85	4136300.55	0.599	3.0314	0.00047	4.488	0.00	0.000476981	2.17	0.07	1.2E-08
368 UCART1	599122.85	4136300.55	599122.85	4136300.55	0.6483	3.5232	0.00052	5.482	0.00	0.000527677	2.27	0.07	1.3E-08
369 UCART1	599140.85	4136300.55	599140.85	4136300.55	0.6929	4.1318	0.00057	6.376	0.00	0.000574528	2.37	0.07	1.4E-08
370 UCART1	599158.85	4136300.55	599158.85	4136300.55	0.7448	4.8243	0.00062	7.528	0.00	0.000627024	2.47	0.07	1.5E-08
371 UCART1	599176.85	4136300.55	599176.85	4136300.55	0.817	5.8439	0.00067	9.016	0.00	0.000671332	2.57	0.07	1.6E-08
372 UCART1	599194.85	4136300.55	599194.85	4136300.55	0.8713	7.1925	0.00072	1.108	0.00	0.000726857	2.67	0.07	1.7E-08
373 UCART1	599212.85	4136300.55	599212.85	4136300.55	1.0038	9.1771	0.00078	1.414	0.00	0.000783871	2.77	0.07	1.8E-08
374 UCART1	599230.85	4136300.55	599230.85	4136300.55	1.1141	12.4429	0.00085	1.928	0.00	0.000851061	2.87	0.07	1.9E-08
375 UCART1	599248.85	4136300.55	599248.85	4136300.55	1.2252	19.3688	0.00092	2.888	0.00	0.000917417	2.97	0.07	2.0E-08
376 UCART1	599266.85	4136300.55	599266.85	4136300.55	1.3585	25.8884	0.00101	4.288	0.00	0.001005894	3.07	0.07	2.1E-08
377 UCART1	599284.85	4136300.55	599284.85	4136300.55	1.42827	31.0345	0.00108	4.788	0.00	0.001093212	3.17	0.07	2.2E-08
378 UCART1	599302.85	4136300.55	599302.85	4136300.55	1.5096	37.2767	0.00116	2.978	0.00	0.001187681	3.27	0.07	2.3E-08
379 UCART1	599320.85	4136300.55	599320.85	4136300.55	1.5685	42.6069	0.00125	2.048	0.00	0.001289133	3.37	0.07	2.4E-08
380 UCART1	599338.85	4136300.55	599338.85	4136300.55	1.62084	9.71039	0.00134	1.508	0.00	0.00139223	3.47	0.07	2.5E-08
381 UCART1	599356.85	4136300.55	599356.85	4136300.55	1.6276	7.8316	0.00138	1.148	0.00	0.001401946	3.57	0.07	2.6E-08
382 UCART1	599374.85	4136300.55	599374.85	4136300.55	1.6286	6.1796	0.00142	1.048	0.00	0.001411919	3.67	0.07	2.7E-08
383 UCART1	599392.85	4136317.55	599392.85	4136317.55	0.22615	0.52126	0.00014	8.058	0.00	0.000141371	9.48	0.08	4.4E-09
384 UCART1	599410.85	4136317.55	599410.85	4136317.55	0.2463	0.5888	0.00015	9.078	0.00	0.000152898	1.02	0.07	4.8E-09
385 UCART1	599428.85	4136317.55	599428.85	4136317.55	0.2659	0.6556	0.00016	1.028	0.00	0.000164548	1.12	0.07	5.2E-09
386 UCART1	599446.85	4136317.55	599446.85	4136317.55	0.28808	0.7454	0.00017	1.168	0.00	0.000178023	1.22	0.07	5.6E-09
387 UCART1	599464.85	4136317.55	599464.85	4136317.55	0.3138	0.8573	0.00019	1.326	0.00	0.000196406	1.32	0.07	6.1E-09
388 UCART1	599482.85	4136317.55	599482.85	4136317.55	0.3424	1.0063	0.00021	1.518	0.00	0.00021654	1.42	0.07	6.6E-09
389 UCART1	599500.85	4136317.55	599500.85	4136317.55	0.37502	1.1168	0.00023	1.728	0.00	0.000232415	1.52	0.07	7.3E-09
390 UCART1	599518.85	4136317.55	599518.85	4136317.55	0.41093	1.27051	0.00024	1.966	0.00	0.000242777	1.62	0.07	8.0E-09
391 UCART1	599536.85	4136317.55	599536.85	4136317.55	0.4498	1.48951	0.00026	2.238	0.00	0.000262845	1.72	0.07	8.7E-09
392 UCART1	599554.85	4136317.55	599554.85	4136317.55	0.49498	1.6844	0.00027	2.554	0.00	0.000271012	1.82	0.07	9.5E-09
393 UCART1	599572.85	4136317.55	599572.85	4136317.55	0.54343	1.8923	0.00028	2.916	0.00	0.000283469	1.92	0.07	1.1E-08
394 UCART1	599590.85	4136317.55	599590.85	4136317.55	0.59509	2.1375	0.00031	3.338	0.00	0.000317311	2.02	0.07	1.2E-08
395 UCART1	599608.85	4136317.55	599608.85	4136317.55	0.65188	2.4842	0.00032	3.824	0.00	0.000324904	2.12	0.07	1.3E-08
396 UCART1	599626.85	4136317.55	599626.85	4136317.55	0.71027	2.8838	0.00034	4.416	0.00	0.000348392	2.22	0.07	1.4E-08
397 UCART1	599644.85	4136317.55	599644.85	4136317.55	0.7713	3.3486	0.00036	5.118	0.00	0.000364847	2.32	0.07	1.5E-08
398 UCART1	599662.85	4136317.55	599662.85	4136317.55	0.837	3.8749	0.00037	5.976	0.00	0.000372621	2.42	0.07	1.6E-08
399 UCART1	599680.85	4136317.55	599680.85	4136317.55	0.9168	4.5746	0.00039	7.056	0.00	0.000397602	2.52	0.07	1.7E-08
400 UCART1	599698.85	4136317.55	599698.85	4136317.55	1.0008	5.4492	0.00042	8.428	0.00	0.000423281	2.62	0.07	1.8E-08
401 UCART1	599716.85	4136317.55	599716.85	4136317.55	1.1443	6.80576	0.00047	1.058	0.00	0.000472145	2.72	0.07	1.9E-08
402 UCART1	599734.85	4136317.55	599734.85	4136317.55	1.2876	8.2748	0.00051	1.376	0.00	0.000514721	2.82	0.07	2.0E-08
403 UCART1	599752.85	4136317.55	599752.85	4136317.55	1.4509	12.81379	0.00056	1.958	0.00	0.000561828	2.92	0.07	2.1E-08
404 UCART1	599770.85	4136317.55	599770.85	4136317.55	1.5747	20.8134	0.00064	3.216	0.00	0.000642154	3.02	0.07	2.2E-08
405 UCART1	599788.85	4136317.55	5										

