APPENDIX A

Air Quality & Community Health Risk Assessment

HARKER SCHOOL AIR QUALITY AND COMMUNITY HEALTH RISK ASSESSMENT

San José, California

October 12, 2018
Revised April 23, 2019

Prepared for:

Mike Campbell
David J. Powers & Associates, Inc.
1871 The Alameda, Suite 200
San José, CA 95126

Prepared by:

Mimi McNamara,
James A. Reyff,
Bill Popenuck

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 East Cotati Avenue
Cotati, CA 94931
(707) 794-0400

I&R Project#: 18-013

Introduction

The purpose of this report is to address air quality community risk impacts associated with the Harker Middle School project at located at 4525 Union Avenue in San José, California. The project proposes to construct a new classroom building totaling approximately 38,898 square foot (sf) and a 15,254-sf new gymnasium/auditorium building addition to an existing building on their preschool campus. The project also includes the construction of five new basketball courts and reconfiguration of the existing playing field. Additionally, the project would include the demolition of three existing buildings, totaling 14,631-sf. Once operational, the school would be a middle school campus and accommodate up to 600 students and 100 staff members. This analysis addresses the air quality impacts that would be associated with the construction of the new building and the impact of existing toxic air contaminant (TAC) sources affecting the proposed students were evaluated. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).

Setting

The project is located in Santa Clara County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

Toxic Air Contaminants

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

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

Air Pollutants of Concern

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_X). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone

levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

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

Regulatory Agencies

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles.[1] The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency [EPA]) oversees regional air district activities and regulates air quality at the State level. 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.[2] The detailed community risk modeling methodology used in this assessment is contained in *Attachment 1*.

Regulatory Setting

Federal Regulations

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

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO_X and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified DPM as a probable carcinogen. Implementation of the heavy-duty diesel on-

[1] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: November 21, 2014.
[2] Bay Area Air Quality Management District. 2017. *BAAQMD CEQA Air Quality Guidelines*. May.

road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.[3]

In concert with the diesel engine emission standards, the EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low sulfur highway fuel (15 ppmw sulfur), also called ultra-low sulfur diesel (ULSD), is currently required for use by all vehicles in the U.S.

All of the above federal diesel engine and diesel fuel requirements have been adopted by California, in some cases with modifications making the requirements more stringent or the implementation dates sooner.

State Regulations

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.[4] In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.
CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or replaced to meet 2010 or later engine standards that have much lower DPM and $PM_{2.5}$ emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, this measure is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road or is retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

CARB has also adopted and implemented regulations to reduce DPM and NO_X emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.). The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce particulate matter and NO_X exhaust emissions by requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-

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

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

averaged emission rates. Implementation of this regulation, in conjunction with stringent federal off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO_X.

Bay Area Air Quality Management District (BAAQMD)

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

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

The BAAQMD California Environmental Quality Act (*CEQA) Air Quality Guidelines*[5] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions.

San José Envision 2040 General Plan

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

Applicable Goals – Toxic Air Contaminants

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

Applicable Policies – Toxic Air Contaminants

MS-11.1 Require completion of air quality modeling for sensitive land uses such as new residential developments that are located near sources of pollution such as freeways and industrial uses. Require new residential development projects and projects categorized as sensitive receptors to incorporate effective mitigation into project designs or be located an adequate distance from sources of toxic air contaminants (TACs) to avoid significant risks to health and safety.

MS-11.4 Encourage the installation of appropriate air filtration at existing schools, residences, and other sensitive receptor uses adversely affected by pollution sources.

[5] Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

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

Actions – Toxic Air Contaminants

MS-11.7 Consult with BAAQMD to identify stationary and mobile TAC sources and determine the need for and requirements of a health risk assessment for proposed developments.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. The closest sensitive receptors are residences adjacent to the northern and eastern project boundaries. During project construction students will not be at the project site. Once constructed, this project would introduce new sensitive receptors to the area in the form of middle-school aged students.

Significance Thresholds

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

Table 1. Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards for Single Sources			
Excess Cancer Risk	>10 per one million		
Hazard Index	>1.0		
Incremental annual $PM_{2.5}$	>0.3 µg/m^3		
Health Risks and Hazards for Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)			
Excess Cancer Risk	>100 per one million		
Hazard Index	>10.0		
Annual Average $PM_{2.5}$	>0.8 µg/m^3		

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less

Construction Period Emissions

The Bay Area is considered a non-attainment area for ground-level ozone and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM_{10} under the California Clean Air Act, but not the federal act. The area has attained both State and federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for ozone precursor pollutants (ROG and NO_X), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions from construction and operation of the site assuming full build-out of the project. The project land use types and size, and anticipated construction schedule were input to CalEEMod. The model output from CalEEMod is included as *Attachment 2*.

CalEEMod provided annual emissions for construction. CalEEMod provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor

traffic. A construction build-out scenario, including equipment list and schedule, was based on information provided by the project applicant. The proposed project land uses were input into CalEEMod, which included 54,152-sf entered as a "Junior High School" on an estimated 4-acre site. The 54,152-sf accounts for the construction of Building E (38,898-sf) and the additional construction that would be added to the renovated gym/auditorium building (15,254-sf). The 4-acres accounts for the sections of the school where construction, building demolition, and playing field reconfiguration would occur.

Inputs to the model for this scenario included:

- 14,631-sf of building demolition,
- 1,800 cubic yards (cy) of soil hauling import,
- 1,450-cy of soil hauling export,
- 100 round-trip cement truck deliveries during building construction, and
- 29 round-trip asphalt truck deliveries during paving

The applicant-provided construction schedule and equipment usage were used in CalEEMod. Construction was assumed to begin May 2020 and last 14 months. Based on the construction schedule and equipment usage, there was an estimated 230 construction workdays. Average daily emissions were computed by dividing the total construction emissions by the number of construction days. Table 2 shows average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 2, predicted construction period emissions would not exceed the BAAQMD significance thresholds. *Mitigation Measure AQ-1* is still recommended to keep construction emissions *less-than-significant.*

Table 2. Construction Period Emissions

Scenario	**ROG**	**NOx**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**
Total construction emissions (tons)	0.32 tons	0.81 tons	0.01 tons	0.01 tons
Average daily emissions (pounds)[1]	2.8 lbs./day	7.0 lbs./day	0.1 lbs./day	0.1 lbs./day
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	**No**	**No**	**No**	**No**

Notes: [1]Assumes 230 workdays.

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

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

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

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

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

4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

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

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

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

8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Operational Community Health Risk Impacts

Project impacts related to increased community risk can occur either by introducing a new sensitive receptor, such as a residential use, in proximity to an existing source of TACs or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity. Operation of the project would not be considered a source of TAC or PM2.5 emissions that could lead to significant community risk impacts as the project would only generate typical school-type traffic and not include any stationary sources of emissions. The project would introduce new middle-school aged students that are sensitive receptors. Community risk impacts are addressed by predicting increased lifetime cancer risk, the increase in annual $PM_{2.5}$ concentrations and computing the Hazard Index (HI) for non-cancer health risks. The methodology for computing community risks impacts is contained in *Attachment 1*.

Community health risk assessments typically look at all substantial sources of TACs located within 1,000 feet of project sites. These sources include highways, busy surface streets and stationary sources identified by BAAQMD. A review of the project area indicates that traffic on State Route (S.R.) 85 and Union Avenue are busy roadways that are considered sources of TACs. Other nearby streets are assumed to have less than 10,000 vehicles per day. One stationary source was identified using the BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*.

Figure 1 shows the project site and the sources of TACs near the site. Results of this assessment are shown in Table 3. The method to determine community risks from each source is described below. See *Attachment 3* for the screening community risk calculations from sources affecting the project and MEI.

Figure 1. Project Site and 1,000-Foot Radius for Identifying TAC Sources

Highways

BAAQMD provides a Google Earth *Highway Screening Analysis Tool* that can be used to identify screening level impacts from State highways. The portion of the highway closest to the project was selected (i.e., Link 298, 6ft elevation). The lifetime cancer risk, annual $PM_{2.5}$ exposure and non-cancer hazard index corresponding to the distance between the project and the site was used. The data were based on a distance of 1,000 feet north from the highway. Cancer risk levels were adjusted for exposure duration, age, and new exposure guidance provided by OEHHA, as described below.

Local Roadways

For local roadways, BAAQMD has provided the *Roadway Screening Analysis Calculator* to assess whether roadways with traffic volumes of over 10,000 vehicles per day may have a potentially significant effect on a proposed project. Two adjustments were made to the cancer risk predictions made by this calculator: (1) adjustment for latest vehicle emissions rates predicted using EMFAC2014 and (2) adjustment of cancer risk to reflect new Office of Environmental Health Hazard Assessment (OEHHA) guidance (see *Attachment 1*).

The calculator uses EMFAC2011 emission rates for the year 2014. Overall, emission rates will decrease by the time the project is constructed and occupied. The project would not be occupied prior to at least 2018. In addition, a new version of the emissions factor model, EMFAC2014 is available. This version predicts lower emission rates. An adjustment factor of 0.5 was developed by comparing emission rates of total organic gases (TOG) for running exhaust and running losses developed using EMFAC2011 for year 2014 and those from EMFAC2014 for 2018.

Cancer risk levels were adjusted for exposure duration, age, and new exposure guidance provided by OEHHA, as described below.

The average daily traffic (ADT) on Union Avenue near the project site was estimated to be approximately 22,925 vehicles. This estimate was based on the peak-hour traffic volumes included in the project's traffic analysis for background plus project conditions.[6] The AM and PM peak-hour volumes were averaged and then multiplied by 10 to estimate the ADT. Using the BAAQMD *Roadway Screening Analysis Calculator* for Santa Clara County for an east-west directional roadway and at a distance of approximately 180 feet west of the roadway, risk values were estimated. Results are listed in Table 3. Note that BAAQMD has found that non-cancer hazards from all local roadways would be well below the BAAQMD thresholds. Chronic or acute HI for the roadway would be below 0.03.

Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth and identified the location of four stationary sources and their estimated risk and hazard impacts. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. They provided updated risk levels, emissions and adjustments to account for new OEHHA guidance.[7] The adjusted risk values were then adjusted with the appropriate distance multiplier values provided by BAAQMD or the emissions information was used in refined modeling. Cancer risk levels were adjusted for exposure duration, age, and new exposure guidance provided by OEHHA, as described below.

Plant #11403, which contains seven emergency diesel generators, was evaluated using emissions data provided by BAAQMD and adjusted for distance based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines*. Concentration levels and community risk impacts from these sources upon the project are reported in Table 3.

[6] Hexagon Transportation Consultants, Inc., "Harker Middle School – 4525 Union Ave", September 2018.
[7] Correspondence with Areana Flores, BAAQMD, September 21, 2018.

