

# ***HEMLOCK RESIDENTIAL PROJECT CONSTRUCTION RISK ASSESSMENT***

***San José, California***

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**Prepared for:**

**Amber Sharpe  
Project Manager  
David J. Powers & Associates, Inc.  
1871 The Alameda, Suite 200  
San José, CA 95126**

**Prepared by:**

**James A. Reyff  
Casey T. Zaglin  
William Popenuck**

***ILLINGWORTH & RODKIN, INC.***  
***//// Acoustics • Air Quality ////***  
**1 Willowbrook Court, Suite 120  
Petaluma, CA 94954  
(707) 794-0400**

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# Introduction

The purpose of this report is to address community risk impacts associated with the proposed Hemlock Residential project in San José, California. The project would demolish the existing residence and commercial buildings located at 376 South Baywood Avenue and 2881 Hemlock Avenue. The project then proposes to construct an L-shaped, six-story mixed-use building with two levels of underground parking to accommodate 67 parking spaces, a lobby and 12,191 square feet (sf) of commercial space on the first floor, 6,355 sf of commercial space on the second floor, and 48 apartment units spread throughout the second through sixth floors. The issue addressed in this air quality study is localized community risk due to construction emissions from the project. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).<sup>1</sup>

## 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<sub>10</sub>), and fine particulate matter (PM<sub>2.5</sub>).

## 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.

## 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

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<sup>1</sup> Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017.

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.<sup>2</sup> 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.<sup>3</sup> The detailed community risk modeling methodology used in this assessment is contained in *Attachment 1*.

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.

**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.

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<sup>2</sup> Available online: <http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm>. Accessed: June 9, 2015.

<sup>3</sup> BAAQMD, 2011, *op. cit.*

## 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 receptor to the project site is a children's learning center adjacent to the southern site boundary. There are additional residences at further distances from the site in all directions.

## Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These Thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines (updated May 2017). The significance thresholds identified by BAAQMD and used in this analysis are summarized in Table 1.

**Table 1. Community Risk Significance Thresholds**

<b>Health Risks and Hazards for Single Sources</b>	
Excess Cancer Risk	>10.0 per one million
Hazard Index	>1.0
Incremental annual PM <sub>2.5</sub>	>0.3 µg/m <sup>3</sup>
<b>Health Risks and Hazards for Combined Sources (Cumulative from all sources within 1,000 foot zone of influence)</b>	
Excess Cancer Risk	>100 per one million
Hazard Index	>10.0
Annual Average PM <sub>2.5</sub>	>0.8 µg/m <sup>3</sup>
Note: PM <sub>2.5</sub> = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less;	

## **Project Construction Activity**

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM<sub>10</sub> and PM<sub>2.5</sub>. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less-than-significant if best management practices are employed to reduce these emissions. *Mitigation Measure AQ-1 would implement BAAQMD-required best management practices.*

Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known 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<sub>2.5</sub>. 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<sub>2.5</sub>.<sup>4</sup> 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.

### Construction Period Emission Modeling

Construction activity is anticipated to include demolition, site preparation, grading, trenching, building construction, and paving. The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to predict 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. Construction equipment usage and the construction schedule were based on applicant provided information for a project of this size. The proposed project land uses were input into CalEEMod, which included 48 dwelling units entered as “Apartments Mid Rise”, 18,546 sf entered as “General Office Space”, and 67 spaces entered as “Enclosed Parking with Elevator”. Information from the project plans was incorporated into the model, which included 5,008 sf of building demolition, 15,250 cubic yards (cy) of export for the grading phase, 80 one-way cement truck trips during building construction, and two added one-way truck trips to account for 8 tons for pavement demolition.

The earliest possible construction start date of April 2019 was used. The applicant provided schedule estimated 404 construction workdays over 19 months. *Attachment 2* includes the CalEEMod output values for construction emissions, information for schedule, equipment usage, and truck hauling.

### On-Site Construction TAC Emissions

Construction period emissions were computed using CalEEMod along with projected construction activity, as described above. The CalEEMod model provided total annual PM<sub>10</sub> exhaust emissions (assumed to be DPM) for the off-road construction equipment for the project and for the exhaust emissions from on-road vehicles of 0.0742 tons (148 pounds) over the approximate 19-month construction period. 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 dust PM<sub>2.5</sub> emissions were also computed

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<sup>4</sup> DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

and included in this analysis. The model predicts emissions of 0.0202 tons (40 pounds) of on-site fugitive PM<sub>2.5</sub>.

### Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and PM<sub>2.5</sub> concentrations at sensitive receptors (residences) that would be present in the vicinity of the project site during construction activities. Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive PM<sub>2.5</sub> dust emissions. Combustion equipment exhaust emissions were modeled as a series of point sources with a nine-foot release height (construction equipment exhaust stack height) placed at 6-meter (20-foot) intervals throughout the construction site. This resulted in 60 individual point sources being used to represent mobile equipment DPM exhaust emissions in the construction area, with DPM emissions occurring throughout the project construction site. Emissions from vehicle travel on- and off-site were distributed among the point sources throughout the site. Construction fugitive PM<sub>2.5</sub> dust emissions were modeled as an area source encompassing the entire construction site with a near ground level release height of two meters. Construction emissions were modeled as occurring daily between 7 a.m. and 4 p.m., when the majority of construction activity would occur. Figure 1 shows the project site, emission source locations, and nearby sensitive receptor locations where health impacts were evaluated.

The modeling used a five-year data set (2006-2010) of hourly meteorological data from the San José Airport that was prepared for use with the AERMOD model by the BAAQMD. Annual DPM and PM<sub>2.5</sub> concentrations from construction activities during the 2019-2020 period were calculated using the model. DPM and PM<sub>2.5</sub> concentrations were calculated at nearby sensitive receptors. Receptor heights of 1.5 meters (5 feet) and 4.5 meters (15 feet) were used to represent the breathing heights of residents in nearby homes and apartment buildings on the first and second floor levels, respectively.

### Predicted Cancer Risk and Hazards

Figure 1 shows the locations where the maximum-modeled DPM and PM<sub>2.5</sub> concentrations occurred. The maximum DPM concentration occurred at the second-floor level (4.5 meters) of a single-family home southeast of the project site. The maximum PM<sub>2.5</sub> concentration occurred at the first-floor level (1.5 meters) of the residence on the corner of S. Baywood Avenue and Hemlock Avenue, adjacent to the southern project site 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*. 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 would be 30.3 in one million for an infant exposure and 0.5 in one million for an adult exposure. The

maximum residential excess cancer risk would be above the BAAQMD 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<sub>2.5</sub> Concentration

The maximum-modeled annual PM<sub>2.5</sub> concentration, which is based on combined exhaust and fugitive dust emissions, was 0.34 µg/m<sup>3</sup>. When rounded, this maximum annual PM<sub>2.5</sub> concentration would not exceed the BAAQMD significance threshold of greater than 0.3 µg/m<sup>3</sup>.