506 UCART1	5985123	4136385	5985123	4136385	4.73555	15.57898	0.0029434	2.406	0.002967458	2.006	9.387
507 UCART1	5985235	4136385	5985235	4136385	4.73555	15.57898	0.0029434	2.406	0.002967458	2.006	9.387
508 UCART1	5985485	4136385	5985485	4136385	4.56866	24.84166	0.0022783	3.846	0.002787276	1.906	9.068
509 UCART1	5985685	4136385	5985685	4136385	4.37335	32.5687	0.0027183	4.966	0.002767778	1.806	8.608
510 UCART1	5985935	4136385	5985935	4136385	4.18805	40.2988	0.0026365	6.086	0.0026365	1.706	8.148
511 UCART1	5986285	4136385	5986285	4136385	3.96765	48.0289	0.0024661	7.206	0.002482546	1.606	7.708
512 UCART1	5981705	4136402	5981705	4136402	0.3261	60.0331	0.0000011	9.306	0.000020074	1.106	6.308
513 UCART1	5981815	4136402	5981815	4136402	0.3261	60.0331	0.0000011	9.306	0.000020074	1.106	6.308
514 UCART1	5982065	4136402	5982065	4136402	0.39966	60.7016	0.0002484	1.136	0.000479512	1.176	7.809
515 UCART1	5982245	4136402	5982245	4136402	0.44805	60.8849	0.0002785	1.246	0.000279732	1.196	8.709
516 UCART1	5982425	4136402	5982425	4136402	0.50521	60.8886	0.0001142	1.376	0.000115542	1.196	9.009
517 UCART1	5982625	4136402	5982625	4136402	0.57396	60.8816	0.0001568	1.526	0.0001568	1.246	1.108
518 UCART1	5982785	4136402	5982785	4136402	0.65666	1.9001	0.0000081	1.686	0.000049774	1.276	1.408
519 UCART1	5982965	4136402	5982965	4136402	0.75427	1.2395	0.0000000	1.876	0.0000000	1.326	1.708
520 UCART1	5983145	4136402	5983145	4136402	0.88434	1.3536	0.0000049	2.096	0.000051764	1.376	1.708
521 UCART1	5983325	4136402	5983325	4136402	1.04313	1.52741	0.0000485	2.356	0.00009085	1.436	2.008
522 UCART1	5983505	4136402	5983505	4136402	1.24691	1.76613	0.0000764	2.666	0.000179884	1.526	2.408
523 UCART1	5983685	4136402	5983685	4136402	1.52678	1.99793	0.0000949	3.086	0.000052071	1.636	3.008
524 UCART1	5983865	4136402	5983865	4136402	1.929	2.37746	0.0001199	3.606	0.00012026	1.806	3.608
525 UCART1	5984045	4136402	5984045	4136402	2.60308	2.9664	0.0001505	4.266	0.000156685	1.956	4.208
526 UCART1	5984225	4136402	5984225	4136402	3.33564	3.45015	0.0002197	5.326	0.000202944	1.506	6.908
527 UCART1	5984405	4136402	5984405	4136402	3.13904	4.43979	0.00031929	6.846	0.000199778	2.106	1.607
528 UCART1	5984585	4136402	5984585	4136402	6.52862	6.05257	0.0004578	9.306	0.000451133	1.706	1.807
529 UCART1	5984765	4136402	5984765	4136402	6.9262	8.77449	0.0004301	1.356	0.0004386	2.906	1.807
530 UCART1	5984945	4136402	5984945	4136402	6.88979	14.1275	0.0042824	2.176	0.004041936	2.806	1.807
531 UCART1	5985125	4136402	5985125	4136402	6.84651	20.8817	0.0042376	4.146	0.004189988	2.806	1.807
532 UCART1	5985305	4136402	5985305	4136402	6.23843	31.1165	0.0038776	4.816	0.00398454	2.406	1.007
533 UCART1	5985485	4136402	5985485	4136402	5.72712	34.8826	0.0031077	5.396	0.00314605	2.606	1.107