Adjustments of Cancer Risk for School Students

Since the proposed project would introduce part-time sensitive receptors (middle-school students), a cancer screening risk assessment was done to adjust for annual, life, and lifetime exposure. BAAQMD screening tools provide lifetime cancer risk, so they were adjusted for each sensitive receptor group as follows (refer to *Attachment* 1 for the description of cancer risk calculations):

For the middle-school student cancer risk, the screening level lifetime cancer risks were adjusted as follows:

1. Age sensitivity. BAAQMD screening data uses a factor of 1.7 for lifetime exposure. This was adjusted to a factor of 3.0 for child exposures.

2. Daily exposure. Health risk assessments assume 24-hour per day exposure. The students would attend school for 10 hours day.

3. Annual exposure. Health risk assessments assume 350 days of exposure per year. For the middle-school, it is assumed the students would attend the school for 180 days.

4. Lifetime exposure. The BAAQMD screening tools used assumed a 70-year exposure. The students would attend the middle-school for a max of 4 years, but the District's risk policy assumes 9-years for student health risk.

5. Breathing rates. BAAQMD predictions were assumed to use an overall breathing rate of 302 liters per kilogram body weight. New exposure parameters issued by the California's OEHHA include parameters that account for different breathing rates. For children, a breathing rate of 631 liters per kilogram (L/kg) was assumed.

No adjustments were made to the predicted annual $PM_{2.5}$ and Hazard Index, since those screening levels below the significance thresholds and would not result in any significant health effects at the school, even if one were to assume continuous exposure.

Table 3. Community Risk Impact to New Project Receptors

Source	Receptor	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
S.R. 85 (Link 298, 6ft, at 1000 feet north)	Middle-School Aged Children	0.6	0.07	0.01
Union Avenue at 180 feet (ADT 22,925)	Middle-School Aged Children	0.5	0.09	<0.03
Plant #11403 at 600 feet (diesel generators)	Middle-School Aged Children	0.6	0.01	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>0.1***
Significant?		*No*	*No*	*No*
Cumulative Total		1.7	0.17	<0.05
BAAQMD Cumulative Source Threshold		***>100***	***>0.8***	***>10.0***
Significant?		*No*	*No*	*No*

Conclusion for Operational Impacts

The TAC sources would not exceed the significance thresholds for cancer risk, $PM_{2.5}$ concentrations or non-cancer Hazard Index for either the single-source or cumulative-source threshold. This project would have a *less-than-significant* impact on the new receptors.

Construction Community Health Risk Impacts

Construction equipment and associated heavy-duty truck traffic generated diesel exhaust are known as a TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects of sensitive receptors at these nearby residences from construction emissions of DPM and $PM_{2.5}$.[8] The closest sensitive receptors are residences adjacent to the northern and eastern project boundaries. Dispersion modeling was conducted to predict the off-site concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated. The on- and near-site construction emissions predicted using CalEEMod (as described above) were used in the dispersion modeling.

Construction Emissions

The CalEEMod model provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.0536 tons (107 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.00204 tons (4 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[9] The modeling utilized two area sources to represent the on-site construction emissions, one for exhaust emissions and one for fugitive dust emissions. To represent the construction equipment exhaust emissions, an emission release height of 6 meters (19.7 feet) was used for the area source. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. For

[8] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.
[9] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 2 meters (6.6 feet) was used for the area source. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources. Construction emissions were modeled as occurring daily between 7 a.m. to 4 p.m., when the majority of construction activity would occur.

The modeling used a five-year data set (2006-2010) of hourly meteorological data from the San José Airport meteorological site that was prepared for use with the AERMOD model by BAAQMD. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2020-2021 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 1.5 meters (5 feet) were used to represent the breathing heights of residents in nearby single-family residences.

Predicted Cancer Risk and Hazards

Figure 2 shows the location where the maximum-modeled DPM and $PM_{2.5}$ concentrations occurred. The maximum concentrations occurred at a residence adjacent to the northern project boundary. Using the maximum annual modeled DPM concentration, the maximum increased cancer risk at the location of the maximally exposed individual (MEI) was calculated using BAAQMD recommended methods. The cancer risk calculations are based on applying the BAAQMD recommended age sensitivity factors to the TAC concentrations. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. BAAQMD-recommended exposure parameters were used for the cancer risk calculations, as described in *Attachment 1*. Third trimester, infant, and adult exposures were assumed to occur at all residences through the entire construction period.

Results of this assessment indicate that the maximum increased residential cancer risks without any mitigation or construction emissions control would be 14.2 in one million for an infant exposure and 0.2 in one million for an adult exposure. The maximum residential excess cancer risk would be above the significance threshold of 10.0 in one million. *Implementation of Mitigation Measures AQ-1 and AQ-2 would reduce this impact to a level of less than significant.*

Predicted Annual $PM_{2.5}$ Concentration

The maximum-modeled annual $PM_{2.5}$ concentration, which is based on combined exhaust and fugitive dust emissions, would be 0.08 $\mu g/m^3$. The maximum annual $PM_{2.5}$ concentration would occur at the same location where the maximum cancer risk occurs. This maximum annual $PM_{2.5}$ concentration would be below the BAAQMD significance threshold of greater than 0.3 $\mu g/m^3$. The location of the receptor with the maximum $PM_{2.5}$ concentration is shown in Figure 2.

Non-Cancer Hazards

The maximum modeled annual residential DPM concentration (i.e., from construction exhaust) would be 0.0798 $\mu g/m^3$. The maximum computed Hazard Index (HI) based on this DPM concentration would be 0.02, which does not exceed the BAAQMD significance criterion of a HI greater than 1.0.

The project would have a *significant* impact with respect to community risk caused by project construction activities, since the maximum cancer risk is above the single-source thresholds of 10.0 per million. *Attachment 4* includes the construction emission calculations and source

information used in the modeling and the cancer risk calculations. Table 4 reports the predicted increases to cancer risk, annual $PM_{2.5}$ concentrations, and HI caused by construction of the project.

Figure 2. Project Construction Site and Locations of Off-Site Sensitive Receptors and TAC Impacts

Cumulative Impact on Construction MEI

Cumulative community risk impacts were addressed through evaluation of TAC sources located within 1,000 feet of the construction MEI. These sources include freeways or highways, busy surface streets, and stationary sources identified by BAAQMD. A review of the project area indicates that traffic on State Route 85 (S.R. 85) and Union Avenue would exceed 10,000 vehicles per day. Other nearby streets are assumed to have less than 10,000 vehicles per day. A review of BAAQMD's stationary source Google Earth map tool identified one stationary source with the potential to affect the construction MEI. Figure 2 shows the sources affecting the project site and construction MEI. Community risk impacts from these sources upon the construction MEI are reported in Table 4. Details of the modeling and community risk calculations are included in *Attachment 4.*

Summary of Cumulative Impacts

As shown in Table 4, the combined annual cancer risk, $PM_{2.5}$ concentrations and Hazard risk

values, which includes unmitigated and mitigated, would not exceed the cumulative threshold. Therefore, this would be a *less-than-significant impact.* However, the construction levels would exceed the single-source thresholds for cancer risk (assuming infant exposure). This would be a *potentially significant impact.* Implementation of *Mitigation Measure AQ-2* (see below) in addition to *Mitigation Measure AQ-1* would reduce the cancer risk caused by construction to a level of *less-than-significant.*

Table 4. Impacts from Combined Sources at Construction MEI

Source		Maximum Cancer Risk (per million)	$PM_{2.5}$ concentration ($\mu g/m^3$)	Hazard Index
Project Construction	Unmitigated	**14.2** (infant)	0.08	0.02
	Mitigated	9.2 (infant)	0.05	0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Significant?				
	Unmitigated	***Yes***	*No*	*No*
	Mitigated	*No*	*No*	*No*
S.R. 85 (Link 298, 6ft, at 1000 feet north)		6.8	0.07	0.01
Union Avenue at 650 feet (ADT 22,925)		0.9	0.03	<0.03
Plant #11403 at 1,000 feet (diesel generators)		2.6	<0.01	<0.01
Combined Sources	*Unmitigated*	24.5 (infant)	0.19	0.07
	Mitigated	11.9 (infant)	0.12	0.06
BAAQMD Cumulative Source Threshold		***>100***	***>0.8***	***>10.0***
Significant?				
	Unmitigated	*No*	*No*	*No*
	Mitigated	*No*	*No*	*No*

Mitigation Measure AQ-2: **Selection of equipment during construction to minimize emissions. Such equipment selection would include the following:**

The project shall develop a plan demonstrating that the off-road equipment used on-site to construct the project would achieve a fleet-wide average 30-percent reduction in DPM exhaust emissions or greater. One feasible plan to achieve this reduction would include the following:

- All diesel-powered off-road equipment, larger than 25 horsepower, operating on the site for more than two days continuously shall, at a minimum, meet U.S. EPA particulate matter emissions standards for Tier 3 engines with electric portable equipment (e.g. welders for this project).
- Alternatively, equipment that meets Tier 3 engine standards and includes CARB-certified Level 3 Diesel Particulate Filters[10], equipment that meets Tier 4 engines, or the use of alternatively-fueled equipment would also meet this requirement.

Effectiveness of Mitigation

[10] See http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm

Implementation of *Mitigation Measure AQ-1* and *Mitigation Measure AQ-2* would reduce fugitive dust emissions by over 50 percent and reduce on-site diesel exhaust emissions by 30 percent. With mitigation, the computed maximum increased lifetime residential cancer risk from construction, assuming infant exposure, would be 9.2 in one million or less, the maximum annual $PM_{2.5}$ concentration would be 0.05 $\mu g/m^3$, and the Hazard Index would be 0.01. All these risk values would be below their significance thresholds as stated in Table 4. *After implementation of these recommended measures, the project would have a less-than-significant impact with respect to community risk caused by construction activities.*

Supporting Documentation

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

Attachment 2 includes the CalEEMod output for project construction TAC emissions. Also included are any modeling assumptions.

Attachment 3 includes the screening community risk calculations from sources affecting the construction MEI.

Attachment 4 contains the construction health risk assessment information. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format.

Attachment 1: Health Risk Calculation Methodology

Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[11] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[12] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[13] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

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

[11] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.
[12] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[13] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

and daycare facilities, BAAQMD recommends using the 95th percentile breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD.