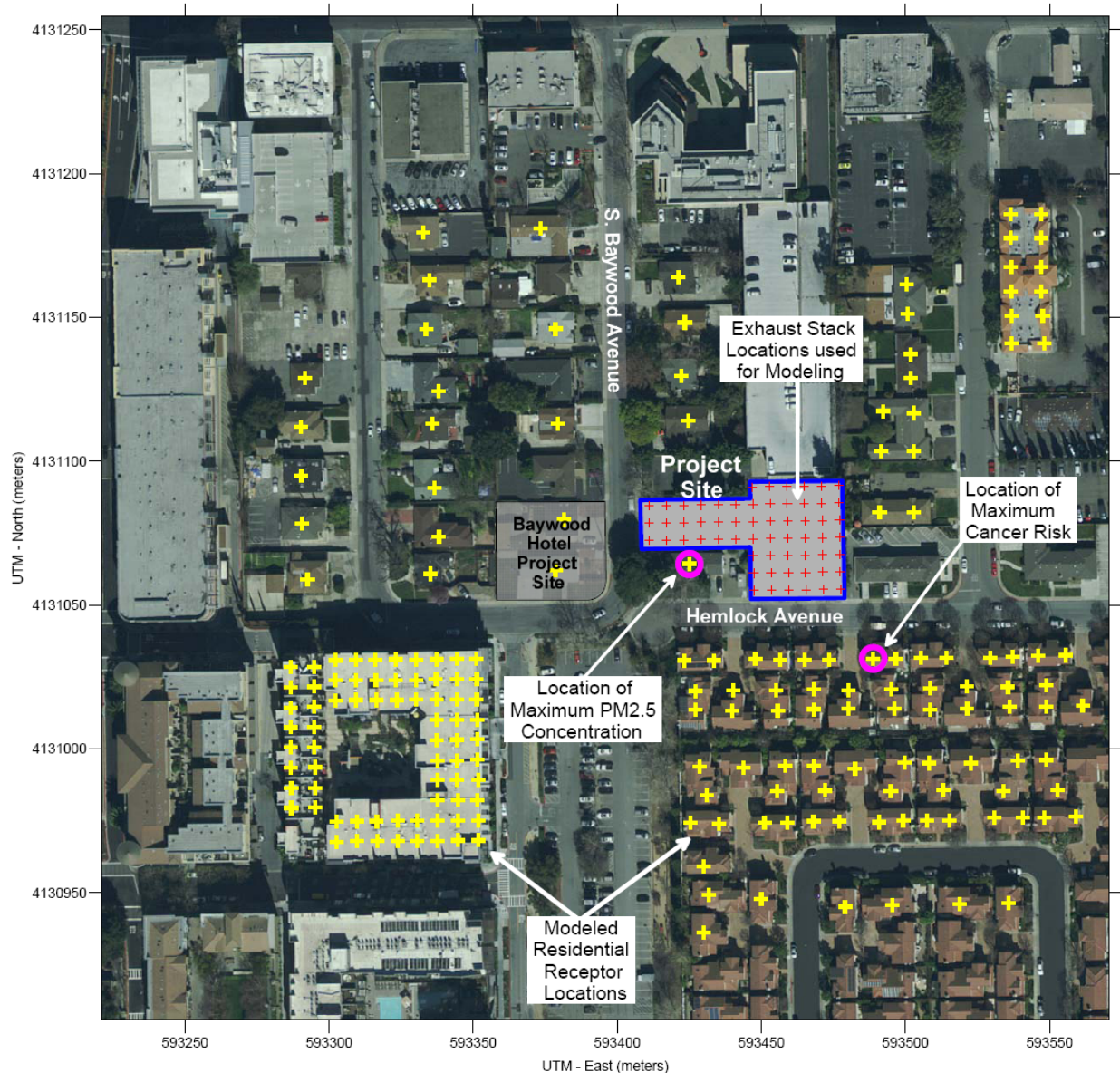
#### Non-Cancer Hazards

The maximum modeled annual residential DPM concentration (i.e., from construction exhaust) was 0.1333 µg/m<sup>3</sup>. The maximum computed HI based on this DPM concentration is 0.03, which is lower than 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 increased cancer risk is above the single-source thresholds of 10.0 per million for cancer risk.

*Attachment 2* includes the emission calculations and source information used in the modeling. *Attachment 3* includes the cancer risk calculations.