534 UCART1	5985665	4136402	5985665	4136402	5.32022	41.2361	0.0021908	6.246	0.002139411	2.606	1.007
535 UCART1	5985845	4136402	5985845	4136402	4.94836	1.81049	0.0030757	1.826	0.003039911	2.006	9.708
536 UCART1	5986025	4136402	5986025	4136402	4.63322	7.8002	0.0031798	1.136	0.003199136	1.906	9.008
537 UCART1	5986205	4136402	5986205	4136402	4.34792	6.6507	0.0021263	9.416	0.00217136	6.806	9.808
538 UCART1	5986385	4136402	5986385	4136402	0.38765	6.6885	0.0002409	1.136	0.0002418	1.606	7.908
539 UCART1	5986565	4136402	5986565	4136402	0.42464	0.7366	0.0000702	1.036	0.000071287	1.806	8.508
540 UCART1	5986745	4136402	5986745	4136402	0.49667	0.83989	0.0000305	1.246	0.000030225	1.806	9.408
541 UCART1	5986925	4136402	5986925	4136402	0.55813	0.89757	0.0000469	1.376	0.000048281	2.306	1.108
542 UCART1	5987105	4136402	5987105	4136402	0.63489	0.9798	0.0000977	1.516	0.000099249	2.606	1.208
543 UCART1	5987285	4136402	5987285	4136402	0.74043	1.0522	0.0000402	1.676	0.0000402	2.706	1.408
544 UCART1	5987465	4136402	5987465	4136402	0.86959	1.0759	0.0000382	1.866	0.000040005	3.606	1.708
545 UCART1	5987645	4136402	5987645	4136402	1.02644	1.25216	0.0000698	2.086	0.0000698	4.206	2.008
546 UCART1	5987825	4136402	5987825	4136402	1.2432	1.52746	0.0000702	2.356	0.000070963	2.406	2.408
547 UCART1	5988005	4136402	5988005	4136402	1.54249	1.74534	0.0000142	2.696	0.000049318	6.206	2.908
548 UCART1	5988185	4136402	5988185	4136402	1.91379	2.0443	0.0000194	3.126	0.000195218	3.706	3.708
549 UCART1	5988365	4136402	5988365	4136402	2.26508	2.39828	0.0015944	3.706	0.00159058	1.606	5.008
550 UCART1	5988545	4136402	5988545	4136402	3.84006	2.95236	0.0023688	4.516	0.002391352	1.606	7.408
551 UCART1	5988725	4136402	5988725	4136402	5.26308	3.21416	0.0031029	5.746	0.003148079	2.106	7.408
552 UCART1	5988905	4136402	5988905	4136402	5.75994	5.05443	0.0035802	7.796	0.00357962	2.406	1.107
553 UCART1	5989085	4136402	5989085	4136402	11.85226	7.52228	0.0073688	1.166	0.007380397	4.906	2.807
554 UCART1	5989265	4136402	5989265	4136402	10.87183	12.56623	0.0057975	1.546	0.005778936	2.106	2.107
555 UCART1	5989445	4136402	5989445	4136402	10.05899	25.9144	0.0052866	4.006	0.005278597	4.206	2.007
556 UCART1	5989625	4136402	5989625	4136402	9.94031	29.7199	0.0056391	4.506	0.005646091	3.706	1.807
557 UCART1	5989805	4136402	5989805	4136402	9.92023	21.0609	0.0050623	4.956	0.0050623	1.806	1.007
558 UCART1	5989985	4136402	5989985	4136402	7.05816	20.24889	0.0043871	3.126	0.004418306	3.906	1.407
559 UCART1	5990165	4136402	5990165	4136402	6.31413	11.8561	0.0039246	1.836	0.003942909	2.606	1.607
560 UCART1	5990345	4136402	5990345	4136402	5.75827	7.48216	0.0031793	1.156	0.003190716	1.606	1.007
561 UCART1	5990525	4136402	5990525	4136402	5.34777	5.05056	0.0031324	7.816	0.003131788	2.606	1.007