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

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

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

Where:

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

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

Where:

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

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

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

Non-Cancer Hazards

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

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

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: CalEEMod Modeling Output

Project Name:					
Construction Phase	**Equipment** (*See next page for example of commonly used equipment*)	**Quantity**	**Average Hours Used Per Day**	**How Many Work Days**	
Demolition Start Date: 5/20 End Date: 6/20	• EXCAVATOR	1	8	20	
	• BOBCAT	1	8	20	
	• WATER BUFFALO	1	8	20	
	•				
	•				
Site Preparation Start Date: 6/20 End Date: 8/20	• SCRAPER	1	8	2	
	• AC GRINDER	1	8	1	
	• EXCAVATOR	1	8	10	
	• GRADER	1	8	2	
	•				
Grading/Excavation Start Date: 8/20 End Date: 10/20	• SCRAPER	2	8	3	
	• GRADER	1	8	15	
	• BACK HOE	1	8	10	
	• SKIP LOADER	1	8	20	
	• ROLLER	1	8	40	
Trenching Start Date: 9/20 End Date: 11/20	• BACK HOE	1	8	20	
	• SKIP LOADER	1	8	10	
	•				
	•				
	•				
Building – Exterior Start Date: 10/20 End Date: 6/21	• CRANE	1	8	25	
	• FORKLIFTS	3	8	60	
	• WELDERS	5	8	20	
	• BACK HOE	2	8	40	
	• CONCRETE TRUCKS	10	8	20	
Building – Interior/ Architectural Coating Start Date: 4/21 End Date: 7/21	• FORKLIFT	3	8	60	
	•				
	•				
	•				
	•				
Paving Start Date: 5/21 End Date: 7/21	• PAVERS	1	8	10	
	• PAVING EQUIPMENT	2	8	20	
	• ROLLERS	1	8	2	
	•				
	•				
OTHER – Provide as Applicable					
Pile Driving	Pile Driving? (Y/N) ___ Impact or Vibratory? ___ Start/End Dates ___				
Soil Hauling Volume	Export volume = 1450 cubic yards? DEMO Import volume = 1800 cubic yards?				

Project Name: HARKER MIDDLE SCHOOL					
Construction Phase	**Equipment** (*See next page for example of commonly used equipment*)	**Quantity**	**Average Hours Used Per Day**	**How Many Work Days**	
Demolition Volume	Square footage of buildings to be demolished, or total tons to be hauled. =___ square feet or =___ hauling volume (tons) Pavement demolished and hauled =__ tons 1450				
Power	Line Power (Y/N) ___ or Generator use (Y/N) ___? If generator use, then fuel type (diesel/gasoline/propane) ___				
Cement	Cement Trucks = 100 Total Round-Trips OR Cement =__ cubic yards				
Asphalt	560 cy or 28 round trips				

Example of Equipment Commonly Used for Each Construction Phase
Demolition
Concrete/Industrial Saws
Excavators
Rubber-Tired Dozers
Site Preparation
Rubber Tired Dozers
Tractors/Loaders/Backhoes
Grading / Excavation
Excavators
Graders
Scrapers
Rubber Tired Dozers
Tractors/Loaders/Backhoes
Trenching
Excavator
Tractor/Loader/Backhoe
Building - Exterior
Cranes
Forklifts
Generator Sets
Tractors/Loaders/Backhoes
Welders
Building – Interior/ Architectural Coating
Air Compressors
Aerial Lift
Paving
Cement and Mortar Mixers
Pavers
Paving Equipment

18-013 Harker Middle School SJ AQ

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Junior High School	54.15	1000sqft	4.00	54,152.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 rate 290

Land Use - construction of Building E Classroom, addition of gym/auditorium, no renovation sqft, acerage for construction and demo is about 4-acres

Construction Phase - Applicant Construction Data Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant construction sheet

Off-road Equipment - Applicant Construction Sheet

Trips and VMT - Water Buffalo equipment for demo; Build Cont: 200 one-way trips cement, Paving: 56 one-way trips for asphalt

Demolition - Demolition of three 4,877-sf (Building B2, B3, B5)

Grading - 1450-cy exported, 1800-cy imported

Vehicle Trips - weekday trip for students with shuttle bus reduction: 3.56

Water And Wastewater - 100% aerobic

Construction Off-road Equipment Mitigation - BMPs, tier 3 lvl 3

Off-road Equipment - Applicant construction sheet

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	18.00	60.00
tblConstructionPhase	NumDays	230.00	60.00
tblConstructionPhase	NumDays	8.00	40.00
tblConstructionPhase	NumDays	18.00	20.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	PhaseEndDate	5/4/2021	1/22/2021
tblConstructionPhase	PhaseEndDate	6/16/2020	9/25/2020
tblConstructionPhase	PhaseEndDate	6/4/2020	6/12/2020
tblConstructionPhase	PhaseStartDate	5/29/2021	4/1/2021
tblConstructionPhase	PhaseStartDate	6/17/2020	11/1/2020
tblConstructionPhase	PhaseStartDate	6/5/2020	8/3/2020
tblConstructionPhase	PhaseStartDate	5/5/2021	5/1/2021
tblConstructionPhase	PhaseStartDate	5/29/2020	6/1/2020
tblGrading	MaterialExported	0.00	1,450.00

tblGrading	MaterialImported	0.00	1,800.00
tblLandUse	LandUseSquareFeet	54,150.00	54,152.00
tblLandUse	LotAcreage	1.24	4.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	3.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	0.00	200.00
tblTripsAndVMT	HaulingTripNumber	0.00	56.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblVehicleTrips	WD_TR	13.78	3.56
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0765	0.7537	0.5570	1.1500e-003	0.0270	0.0357	0.0628	5.2000e-003	0.0332	0.0384	0.0000	102.0835	102.0835	0.0230	0.0000	102.6594
2021	0.3180	0.3221	0.3274	5.5000e-004	6.5700e-003	0.0182	0.0248	1.7500e-003	0.0169	0.0186	0.0000	48.2410	48.2410	0.0122	0.0000	48.5457
Maximum	**0.3180**	**0.7537**	**0.5570**	**1.1500e-003**	**0.0270**	**0.0357**	**0.0628**	**5.2000e-003**	**0.0332**	**0.0384**	**0.0000**	**102.0835**	**102.0835**	**0.0230**	**0.0000**	**102.6594**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0282	0.5421	0.5910	1.1500e-003	0.0195	4.2000e-003	0.0237	3.9700e-003	4.1800e-003	8.1500e-003	0.0000	102.0834	102.0834	0.0230	0.0000	102.6593
2021	0.2961	0.2630	0.3402	5.5000e-004	6.5700e-003	2.3700e-003	8.9300e-003	1.7500e-003	2.3600e-003	4.1100e-003	0.0000	48.2410	48.2410	0.0122	0.0000	48.5456
Maximum	**0.2961**	**0.5421**	**0.5910**	**1.1500e-003**	**0.0195**	**4.2000e-003**	**0.0237**	**3.9700e-003**	**4.1800e-003**	**8.1500e-003**	**0.0000**	**102.0834**	**102.0834**	**0.0230**	**0.0000**	**102.6593**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**17.79**	**25.16**	**-5.29**	**0.00**	**22.38**	**87.83**	**62.73**	**17.70**	**86.94**	**78.50**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-1-2020**	**7-31-2020**	0.1880	0.0960
2	**8-1-2020**	**10-31-2020**	0.2908	0.2067
3	**11-1-2020**	**1-31-2021**	0.4405	0.3426
4	**2-1-2021**	**4-30-2021**	0.1432	0.1300
5	**5-1-2021**	**7-31-2021**	0.3856	0.3378
		Highest	0.4405	0.3426

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2398	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Energy	5.3800e-003	0.0490	0.0411	2.9000e-004		3.7200e-003	3.7200e-003		3.7200e-003	3.7200e-003	0.0000	91.6814	91.6814	4.8600e-003	1.7700e-003	92.3308

Mobile	0.0317	0.1334	0.3638	1.2500e-003	0.1151	1.0600e-003	0.1162	0.0308	9.9000e-004	0.0318	0.0000	114.5236	114.5236	3.8900e-003	0.0000	114.6208
Waste						0.0000	0.0000		0.0000	0.0000	14.2885	0.0000	14.2885	0.8444	0.0000	35.3992
Water						0.0000	0.0000		0.0000	0.0000	0.3951	2.1167	2.5118	1.5700e-003	9.0000e-004	2.8202
Total	**0.2768**	**0.1823**	**0.4054**	**1.5400e-003**	**0.1151**	**4.7800e-003**	**0.1199**	**0.0308**	**4.7100e-003**	**0.0355**	**14.6836**	**208.3227**	**223.0063**	**0.8548**	**2.6700e-003**	**245.1721**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2398	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Energy	5.3800e-003	0.0490	0.0411	2.9000e-004		3.7200e-003	3.7200e-003		3.7200e-003	3.7200e-003	0.0000	91.6814	91.6814	4.8600e-003	1.7700e-003	92.3308
Mobile	0.0317	0.1334	0.3638	1.2500e-003	0.1151	1.0600e-003	0.1162	0.0308	9.9000e-004	0.0318	0.0000	114.5236	114.5236	3.8900e-003	0.0000	114.6208
Waste						0.0000	0.0000		0.0000	0.0000	14.2885	0.0000	14.2885	0.8444	0.0000	35.3992
Water						0.0000	0.0000		0.0000	0.0000	0.3951	2.1167	2.5118	1.5700e-003	9.0000e-004	2.8202
Total	**0.2768**	**0.1823**	**0.4054**	**1.5400e-003**	**0.1151**	**4.7800e-003**	**0.1199**	**0.0308**	**4.7100e-003**	**0.0355**	**14.6836**	**208.3227**	**223.0063**	**0.8548**	**2.6700e-003**	**245.1721**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2020	5/28/2020	5	20	

2	Site Preparation	Site Preparation	6/1/2020	6/12/2020	5	10	
3	Grading	Grading	8/3/2020	9/25/2020	5	40	
4	Trenching	Trenching	9/20/2020	10/16/2020	5	20	
5	Building Construction	Building Construction	11/1/2020	1/22/2021	5	60	
6	Architectural Coating	Architectural Coating	4/1/2021	6/23/2021	5	60	
7	Paving	Paving	5/1/2021	5/28/2021	5	20	

Acres of Grading (Site Preparation Phase): 3.75

Acres of Grading (Grading Phase): 17.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 81,228; Non-Residential Outdoor: 27,076; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Excavators	0	8.00	158	0.38
Site Preparation	Graders	1	2.00	187	0.41
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Scrapers	1	2.00	367	0.48
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	2	1.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Graders	1	3.00	187	0.41
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	4.00	97	0.37
Architectural Coating	Forklifts	3	8.00	89	0.20

Building Construction	Cranes	1	3.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	0	0.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	5.00	97	0.37
Building Construction	Welders	5	3.00	46	0.45
Architectural Coating	Air Compressors	0	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	2	5.00	1.00	22.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	321.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	23.00	9.00	200.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	3	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	56.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.4000e-003	0.0000	2.4000e-003	3.6000e-004	0.0000	3.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0132	0.1375	0.0740	1.4000e-004		6.7200e-003	6.7200e-003		6.1800e-003	6.1800e-003	0.0000	12.0425	12.0425	3.8900e-003	0.0000	12.1399
Total	**0.0132**	**0.1375**	**0.0740**	**1.4000e-004**	**2.4000e-003**	**6.7200e-003**	**9.1200e-003**	**3.6000e-004**	**6.1800e-003**	**6.5400e-003**	**0.0000**	**12.0425**	**12.0425**	**3.8900e-003**	**0.0000**	**12.1399**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	3.1900e-003	6.5000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8390	0.8390	4.0000e-005	0.0000	0.8399
Vendor	4.0000e-005	1.1400e-003	3.0000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2614	0.2614	1.0000e-005	0.0000	0.2617
Worker	1.7000e-004	1.2000e-004	1.2500e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3401	0.3401	1.0000e-005	0.0000	0.3403
Total	**3.0000e-004**	**4.4500e-003**	**2.2000e-003**	**1.0000e-005**	**6.6000e-004**	**2.0000e-005**	**6.7000e-004**	**1.8000e-004**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**1.4405**	**1.4405**	**6.0000e-005**	**0.0000**	**1.4420**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0800e-003	0.0000	1.0800e-003	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3600e-003	0.0650	0.0845	1.4000e-004		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	12.0425	12.0425	3.8900e-003	0.0000	12.1399
Total	**3.3600e-003**	**0.0650**	**0.0845**	**1.4000e-004**	**1.0800e-003**	**4.1000e-004**	**1.4900e-003**	**8.0000e-005**	**4.1000e-004**	**4.9000e-004**	**0.0000**	**12.0425**	**12.0425**	**3.8900e-003**	**0.0000**	**12.1399**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	3.1900e-003	6.5000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8390	0.8390	4.0000e-005	0.0000	0.8399
Vendor	4.0000e-005	1.1400e-003	3.0000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2614	0.2614	1.0000e-005	0.0000	0.2617
Worker	1.7000e-004	1.2000e-004	1.2500e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3401	0.3401	1.0000e-005	0.0000	0.3403
Total	**3.0000e-004**	**4.4500e-003**	**2.2000e-003**	**1.0000e-005**	**6.6000e-004**	**2.0000e-005**	**6.7000e-004**	**1.8000e-004**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**1.4405**	**1.4405**	**6.0000e-005**	**0.0000**	**1.4420**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9900e-003	0.0000	1.9900e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	3.0700e-003	0.0348	0.0281	5.0000e-005		1.4200e-003	1.4200e-003		1.3000e-003	1.3000e-003	0.0000	4.6783	4.6783	1.5100e-003	0.0000	4.7161
Total	**3.0700e-003**	**0.0348**	**0.0281**	**5.0000e-005**	**1.9900e-003**	**1.4200e-003**	**3.4100e-003**	**2.1000e-004**	**1.3000e-003**	**1.5100e-003**	**0.0000**	**4.6783**	**4.6783**	**1.5100e-003**	**0.0000**	**4.7161**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	1.0000e-004	1.0000e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2721	0.2721	1.0000e-005	0.0000	0.2722
Total	**1.3000e-004**	**1.0000e-004**	**1.0000e-003**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2721**	**0.2721**	**1.0000e-005**	**0.0000**	**0.2722**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.9000e-004	0.0000	8.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	0.0253	0.0342	5.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	4.6782	4.6782	1.5100e-003	0.0000	4.7161
Total	**1.3100e-003**	**0.0253**	**0.0342**	**5.0000e-005**	**8.9000e-004**	**1.6000e-004**	**1.0500e-003**	**5.0000e-005**	**1.6000e-004**	**2.1000e-004**	**0.0000**	**4.6782**	**4.6782**	**1.5100e-003**	**0.0000**	**4.7161**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	1.0000e-004	1.0000e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2721	0.2721	1.0000e-005	0.0000	0.2722
Total	**1.3000e-004**	**1.0000e-004**	**1.0000e-003**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2721**	**0.2721**	**1.0000e-005**	**0.0000**	**0.2722**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.2800e-003	0.0000	9.2800e-003	1.0000e-003	0.0000	1.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0169	0.1897	0.1341	2.4000e-004		9.1000e-003	9.1000e-003		8.3700e-003	8.3700e-003	0.0000	21.0691	21.0691	6.8100e-003	0.0000	21.2394
Total	**0.0169**	**0.1897**	**0.1341**	**2.4000e-004**	**9.2800e-003**	**9.1000e-003**	**0.0184**	**1.0000e-003**	**8.3700e-003**	**9.3700e-003**	**0.0000**	**21.0691**	**21.0691**	**6.8100e-003**	**0.0000**	**21.2394**

Unmitigated Construction Off-Site

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

Hauling	1.3300e-003	0.0466	9.5400e-003	1.3000e-004	2.7200e-003	1.5000e-004	2.8700e-003	7.5000e-004	1.4000e-004	8.9000e-004	0.0000	12.2415	12.2415	5.6000e-004	0.0000	12.2555
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-003	7.2000e-004	7.5100e-003	2.0000e-005	2.3800e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.5000e-004	0.0000	2.0405	2.0405	5.0000e-005	0.0000	2.0417
Total	**2.3300e-003**	**0.0473**	**0.0171**	**1.5000e-004**	**5.1000e-003**	**1.7000e-004**	**5.2600e-003**	**1.3800e-003**	**1.5000e-004**	**1.5400e-003**	**0.0000**	**14.2819**	**14.2819**	**6.1000e-004**	**0.0000**	**14.2972**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.1800e-003	0.0000	4.1800e-003	2.3000e-004	0.0000	2.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8800e-003	0.1235	0.1530	2.4000e-004		1.0100e-003	1.0100e-003		1.0100e-003	1.0100e-003	0.0000	21.0690	21.0690	6.8100e-003	0.0000	21.2394
Total	**5.8800e-003**	**0.1235**	**0.1530**	**2.4000e-004**	**4.1800e-003**	**1.0100e-003**	**5.1900e-003**	**2.3000e-004**	**1.0100e-003**	**1.2400e-003**	**0.0000**	**21.0690**	**21.0690**	**6.8100e-003**	**0.0000**	**21.2394**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3300e-003	0.0466	9.5400e-003	1.3000e-004	2.7200e-003	1.5000e-004	2.8700e-003	7.5000e-004	1.4000e-004	8.9000e-004	0.0000	12.2415	12.2415	5.6000e-004	0.0000	12.2555
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-003	7.2000e-004	7.5100e-003	2.0000e-005	2.3800e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.5000e-004	0.0000	2.0405	2.0405	5.0000e-005	0.0000	2.0417
Total	**2.3300e-003**	**0.0473**	**0.0171**	**1.5000e-004**	**5.1000e-003**	**1.7000e-004**	**5.2600e-003**	**1.3800e-003**	**1.5000e-004**	**1.5400e-003**	**0.0000**	**14.2819**	**14.2819**	**6.1000e-004**	**0.0000**	**14.2972**

3.5 Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1700e-003	0.0419	0.0454	6.0000e-005		2.6500e-003	2.6500e-003		2.4400e-003	2.4400e-003	0.0000	5.4349	5.4349	1.7600e-003	0.0000	5.4789
Total	**4.1700e-003**	**0.0419**	**0.0454**	**6.0000e-005**		**2.6500e-003**	**2.6500e-003**		**2.4400e-003**	**2.4400e-003**	**0.0000**	**5.4349**	**5.4349**	**1.7600e-003**	**0.0000**	**5.4789**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.2000e-004	1.2500e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3401	0.3401	1.0000e-005	0.0000	0.3403
Total	**1.7000e-004**	**1.2000e-004**	**1.2500e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3401**	**0.3401**	**1.0000e-005**	**0.0000**	**0.3403**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5100e-003	0.0346	0.0467	6.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	5.4349	5.4349	1.7600e-003	0.0000	5.4789
Total	**1.5100e-003**	**0.0346**	**0.0467**	**6.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**	**0.0000**	**5.4349**	**5.4349**	**1.7600e-003**	**0.0000**	**5.4789**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.2000e-004	1.2500e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3401	0.3401	1.0000e-005	0.0000	0.3403
Total	**1.7000e-004**	**1.2000e-004**	**1.2500e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3401**	**0.3401**	**1.0000e-005**	**0.0000**	**0.3403**

3.6 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.2528	0.2309	3.4000e-004		0.0155	0.0155		0.0145	0.0145	0.0000	28.3129	28.3129	7.7900e-003	0.0000	28.5078

Total	**0.0331**	**0.2528**	**0.2309**	**3.4000e-004**		**0.0155**	**0.0155**		**0.0145**	**0.0145**	**0.0000**	**28.3129**	**28.3129**	**7.7900e-003**	**0.0000**	**28.5078**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.1000e-004	0.0213	4.3600e-003	6.0000e-005	1.5800e-003	7.0000e-005	1.6500e-003	4.2000e-004	7.0000e-005	4.9000e-004	0.0000	5.5932	5.5932	2.6000e-004	0.0000	5.5996
Vendor	7.8000e-004	0.0225	6.0000e-003	5.0000e-005	1.3000e-003	1.1000e-004	1.4100e-003	3.8000e-004	1.1000e-004	4.8000e-004	0.0000	5.1766	5.1766	2.4000e-004	0.0000	5.1825
Worker	1.6800e-003	1.2100e-003	0.0127	4.0000e-005	4.0100e-003	3.0000e-005	4.0400e-003	1.0700e-003	2.0000e-005	1.0900e-003	0.0000	3.4416	3.4416	8.0000e-005	0.0000	3.4437
Total	**3.0700e-003**	**0.0450**	**0.0230**	**1.5000e-004**	**6.8900e-003**	**2.1000e-004**	**7.1000e-003**	**1.8700e-003**	**2.0000e-004**	**2.0600e-003**	**0.0000**	**14.2113**	**14.2113**	**5.8000e-004**	**0.0000**	**14.2258**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0101	0.1968	0.2282	3.4000e-004		1.8600e-003	1.8600e-003		1.8600e-003	1.8600e-003	0.0000	28.3129	28.3129	7.7900e-003	0.0000	28.5077
Total	**0.0101**	**0.1968**	**0.2282**	**3.4000e-004**		**1.8600e-003**	**1.8600e-003**		**1.8600e-003**	**1.8600e-003**	**0.0000**	**28.3129**	**28.3129**	**7.7900e-003**	**0.0000**	**28.5077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.1000e-004	0.0213	4.3600e-003	6.0000e-005	1.5800e-003	7.0000e-005	1.6500e-003	4.2000e-004	7.0000e-005	4.9000e-004	0.0000	5.5932	5.5932	2.6000e-004	0.0000	5.5996
Vendor	7.8000e-004	0.0225	6.0000e-003	5.0000e-005	1.3000e-003	1.1000e-004	1.4100e-003	3.8000e-004	1.1000e-004	4.8000e-004	0.0000	5.1766	5.1766	2.4000e-004	0.0000	5.1825
Worker	1.6800e-003	1.2100e-003	0.0127	4.0000e-005	4.0100e-003	3.0000e-005	4.0400e-003	1.0700e-003	2.0000e-005	1.0900e-003	0.0000	3.4416	3.4416	8.0000e-005	0.0000	3.4437
Total	**3.0700e-003**	**0.0450**	**0.0230**	**1.5000e-004**	**6.8900e-003**	**2.1000e-004**	**7.1000e-003**	**1.8700e-003**	**2.0000e-004**	**2.0600e-003**	**0.0000**	**14.2113**	**14.2113**	**5.8000e-004**	**0.0000**	**14.2258**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0108	0.0844	0.0824	1.2000e-004		4.8300e-003	4.8300e-003		4.5300e-003	4.5300e-003	0.0000	10.2967	10.2967	2.7800e-003	0.0000	10.3663
Total	**0.0108**	**0.0844**	**0.0824**	**1.2000e-004**		**4.8300e-003**	**4.8300e-003**		**4.5300e-003**	**4.5300e-003**	**0.0000**	**10.2967**	**10.2967**	**2.7800e-003**	**0.0000**	**10.3663**