562 UCART1	5990705	4136402	5990705	4136402	0.37427	0.61632	0.0002326	9.506	0.000233883	1.506	7.308
563 UCART1	5990885	4136402	5990885	4136402	0.41915	0.67319	0.0002607	1.046	0.000261649	1.806	8.208
564 UCART1	5991065	4136402	5991065	4136402	0.47319	0.73638	0.0002941	1.136	0.000295253	2.006	9.208
565 UCART1	5991245	4136402	5991245	4136402	0.53816	0.80702	0.0003185	1.246	0.000315745	2.206	1.008
566 UCART1	5991425	4136402	5991425	4136402	0.615	0.87979	0.0003838	1.376	0.000381883	1.806	1.007
567 UCART1	5991605	4136402	5991605	4136402	0.71554	0.97885	0.0004448	1.516	0.00044262	2.006	1.408
568 UCART1	5991785	4136402	5991785	4136402	0.83828	1.04828	0.00021	1.676	0.000522716	3.506	1.408
569 UCART1	5991965	4136402	5991965	4136402	0.99467	1.20449	0.0000000	1.866	0.0000000	4.006	1.408
570 UCART1	5992145	4136402	5992145	4136402	1.20037	1.3571	0.0007461	2.096	0.000748814	5.006	2.308
571 UCART1	5992325	4136402	5992325	4136402	1.47743	1.53995	0.0009183	2.376	0.000920691	6.106	2.908
572 UCART1	5992505	4136402	5992505	4136402	1.80713	1.71979	0.0011607	2.756	0.001164814	6.806	3.808
573 UCART1	5992685	4136402	5992685	4136402	2.46056	2.07668	0.0015294	3.206	0.001532966	1.006	4.808
574 UCART1	5992865	4136402	5992865	4136402	3.49534	2.49959	0.0021726	3.856	0.002174626	1.406	6.808
575 UCART1	5993045	4136402	5993045	4136402	4.76622	3.1518	0.0029496	4.806	0.0029496	2.606	6.808
576 UCART1	5993225	4136402	5993225	4136402	6.32233	4.11137	0.0039297	6.346	0.00393007	2.606	1.207
577 UCART1	5993405	4136402	5993405	4136402	6.36287	5.9388	0.0039549	9.156	0.003946081	2.606	1.207
578 UCART1	5993585	4136402	5993585	4136402	6.21401	6.94821	0.0040987	1.546	0.004094887	2.606	1.207
579 UCART1	5993765	4136402	5993765	4136402	16.42395	17.24051	0.0120098	2.666	0.012386352	3.806	3.207
580 UCART1	5993945	4136402	5993945	4136402	14.23182	22.5668	0.00886	3.516	0.008801706	5.906	2.807
581 UCART1	5994125	4136402	5994125	4136402	14.89248	26.2153	0.0073498	4.266	0.0073498	5.906	2.807
582 UCART1	5994305	4136402	5994305	4136402	9.72449	17.2134	0.0060444	2.666	0.00607095	4.006	1.607
583 UCART1	5994485	4136402	5994485	4136402	8.39916	10.6225	0.005198	1.646	0.00511287	3.406	1.407
584 UCART1	5994665	4136402	5994665	4136402	7.7038	7.94272	0.0043812	1.096	0.00439204	3.006	1.407
585 UCART1	5994845	4136402	5994845	4136402	6.68476	4.89004	0.004155	7.546	0.00416243	2.606	1.807
586 UCART1	5995025	4136402	5995025	4136402	6.23907	5.93994	0.0038059	5.496	0.00387141	2.606	1.807
587 UCART1	5995205	4136402	5995205	4136402	5.87063	2.7003	0.0034862	1.466	0.0034862	2.806	1.107
588 UCART1	5995385	4136402	5995385	4136402	5.5093	2.1151	0.0034444	3.266	0.00347243	2.606	1.107
589 UCART1	5995565	4136402	5995565	4136402	5.07526	1.70001	0.0031554	2.626	0.00316057		