Unmitigated Construction Off-Site

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

Hauling	2.1000e-004	7.1300e-003	1.5500e-003	2.0000e-005	1.3800e-003	2.0000e-005	1.4100e-003	3.5000e-004	2.0000e-005	3.7000e-004	0.0000	2.0081	2.0081	9.0000e-005	0.0000	2.0104
Vendor	2.3000e-004	7.4000e-003	1.9700e-003	2.0000e-005	4.7000e-004	2.0000e-005	4.9000e-004	1.4000e-004	2.0000e-005	1.5000e-004	0.0000	1.8650	1.8650	8.0000e-005	0.0000	1.8670
Worker	5.7000e-004	3.9000e-004	4.2100e-003	1.0000e-005	1.4600e-003	1.0000e-005	1.4700e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2080	1.2080	3.0000e-005	0.0000	1.2087
Total	**1.0100e-003**	**0.0149**	**7.7300e-003**	**5.0000e-005**	**3.3100e-003**	**5.0000e-005**	**3.3700e-003**	**8.8000e-004**	**5.0000e-005**	**9.2000e-004**	**0.0000**	**5.0811**	**5.0811**	**2.0000e-004**	**0.0000**	**5.0861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6800e-003	0.0716	0.0830	1.2000e-004		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	10.2967	10.2967	2.7800e-003	0.0000	10.3663
Total	**3.6800e-003**	**0.0716**	**0.0830**	**1.2000e-004**		**6.8000e-004**	**6.8000e-004**		**6.8000e-004**	**6.8000e-004**	**0.0000**	**10.2967**	**10.2967**	**2.7800e-003**	**0.0000**	**10.3663**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1000e-004	7.1300e-003	1.5500e-003	2.0000e-005	1.3800e-003	2.0000e-005	1.4100e-003	3.5000e-004	2.0000e-005	3.7000e-004	0.0000	2.0081	2.0081	9.0000e-005	0.0000	2.0104
Vendor	2.3000e-004	7.4000e-003	1.9700e-003	2.0000e-005	4.7000e-004	2.0000e-005	4.9000e-004	1.4000e-004	2.0000e-005	1.5000e-004	0.0000	1.8650	1.8650	8.0000e-005	0.0000	1.8670
Worker	5.7000e-004	3.9000e-004	4.2100e-003	1.0000e-005	1.4600e-003	1.0000e-005	1.4700e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2080	1.2080	3.0000e-005	0.0000	1.2087
Total	**1.0100e-003**	**0.0149**	**7.7300e-003**	**5.0000e-005**	**3.3100e-003**	**5.0000e-005**	**3.3700e-003**	**8.8000e-004**	**5.0000e-005**	**9.2000e-004**	**0.0000**	**5.0811**	**5.0811**	**2.0000e-004**	**0.0000**	**5.0861**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2824					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0116	0.1061	0.1051	1.4000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	12.0862	12.0862	3.9100e-003	0.0000	12.1839
Total	**0.2940**	**0.1061**	**0.1051**	**1.4000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**12.0862**	**12.0862**	**3.9100e-003**	**0.0000**	**12.1839**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.2000e-004	3.4300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9848	0.9848	2.0000e-005	0.0000	0.9854
Total	**4.6000e-004**	**3.2000e-004**	**3.4300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9848**	**0.9848**	**2.0000e-005**	**0.0000**	**0.9854**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2824					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3900e-003	0.0774	0.1045	1.4000e-004		8.1000e-004	8.1000e-004		8.1000e-004	8.1000e-004	0.0000	12.0862	12.0862	3.9100e-003	0.0000	12.1839
Total	**0.2858**	**0.0774**	**0.1045**	**1.4000e-004**		**8.1000e-004**	**8.1000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**12.0862**	**12.0862**	**3.9100e-003**	**0.0000**	**12.1839**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.2000e-004	3.4300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9848	0.9848	2.0000e-005	0.0000	0.9854
Total	**4.6000e-004**	**3.2000e-004**	**3.4300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9848**	**0.9848**	**2.0000e-005**	**0.0000**	**0.9854**

3.8 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1084	0.1226	1.9000e-004		5.7900e-003	5.7900e-003		5.3400e-003	5.3400e-003	0.0000	16.3706	16.3706	5.1400e-003	0.0000	16.4992

Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1084**	**0.1226**	**1.9000e-004**		**5.7900e-003**	**5.7900e-003**		**5.3400e-003**	**5.3400e-003**	**0.0000**	**16.3706**	**16.3706**	**5.1400e-003**	**0.0000**	**16.4992**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	7.4900e-003	1.6300e-003	2.0000e-005	4.7000e-004	2.0000e-005	5.0000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	2.1085	2.1085	1.0000e-004	0.0000	2.1109
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.3000e-004	4.5800e-003	1.0000e-005	1.5900e-003	1.0000e-005	1.6000e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3131	1.3131	3.0000e-005	0.0000	1.3138
Total	**8.4000e-004**	**7.9200e-003**	**6.2100e-003**	**3.0000e-005**	**2.0600e-003**	**3.0000e-005**	**2.1000e-003**	**5.5000e-004**	**3.0000e-005**	**5.8000e-004**	**0.0000**	**3.4216**	**3.4216**	**1.3000e-004**	**0.0000**	**3.4247**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.3900e-003	0.0909	0.1353	1.9000e-004		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	16.3706	16.3706	5.1400e-003	0.0000	16.4992
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.3900e-003**	**0.0909**	**0.1353**	**1.9000e-004**		**7.9000e-004**	**7.9000e-004**		**7.9000e-004**	**7.9000e-004**	**0.0000**	**16.3706**	**16.3706**	**5.1400e-003**	**0.0000**	**16.4992**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	7.4900e-003	1.6300e-003	2.0000e-005	4.7000e-004	2.0000e-005	5.0000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	2.1085	2.1085	1.0000e-004	0.0000	2.1109
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.3000e-004	4.5800e-003	1.0000e-005	1.5900e-003	1.0000e-005	1.6000e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3131	1.3131	3.0000e-005	0.0000	1.3138
Total	**8.4000e-004**	**7.9200e-003**	**6.2100e-003**	**3.0000e-005**	**2.0600e-003**	**3.0000e-005**	**2.1000e-003**	**5.5000e-004**	**3.0000e-005**	**5.8000e-004**	**0.0000**	**3.4216**	**3.4216**	**1.3000e-004**	**0.0000**	**3.4247**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0317	0.1334	0.3638	1.2500e-003	0.1151	1.0600e-003	0.1162	0.0308	9.9000e-004	0.0318	0.0000	114.5236	114.5236	3.8900e-003	0.0000	114.6208
Unmitigated	0.0317	0.1334	0.3638	1.2500e-003	0.1151	1.0600e-003	0.1162	0.0308	9.9000e-004	0.0318	0.0000	114.5236	114.5236	3.8900e-003	0.0000	114.6208

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

Junior High School	192.77	0.00	0.00	309,567	309,567
Total	192.77	0.00	0.00	309,567	309,567

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Junior High School	9.50	7.30	7.30	72.80	22.20	5.00	63	25	12

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Junior High School	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	38.3943	38.3943	3.8400e-003	7.9000e-004	38.7270
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	38.3943	38.3943	3.8400e-003	7.9000e-004	38.7270
NaturalGas Mitigated	5.3800e-003	0.0490	0.0411	2.9000e-004		3.7200e-003	3.7200e-003		3.7200e-003	3.7200e-003	0.0000	53.2871	53.2871	1.0200e-003	9.8000e-004	53.6038
NaturalGas Unmitigated	5.3800e-003	0.0490	0.0411	2.9000e-004		3.7200e-003	3.7200e-003		3.7200e-003	3.7200e-003	0.0000	53.2871	53.2871	1.0200e-003	9.8000e-004	53.6038

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Junior High School	998563	5.3800e-003	0.0490	0.0411	2.9000e-004		3.7200e-003	3.7200e-003		3.7200e-003	3.7200e-003	0.0000	53.2871	53.2871	1.0200e-003	9.8000e-004	53.6038
Total		**5.3800e-003**	**0.0490**	**0.0411**	**2.9000e-004**		**3.7200e-003**	**3.7200e-003**		**3.7200e-003**	**3.7200e-003**	**0.0000**	**53.2871**	**53.2871**	**1.0200e-003**	**9.8000e-004**	**53.6038**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Junior High School	998563	5.3800e-003	0.0490	0.0411	2.9000e-004		3.7200e-003	3.7200e-003		3.7200e-003	3.7200e-003	0.0000	53.2871	53.2871	1.0200e-003	9.8000e-004	53.6038
Total		**5.3800e-003**	**0.0490**	**0.0411**	**2.9000e-004**		**3.7200e-003**	**3.7200e-003**		**3.7200e-003**	**3.7200e-003**	**0.0000**	**53.2871**	**53.2871**	**1.0200e-003**	**9.8000e-004**	**53.6038**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Junior High School	291879	38.3943	3.8400e-003	7.9000e-004	38.7270

Total		**38.3943**	**3.8400e-003**	**7.9000e-004**	**38.7270**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Junior High School	291879	38.3943	3.8400e-003	7.9000e-004	38.7270
Total		**38.3943**	**3.8400e-003**	**7.9000e-004**	**38.7270**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2398	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Unmitigated	0.2398	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0282					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2115					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Total	**0.2398**	**0.0000**	**5.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.7000e-004**	**9.7000e-004**	**0.0000**	**0.0000**	**1.0300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0282					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2115					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Total	**0.2398**	**0.0000**	**5.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.7000e-004**	**9.7000e-004**	**0.0000**	**0.0000**	**1.0300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.5118	1.5700e-003	9.0000e-004	2.8202
Unmitigated	2.5118	1.5700e-003	9.0000e-004	2.8202

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Junior High School	1.11663 / 2.87133	2.5118	1.5700e-003	9.0000e-004	2.8202
Total		**2.5118**	**1.5700e-003**	**9.0000e-004**	**2.8202**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Junior High School	1.11663 / 2.87133	2.5118	1.5700e-003	9.0000e-004	2.8202
Total		**2.5118**	**1.5700e-003**	**9.0000e-004**	**2.8202**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	14.2885	0.8444	0.0000	35.3992
Unmitigated	14.2885	0.8444	0.0000	35.3992

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Junior High School	70.39	14.2885	0.8444	0.0000	35.3992
Total		**14.2885**	**0.8444**	**0.0000**	**35.3992**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Junior High School	70.39	14.2885	0.8444	0.0000	35.3992
Total		**14.2885**	**0.8444**	**0.0000**	**35.3992**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

18-013 Harker Middle School SJ AQ - Santa Clara County, Annual

18-013 Harker Middle School SJ AQ

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Junior High School	54.15	1000sqft	4.00	54,152.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 rate 290

Land Use - construction of Building E Classroom, addition of gym/auditorium, no renovation sqft, acerage for construction and demo is about 4-acres

Construction Phase - Applicant Construction Data Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant Construction Sheet

Off-road Equipment - Applicant construction sheet

Off-road Equipment - Applicant construction sheet

Off-road Equipment - Applicant Construction Sheet

Trips and VMT - Water Buffalo equipment for demo; Build Cont: 200 one-way trips cement, Paving: 56 one-way trips for asphalt

Demolition - Demolition of three 4,877-sf (Building B2, B3, B5)

Grading - 1450-cy exported, 1800-cy imported

Vehicle Trips - weekday trip for students with shuttle bus reduction: 3.56

Energy Use -

Water And Wastewater - 100% aerobic

Construction Off-road Equipment Mitigation - BMPs, tier 3 with electric portable equipment

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	18.00	60.00
tblConstructionPhase	NumDays	230.00	60.00
tblConstructionPhase	NumDays	8.00	40.00
tblConstructionPhase	NumDays	18.00	20.00
tblConstructionPhase	NumDays	5.00	10.00
tblGrading	MaterialExported	0.00	1,450.00
tblGrading	MaterialImported	0.00	1,800.00
tblLandUse	LandUseSquareFeet	54,150.00	54,152.00
tblLandUse	LotAcreage	1.24	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	3.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	7.00	5.00

tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	200.00
tblTripsAndVMT	HaulingTripNumber	0.00	56.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblVehicleTrips	WD_TR	13.78	3.56
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00

tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0725	0.6966	0.5270	8.9000e-004	0.0148	0.0354	0.0502	1.8900e-003	0.0329	0.0348	0.0000	77.1864	77.1864	0.0223	0.0000	77.7443
2021	0.3165	0.3092	0.3154	4.7000e-004	5.6000e-004	0.0182	0.0187	1.5000e-004	0.0168	0.0170	0.0000	40.4480	40.4480	0.0120	0.0000	40.7475
Maximum	**0.3165**	**0.6966**	**0.5270**	**8.9000e-004**	**0.0148**	**0.0354**	**0.0502**	**1.8900e-003**	**0.0329**	**0.0348**	**0.0000**	**77.1864**	**77.1864**	**0.0223**	**0.0000**	**77.7443**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0198	0.4153	0.4993	8.9000e-004	7.2800e-003	0.0212	0.0285	6.6000e-004	0.0212	0.0219	0.0000	69.4222	69.4222	0.0212	0.0000	69.9514
2021	0.2930	0.2248	0.3057	4.7000e-004	5.6000e-004	0.0137	0.0142	1.5000e-004	0.0137	0.0138	0.0000	37.6247	37.6247	0.0116	0.0000	37.9150
Maximum	**0.2930**	**0.4153**	**0.4993**	**8.9000e-004**	**7.2800e-003**	**0.0212**	**0.0285**	**6.6000e-004**	**0.0212**	**0.0219**	**0.0000**	**69.4222**	**69.4222**	**0.0212**	**0.0000**	**69.9514**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**19.58**	**36.37**	**4.44**	**0.00**	**48.93**	**34.91**	**38.05**	**60.29**	**29.84**	**31.02**	**0.00**	**9.00**	**9.00**	**4.43**	**0.00**	**8.97**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-1-2020	7-31-2020	0.1850	0.0931
2	8-1-2020	10-31-2020	0.2611	0.1769
3	11-1-2020	1-31-2021	0.4058	0.2081
4	2-1-2021	4-30-2021	0.1430	0.1298
5	5-1-2021	7-31-2021	0.3799	0.3321
		Highest	0.4058	0.3321

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2020	5/28/2020	5	20	
2	Site Preparation	Site Preparation	6/1/2020	6/12/2020	5	10	
3	Grading	Grading	8/3/2020	9/25/2020	5	40	
4	Trenching	Trenching	9/20/2020	10/16/2020	5	20	
5	Building Construction	Building Construction	11/1/2020	1/22/2021	5	60	
6	Architectural Coating	Architectural Coating	4/1/2021	6/23/2021	5	60	
7	Paving	Paving	5/1/2021	5/28/2021	5	20	

Acres of Grading (Site Preparation Phase): 3.75

Acres of Grading (Grading Phase): 17.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 81,228; Non-Residential Outdoor: 27,076; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40

Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	1	2.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Scrapers	1	2.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	3.00	187	0.41
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	2	1.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	4.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	3.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	0	0.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	5.00	97	0.37
Building Construction	Welders	5	3.00	46	0.45
Architectural Coating	Air Compressors	0	6.00	78	0.48
Architectural Coating	Forklifts	3	8.00	89	0.20
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	2	5.00	1.00	22.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

Grading	6	15.00	0.00	321.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	23.00	9.00	200.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	3	5.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	56.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.4000e-003	0.0000	2.4000e-003	3.6000e-004	0.0000	3.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0132	0.1375	0.0740	1.4000e-004		6.7200e-003	6.7200e-003		6.1800e-003	6.1800e-003	0.0000	12.0425	12.0425	3.8900e-003	0.0000	12.1399
Total	**0.0132**	**0.1375**	**0.0740**	**1.4000e-004**	**2.4000e-003**	**6.7200e-003**	**9.1200e-003**	**3.6000e-004**	**6.1800e-003**	**6.5400e-003**	**0.0000**	**12.0425**	**12.0425**	**3.8900e-003**	**0.0000**	**12.1399**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.1300e-003	1.9000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.1429	0.1429	2.0000e-005	0.0000	0.1433
Vendor	2.0000e-005	6.7000e-004	1.9000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0803	0.0803	1.0000e-005	0.0000	0.0805
Worker	6.0000e-005	3.0000e-005	3.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0407	0.0407	0.0000	0.0000	0.0407
Total	**1.0000e-004**	**1.8300e-003**	**7.1000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.2638**	**0.2638**	**3.0000e-005**	**0.0000**	**0.2644**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0800e-003	0.0000	1.0800e-003	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3600e-003	0.0650	0.0845	1.4000e-004		2.7200e-003	2.7200e-003		2.7200e-003	2.7200e-003	0.0000	12.0425	12.0425	3.8900e-003	0.0000	12.1399
Total	**3.3600e-003**	**0.0650**	**0.0845**	**1.4000e-004**	**1.0800e-003**	**2.7200e-003**	**3.8000e-003**	**8.0000e-005**	**2.7200e-003**	**2.8000e-003**	**0.0000**	**12.0425**	**12.0425**	**3.8900e-003**	**0.0000**	**12.1399**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.1300e-003	1.9000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.1429	0.1429	2.0000e-005	0.0000	0.1433

Vendor	2.0000e-005	6.7000e-004	1.9000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0803	0.0803	1.0000e-005	0.0000	0.0805
Worker	6.0000e-005	3.0000e-005	3.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0407	0.0407	0.0000	0.0000	0.0407
Total	**1.0000e-004**	**1.8300e-003**	**7.1000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.2638**	**0.2638**	**3.0000e-005**	**0.0000**	**0.2644**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9900e-003	0.0000	1.9900e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0600e-003	0.0347	0.0279	5.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003	0.0000	4.6609	4.6609	1.5100e-003	0.0000	4.6986
Total	**3.0600e-003**	**0.0347**	**0.0279**	**5.0000e-005**	**1.9900e-003**	**1.4100e-003**	**3.4000e-003**	**2.1000e-004**	**1.3000e-003**	**1.5100e-003**	**0.0000**	**4.6609**	**4.6609**	**1.5100e-003**	**0.0000**	**4.6986**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	2.0000e-005	2.6000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0325	0.0325	0.0000	0.0000	0.0326
Total	**4.0000e-005**	**2.0000e-005**	**2.6000e-004**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0325**	**0.0325**	**0.0000**	**0.0000**	**0.0326**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.9000e-004	0.0000	8.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3000e-003	0.0252	0.0341	5.0000e-005		1.0800e-003	1.0800e-003		1.0800e-003	1.0800e-003	0.0000	4.6609	4.6609	1.5100e-003	0.0000	4.6986
Total	**1.3000e-003**	**0.0252**	**0.0341**	**5.0000e-005**	**8.9000e-004**	**1.0800e-003**	**1.9700e-003**	**5.0000e-005**	**1.0800e-003**	**1.1300e-003**	**0.0000**	**4.6609**	**4.6609**	**1.5100e-003**	**0.0000**	**4.6986**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	2.0000e-005	2.6000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0325	0.0325	0.0000	0.0000	0.0326
Total	**4.0000e-005**	**2.0000e-005**	**2.6000e-004**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0325**	**0.0325**	**0.0000**	**0.0000**	**0.0326**

3.4 Grading - 2020

Unmitigated Construction On-Site

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

Category	tons/yr										MT/yr					
Fugitive Dust					9.2800e-003	0.0000	9.2800e-003	1.0000e-003	0.0000	1.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0169	0.1899	0.1344	2.4000e-004		9.1200e-003	9.1200e-003		8.3900e-003	8.3900e-003	0.0000	21.0940	21.0940	6.8200e-003	0.0000	21.2646
Total	**0.0169**	**0.1899**	**0.1344**	**2.4000e-004**	**9.2800e-003**	**9.1200e-003**	**0.0184**	**1.0000e-003**	**8.3900e-003**	**9.3900e-003**	**0.0000**	**21.0940**	**21.0940**	**6.8200e-003**	**0.0000**	**21.2646**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5000e-004	0.0166	2.7000e-003	2.0000e-005	1.4000e-004	2.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	2.0846	2.0846	2.2000e-004	0.0000	2.0901
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	1.5000e-004	1.9700e-003	0.0000	2.2000e-004	0.0000	2.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2440	0.2440	1.0000e-005	0.0000	0.2442
Total	**6.8000e-004**	**0.0167**	**4.6700e-003**	**2.0000e-005**	**3.6000e-004**	**2.0000e-005**	**3.8000e-004**	**1.0000e-004**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**2.3285**	**2.3285**	**2.3000e-004**	**0.0000**	**2.3343**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.1800e-003	0.0000	4.1800e-003	2.3000e-004	0.0000	2.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8900e-003	0.1236	0.1533	2.4000e-004		6.7500e-003	6.7500e-003		6.7500e-003	6.7500e-003	0.0000	21.0940	21.0940	6.8200e-003	0.0000	21.2645