**Residential Exposure**

**Construction (Mitigated)**

<u>Location</u>	<u>X</u>	<u>Y</u>	<u>X, Y</u>	<u>Rec #</u>	<u>Concentration</u>	<u>Construction Risk</u>	<u>Risk Per Million</u>	<u>Threshold</u>	
Residences to the West	598404.85	4136606.55	598404.85, 4136606.55	807	0.006782438	2.07666E-06	2.076659791	1.00E-05	LTS
Residences to the South	598368.85	4136334.55	598368.85, 4136334.55	423	0.000438188	1.34165E-07	0.134165171	1.00E-05	LTS

**Worker Exposure**

**Construction (Mitigated)**

<u>Location</u>	<u>X</u>	<u>Y</u>	<u>X, Y</u>	<u>Rec #</u>	<u>Concentration</u>	<u>Construction Risk</u>	<u>Risk Per Million</u>	<u>Threshold</u>	
Workers to the SW	598404.85	4136487.55	598404.85, 4136487.55	659	0.006704128	2.09114E-07	2.09114E-01	2.00E-05	LTS

**Table XX: Carcinogenic Risk Assessment**

Exposure Scenario	Cancer Risk (Risk per Million) <sup>1, 2</sup>	Significance Threshold (Risk per Million)	Exceeds Significance Threshold?
<b>Construction</b>			
Mitigated Residential	2.08	10	No
Mitigated Worker	0.21	10	No

**Table XX: Chronic Hazard Assessment**

Exposure Scenario	Annual Concentration (µg/m <sup>3</sup> ) <sup>1, 2</sup>	Chronic Hazard <sup>1</sup>
<b>Construction</b>		
Residential	0.0068	0.0014
Worker	0.0067	0.0013
<b>Operations</b>		
Residential (Unmitigated)	0.0000	0.0000
Worker (Unmitigated)	0.0000	0.0000
Residential (Mitigated)	0.0000	0.0000
Worker (Mitigated)	0.0000	0.0000
SCAQMD Threshold	N/A	1
Threshold Exceeded?	N/A	No

<sup>1</sup> Refer to [Appendix A](#). According to OEHHA, the REL for DPM is 5 and the target organ is the respiratory system.

<sup>2</sup> The reported pollutant concentration is at the closest receptor (maximally exposed individual receptor).

REL (DPM): 5

Hazard Index = CI/RELI