Total	**5.8900e-003**	**0.1236**	**0.1533**	**2.4000e-004**	**4.1800e-003**	**6.7500e-003**	**0.0109**	**2.3000e-004**	**6.7500e-003**	**6.9800e-003**	**0.0000**	**21.0940**	**21.0940**	**6.8200e-003**	**0.0000**	**21.2645**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5000e-004	0.0166	2.7000e-003	2.0000e-005	1.4000e-004	2.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	2.0846	2.0846	2.2000e-004	0.0000	2.0901
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	1.5000e-004	1.9700e-003	0.0000	2.2000e-004	0.0000	2.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2440	0.2440	1.0000e-005	0.0000	0.2442
Total	**6.8000e-004**	**0.0167**	**4.6700e-003**	**2.0000e-005**	**3.6000e-004**	**2.0000e-005**	**3.8000e-004**	**1.0000e-004**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**2.3285**	**2.3285**	**2.3000e-004**	**0.0000**	**2.3343**

3.5 Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1900e-003	0.0421	0.0456	6.0000e-005		2.6600e-003	2.6600e-003		2.4500e-003	2.4500e-003	0.0000	5.4571	5.4571	1.7600e-003	0.0000	5.5012
Total	**4.1900e-003**	**0.0421**	**0.0456**	**6.0000e-005**		**2.6600e-003**	**2.6600e-003**		**2.4500e-003**	**2.4500e-003**	**0.0000**	**5.4571**	**5.4571**	**1.7600e-003**	**0.0000**	**5.5012**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	3.0000e-005	3.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0407	0.0407	0.0000	0.0000	0.0407
Total	**6.0000e-005**	**3.0000e-005**	**3.3000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0407**	**0.0407**	**0.0000**	**0.0000**	**0.0407**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5200e-003	0.0347	0.0468	6.0000e-005		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	5.4571	5.4571	1.7600e-003	0.0000	5.5012
Total	**1.5200e-003**	**0.0347**	**0.0468**	**6.0000e-005**		**2.4300e-003**	**2.4300e-003**		**2.4300e-003**	**2.4300e-003**	**0.0000**	**5.4571**	**5.4571**	**1.7600e-003**	**0.0000**	**5.5012**

Mitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	3.0000e-005	3.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0407	0.0407	0.0000	0.0000	0.0407
Total	**6.0000e-005**	**3.0000e-005**	**3.3000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0407**	**0.0407**	**0.0000**	**0.0000**	**0.0407**

3.6 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.2528	0.2309	3.4000e-004		0.0155	0.0155		0.0145	0.0145	0.0000	28.3129	28.3129	7.7900e-003	0.0000	28.5078
Total	**0.0331**	**0.2528**	**0.2309**	**3.4000e-004**		**0.0155**	**0.0155**		**0.0145**	**0.0145**	**0.0000**	**28.3129**	**28.3129**	**7.7900e-003**	**0.0000**	**28.5078**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	7.5600e-003	1.2300e-003	1.0000e-005	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.9525	0.9525	1.0000e-004	0.0000	0.9550
Vendor	3.7000e-004	0.0132	3.6800e-003	2.0000e-005	1.8000e-004	2.0000e-005	2.0000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	1.5895	1.5895	1.6000e-004	0.0000	1.5934
Worker	5.6000e-004	2.6000e-004	3.3200e-003	0.0000	3.8000e-004	1.0000e-005	3.8000e-004	1.0000e-004	0.0000	1.1000e-004	0.0000	0.4115	0.4115	2.0000e-005	0.0000	0.4119
Total	**1.0900e-003**	**0.0211**	**8.2300e-003**	**3.0000e-005**	**6.4000e-004**	**4.0000e-005**	**6.7000e-004**	**1.7000e-004**	**3.0000e-005**	**2.1000e-004**	**0.0000**	**2.9534**	**2.9534**	**2.8000e-004**	**0.0000**	**2.9603**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.7400e-003	0.1271	0.1664	3.4000e-004		8.1800e-003	8.1800e-003		8.1800e-003	8.1800e-003	0.0000	20.5488	20.5488	6.6500e-003	0.0000	20.7149
Total	**5.7400e-003**	**0.1271**	**0.1664**	**3.4000e-004**		**8.1800e-003**	**8.1800e-003**		**8.1800e-003**	**8.1800e-003**	**0.0000**	**20.5488**	**20.5488**	**6.6500e-003**	**0.0000**	**20.7149**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	7.5600e-003	1.2300e-003	1.0000e-005	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.9525	0.9525	1.0000e-004	0.0000	0.9550
Vendor	3.7000e-004	0.0132	3.6800e-003	2.0000e-005	1.8000e-004	2.0000e-005	2.0000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	1.5895	1.5895	1.6000e-004	0.0000	1.5934
Worker	5.6000e-004	2.6000e-004	3.3200e-003	0.0000	3.8000e-004	1.0000e-005	3.8000e-004	1.0000e-004	0.0000	1.1000e-004	0.0000	0.4115	0.4115	2.0000e-005	0.0000	0.4119
Total	**1.0900e-003**	**0.0211**	**8.2300e-003**	**3.0000e-005**	**6.4000e-004**	**4.0000e-005**	**6.7000e-004**	**1.7000e-004**	**3.0000e-005**	**2.1000e-004**	**0.0000**	**2.9534**	**2.9534**	**2.8000e-004**	**0.0000**	**2.9603**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0108	0.0844	0.0824	1.2000e-004		4.8300e-003	4.8300e-003		4.5300e-003	4.5300e-003	0.0000	10.2967	10.2967	2.7800e-003	0.0000	10.3663
Total	**0.0108**	**0.0844**	**0.0824**	**1.2000e-004**		**4.8300e-003**	**4.8300e-003**		**4.5300e-003**	**4.5300e-003**	**0.0000**	**10.2967**	**10.2967**	**2.7800e-003**	**0.0000**	**10.3663**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	2.6500e-003	4.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3427	0.3427	3.0000e-005	0.0000	0.3436
Vendor	1.2000e-004	4.5800e-003	1.2300e-003	1.0000e-005	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.5725	0.5725	5.0000e-005	0.0000	0.5738
Worker	1.9000e-004	8.0000e-005	1.0900e-003	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1446	0.1446	1.0000e-005	0.0000	0.1447
Total	**3.6000e-004**	**7.3100e-003**	**2.7500e-003**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**1.0597**	**1.0597**	**9.0000e-005**	**0.0000**	**1.0621**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0900e-003	0.0462	0.0605	1.2000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	7.4733	7.4733	2.4200e-003	0.0000	7.5338

Total	**2.0900e-003**	**0.0462**	**0.0605**	**1.2000e-004**		**2.9700e-003**	**2.9700e-003**		**2.9700e-003**	**2.9700e-003**	**0.0000**	**7.4733**	**7.4733**	**2.4200e-003**	**0.0000**	**7.5338**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	2.6500e-003	4.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3427	0.3427	3.0000e-005	0.0000	0.3436
Vendor	1.2000e-004	4.5800e-003	1.2300e-003	1.0000e-005	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.5725	0.5725	5.0000e-005	0.0000	0.5738
Worker	1.9000e-004	8.0000e-005	1.0900e-003	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1446	0.1446	1.0000e-005	0.0000	0.1447
Total	**3.6000e-004**	**7.3100e-003**	**2.7500e-003**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**1.0597**	**1.0597**	**9.0000e-005**	**0.0000**	**1.0621**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2824					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0116	0.1061	0.1051	1.4000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	12.0862	12.0862	3.9100e-003	0.0000	12.1839
Total	**0.2940**	**0.1061**	**0.1051**	**1.4000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**12.0862**	**12.0862**	**3.9100e-003**	**0.0000**	**12.1839**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	7.0000e-005	8.9000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1178	0.1178	0.0000	0.0000	0.1180
Total	**1.5000e-004**	**7.0000e-005**	**8.9000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1178**	**0.1178**	**0.0000**	**0.0000**	**0.1180**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2824					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3900e-003	0.0774	0.1045	1.4000e-004		5.4200e-003	5.4200e-003		5.4200e-003	5.4200e-003	0.0000	12.0862	12.0862	3.9100e-003	0.0000	12.1839
Total	**0.2858**	**0.0774**	**0.1045**	**1.4000e-004**		**5.4200e-003**	**5.4200e-003**		**5.4200e-003**	**5.4200e-003**	**0.0000**	**12.0862**	**12.0862**	**3.9100e-003**	**0.0000**	**12.1839**

Mitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	7.0000e-005	8.9000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1178	0.1178	0.0000	0.0000	0.1180
Total	**1.5000e-004**	**7.0000e-005**	**8.9000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1178**	**0.1178**	**0.0000**	**0.0000**	**0.1180**

3.8 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1084	0.1226	1.9000e-004		5.7900e-003	5.7900e-003		5.3400e-003	5.3400e-003	0.0000	16.3706	16.3706	5.1400e-003	0.0000	16.4992
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1084**	**0.1226**	**1.9000e-004**		**5.7900e-003**	**5.7900e-003**		**5.3400e-003**	**5.3400e-003**	**0.0000**	**16.3706**	**16.3706**	**5.1400e-003**	**0.0000**	**16.4992**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	2.7800e-003	4.5000e-004	0.0000	2.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.3598	0.3598	4.0000e-005	0.0000	0.3608
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	9.0000e-005	1.1800e-003	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1571	0.1571	1.0000e-005	0.0000	0.1573
Total	**2.6000e-004**	**2.8700e-003**	**1.6300e-003**	**0.0000**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.5170**	**0.5170**	**5.0000e-005**	**0.0000**	**0.5180**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.3900e-003	0.0909	0.1353	1.9000e-004		5.2500e-003	5.2500e-003		5.2500e-003	5.2500e-003	0.0000	16.3706	16.3706	5.1400e-003	0.0000	16.4992
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.3900e-003**	**0.0909**	**0.1353**	**1.9000e-004**		**5.2500e-003**	**5.2500e-003**		**5.2500e-003**	**5.2500e-003**	**0.0000**	**16.3706**	**16.3706**	**5.1400e-003**	**0.0000**	**16.4992**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	2.7800e-003	4.5000e-004	0.0000	2.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.3598	0.3598	4.0000e-005	0.0000	0.3608
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	9.0000e-005	1.1800e-003	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1571	0.1571	1.0000e-005	0.0000	0.1573
Total	**2.6000e-004**	**2.8700e-003**	**1.6300e-003**	**0.0000**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.5170**	**0.5170**	**5.0000e-005**	**0.0000**	**0.5180**

Attachment 3: Screening Community Risk Calculations

State Route 85 Highway Risks

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Santa Clara
Roadway Direction	North-South
Side of the Roadway	West
Distance from Roadway	650 feet
Annual Average Daily Traffic (ADT)	22,925

Results

Santa Clara County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

0.026 ($\mu g/m^3$)

Cancer Risk

1.30 (per million)

Union Avenue, MEI

Cumulative plus project volumes from traffic report

Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

0.89

(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Bay Area

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using ~~CALINE4~~ Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Santa Clara
Roadway Direction	North-South
Side of the Roadway	West
Distance from Roadway	180 feet
Annual Average Daily Traffic (ADT)	22,925

Results

Santa Clara County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

0.093 ($\mu g/m^3$)

Cancer Risk

4.67 (per million)

Union Avenue , New Receptors

Cumulative plus project volumes from traffic report
Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

3.21
(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Bay Area

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using ~~CALINE4~~ Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD

This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

Click here for guidance on coducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	**9/19/2018**
Contact Name	Mimi McNamara
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x35
Email	mmcnamara@illingworthrodkin.com
Project Name	Harker School
Address	4525 Union Avenue
City	San jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	School
Project Size (# of units or building square feet)	
Comments:	

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

1. Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please include a project site map.

2. Download and install the free program Google Earth, **http://www.google.com/earth/download/ge/,** and then download the county specific Google Earth stationary source application files from the District's website, **http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.** The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.

3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.

4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.

5. List the stationary source information in Table B section only.

6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.

7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.

Submit forms, maps, and questions to Areana Flores at 415-749-4616, or aflores@baaqmd.gov

Table B: Google Earth data

Distance from Receptor (feet) or MEI[1]	Facility Name	Address	Plant No.	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments
560	XILINX Inc	2101 Logic Drive	11403	64.233	0.0507	0.0831	S2-S8	Generators	98	Use Diesel multiplier tool.
~~Onsite~~	~~County of Santa Clara~~	~~4525 Union Avenue~~	~~14435~~	~~0.455~~	~~0.0002~~	~~0.0006~~				Shutdown

Footnotes:

1. Maximally exposed individual
2. These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.
3. Each plant may have multiple permits and sources.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. Fuel codes: 98 = diesel, 189 = Natural Gas.
6. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
7. The date that the HRSA was completed.
8. Engineer who completed the HRSA. For District purposes only.
9. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
10. The HRSA "Chronic Health" number represents the Hazard Index.
11. Further information about common sources:
    a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
    b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index
    c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010. Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
    d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.

Date last updated:

Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD

This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

Click here for guidance on coducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	**9/19/2018**
Contact Name	Mimi McNamara
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x35
Email	mmcnamara@illingworthrodkin.com
Project Name	Harker School
Address	4525 Union Avenue
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	School
Project Size (# of units or building square feet)	
Comments:	

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

1. Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please include a project site map.

2. Download and install the free program Google Earth, **http://www.google.com/earth/download/ge/,** and then download the county specific Google Earth stationary source application files from the District's website, **http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.** The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.

3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.

4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.

5. List the stationary source information in Table B section only.

6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.

7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.

Submit forms, maps, and questions to Areana Flores at 415-749-4616, or aflores@baaqmd.gov

Table B: Google Earth data

Distance from Receptor (feet) or MEI[1]	Facility Name	Address	Plant No.	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	Project Site: Distance Adjustment Multiplier	Project Site: Adjusted Cancer Risk Estimate	Project Site: Adjusted Hazard Risk	Project Site: Adjusted PM2.5
600	XILINX Inc	2101 Logic Drive	11403	64.233	0.0507	0.0831	S2-S8	Generators	98	Use Diesel multiplier tool.	0.09	5.78	0.0046	0.01
											Construction MEI			
1000	XILINX Inc	2101 Logic Drive	11403	64.233	0.0507	0.0831	S2-S8	Generators	98	Use Diesel multiplier tool.	0.04	2.569	0.002	0.003

Footnotes:

1. Maximally exposed individual
2. These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.
3. Each plant may have multiple permits and sources.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. Fuel codes: 98 = diesel, 189 = Natural Gas.
6. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
7. The date that the HRSA was completed.
8. Engineer who completed the HRSA. For District purposes only.
9. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
10. The HRSA "Chronic Health" number represents the Hazard Index.
11. Further information about common sources:
    a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
    b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index
    c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010. Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
    d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.

Date last updated:

Attachment 4: Construction Health Risk Modeling and Health Risk Calculations

Harker Middle School Expansion, San Jose, CA

DPM Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2020-2021	Construction	0.0536	CON_DPM	107.2	0.03263	4.11E-03	15,647	2.63E-07

Construction Hours

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

PM2.5 Fugitive Dust Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2020-2021	Construction	CON_FUG	0.00204	4.1	0.00124	1.56E-04	15,647	1.00E-08

Construction Hours

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

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2020-2021	Construction	0.0062	CON_DPM	12.3	0.00374	4.72E-04	15,647	3.02E-08

Construction Hours

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

PM2.5 Fugitive Dust Construction Emissions for Modeling - With Mitigation

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2020-2021	Construction	CON_FUG	0.00081	1.6	0.00049	6.21E-05	15,647	3.97E-09

Construction Hours

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

Harker Middle School Expansion, San Jose, CA - Construction Health Impact Summary

Maximum Impacts at MEI Location - Unmitigated

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Infant/Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2020-2021	0.0798	0.0051	**14.2**	**0.2**	**0.016**	**0.08**

Maximum Impacts at MEI Location - With Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Infant/Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2020-2021	0.0092	0.0020	**1.6**	**0.0**	**0.002**	**0.01**

Harker Middle School Expansion, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum	
				DPM Conc (ug/m3)	Age	Infant/Child Cancer		Modeled DPM Conc (ug/m3)	Age	Adult Cancer		
Exposure Year	Exposure Duration (years)	Age	Year	Annual	Sensitivity Factor	Risk (per million)	Year	Annual	Sensitivity Factor	Risk (per million)	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2020-2021	0.0798	10	1.09	2020-2021	0.0798	-	-		
1	1	0 - 1	2020-2021	0.0798	10	13.11	2020-2021	0.0798	1	0.23	0.0051	0.085
2	1	1 - 2			10	0.00			1	0.00		
3	1	2 - 3			3	0.00			1	0.00		
4	1	3 - 4			3	0.00			1	0.00		
5	1	4 - 5			3	0.00			1	0.00		
6	1	5 - 6			3	0.00			1	0.00		
7	1	6 - 7			3	0.00			1	0.00		
8	1	7 - 8			3	0.00			1	0.00		
9	1	8 - 9			3	0.00			1	0.00		
10	1	9 - 10			3	0.00			1	0.00		
11	1	10 - 11			3	0.00			1	0.00		
12	1	11 - 12			3	0.00			1	0.00		
13	1	12 - 13			3	0.00			1	0.00		
14	1	13 - 14			3	0.00			1	0.00		
15	1	14 - 15			3	0.00			1	0.00		
16	1	15 - 16			3	0.00			1	0.00		
17	1	16-17			1	0.00			1	0.00		
18	1	17-18			1	0.00			1	0.00		
19	1	18-19			1	0.00			1	0.00		
20	1	19-20			1	0.00			1	0.00		
21	1	20-21			1	0.00			1	0.00		
22	1	21-22			1	0.00			1	0.00		
23	1	22-23			1	0.00			1	0.00		
24	1	23-24			1	0.00			1	0.00		
25	1	24-25			1	0.00			1	0.00		
26	1	25-26			1	0.00			1	0.00		
27	1	26-27			1	0.00			1	0.00		
28	1	27-28			1	0.00			1	0.00		
29	1	28-29			1	0.00			1	0.00		
30	1	29-30			1	0.00			1	0.00		
Total Increased Cancer Risk						**14.2**				**0.23**		

* Third trimester of pregnancy

Harker Middle School Expansion, San Jose, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information					
							Modeled				Maximum	
Exposure Year	**Exposure Duration (years)**	**Age**	**DPM Conc (ug/m3) Year**	**DPM Conc (ug/m3) Annual**	**Age Sensitivity Factor**	**Infant/Child Cancer Risk (per million)**	**DPM Conc (ug/m3) Year**	**DPM Conc (ug/m3) Annual**	**Age Sensitivity Factor**	**Adult Cancer Risk (per million)**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	2020-2021	0.0092	10	0.12	2020-2021	0.0092	-	-		
1	1	0 - 1	2020-2021	0.0092	10	1.51	2020-2021	0.0092	1	0.03	0.0020	0.011
2	1	1 - 2			10	0.00			1	0.00		
3	1	2 - 3			3	0.00			1	0.00		
4	1	3 - 4			3	0.00			1	0.00		
5	1	4 - 5			3	0.00			1	0.00		
6	1	5 - 6			3	0.00			1	0.00		
7	1	6 - 7			3	0.00			1	0.00		
8	1	7 - 8			3	0.00			1	0.00		
9	1	8 - 9			3	0.00			1	0.00		
10	1	9 - 10			3	0.00			1	0.00		
11	1	10 - 11			3	0.00			1	0.00		
12	1	11 - 12			3	0.00			1	0.00		
13	1	12 - 13			3	0.00			1	0.00		
14	1	13 - 14			3	0.00			1	0.00		
15	1	14 - 15			3	0.00			1	0.00		
16	1	15 - 16			3	0.00			1	0.00		
17	1	16-17			1	0.00			1	0.00		
18	1	17-18			1	0.00			1	0.00		
19	1	18-19			1	0.00			1	0.00		
20	1	19-20			1	0.00			1	0.00		
21	1	20-21			1	0.00			1	0.00		
22	1	21-22			1	0.00			1	0.00		
23	1	22-23			1	0.00			1	0.00		
24	1	23-24			1	0.00			1	0.00		
25	1	24-25			1	0.00			1	0.00		
26	1	25-26			1	0.00			1	0.00		
27	1	26-27			1	0.00			1	0.00		
28	1	27-28			1	0.00			1	0.00		
29	1	28-29			1	0.00			1	0.00		
30	1	29-30			1	0.00			1	0.00		
Total Increased Cancer Risk						**1.6**				**0.03**		

* Third trimester of pregnancy