**Figure 1. Project Construction Site and Locations of Off-Site Sensitive Receptors and Maximum TAC Impacts**

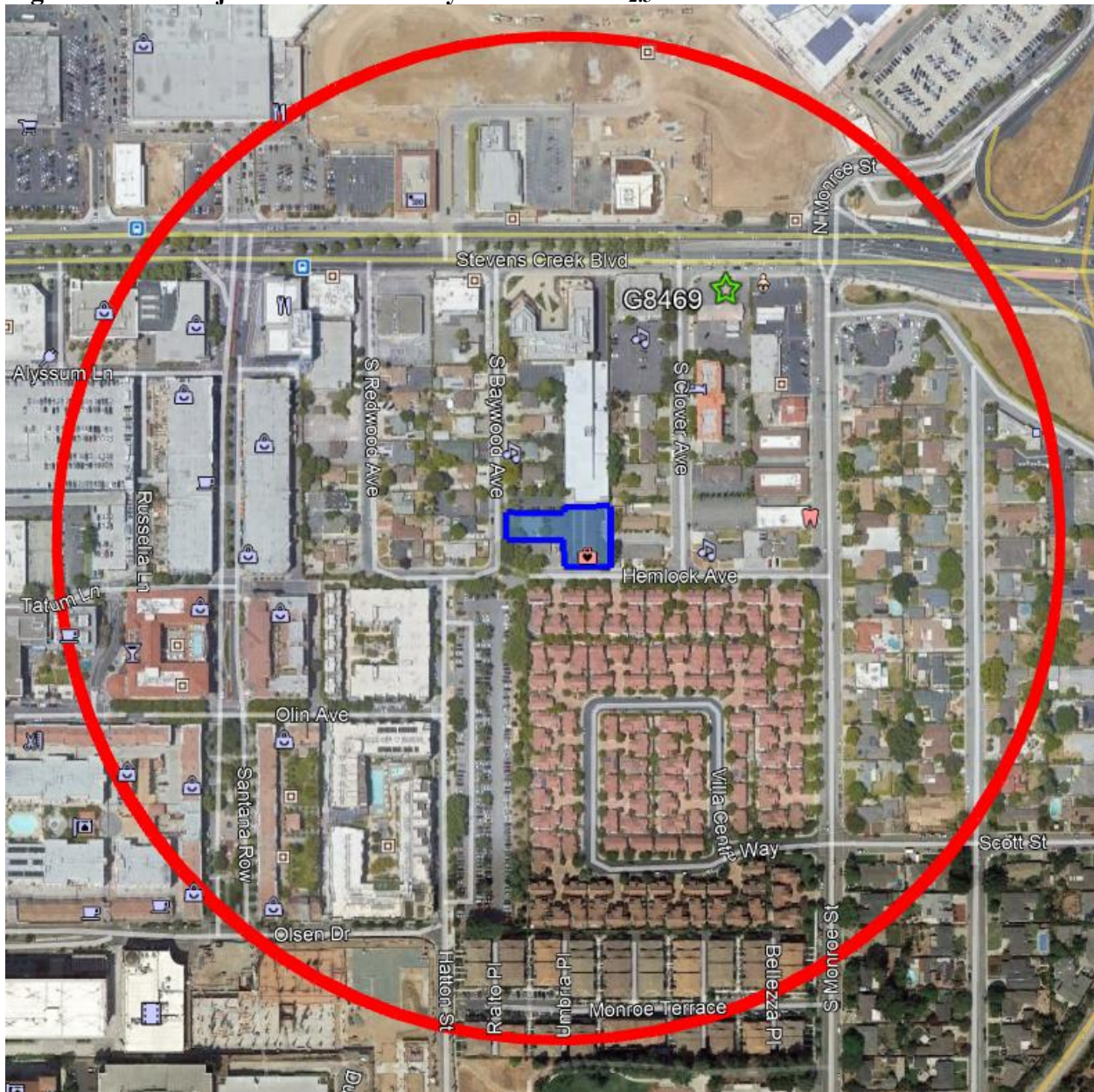


### **Cumulative Community Risk Impacts on Construction MEI**

Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of the MEI. These sources include freeways or highways, busy surface streets and stationary sources identified by BAAQMD. As shown in Figure 2, substantial source of TAC and PM<sub>2.5</sub> emissions in the area include Stevens Creek Boulevard and Plant #G8469.



**Figure 2. Project Site and Nearby TAC and PM<sub>2.5</sub> Sources**



*Local High-Volume 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 the older EMFAC2011 emission rates for the year 2014. Overall, emission rates will decrease by the time the project is constructed and occupied. The project is not likely to be occupied prior to at least 2021. In addition, a new version of the emissions factor model, EMFAC2014 was made available since that tool was developed. 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 year 2018 or later. The predicted cancer risk was then adjusted using a factor of 1.3744 to account for new OEHHA guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.<sup>3</sup>

The average daily traffic (ADT) volume on Stevens Creek Boulevard west of S. Clover Avenue is estimated to be approximately 44,400 vehicles. This estimate was based on the peak-hour traffic volumes included in traffic data for the area for cumulative conditions. 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 east-west directional roadways and at a distance of approximately 600 feet south of the roadway from the closest residential MEI, estimated cancer risk from the roadway traffic would be 3.33 per million and PM<sub>2.5</sub> concentration would be 0.12 µg/m<sup>3</sup>. The chronic or acute Hazard Index (HI) for the roadway would be below 0.01.

#### *Stationary Sources*

Permitted stationary sources of air pollution near the project site were identified using the BAAQMD's *Stationary Source Risk and Hazard Analysis Tool*. This mapping tool uses Google Earth to identify the location of 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. 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. Plant #G8469 is the Valley Fair 76 gas station located at 2850 Stevens Creek Boulevard, approximately 650 feet northeast of the closest residential MEI. The risk and hazard index from the gas station were adjusted for distance based on BAAQMD distance adjustment factors.<sup>5</sup> When adjusted for distance, this facility poses a screening level excess cancer risk of 0.09 per million and a HI of less than 0.01. There are no PM<sub>2.5</sub> emissions from the gas station.

#### *Cumulative Projects*

In addition to existing nearby TAC sources and construction of the project, there could be other projects in the area with potentially active construction sites that would occur during the proposed project construction period. One such project was identified, the Baywood Hotel Project, on the opposite side (west) of S. Baywood Avenue. The location of this project relative

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<sup>5</sup> BAAQMD provides distance adjustment multipliers for stationary sources: (1) *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines* and (2) *Distance Adjustment Multiplier Tool for Gasoline Dispensing Facilities (GDF)*

to the proposed project is shown in Figure 1. Emissions from construction of the Baywood Hotel Project were assumed to occur during the same time as the propose project. Construction emissions for the Baywood Hotel Project was also evaluated in this assessment.

As shown in Table 2, the project would have a *less-than-significant* impact with respect to community risk caused by project construction activities, since the cancer risk and the annual PM<sub>2.5</sub> concentration are below the combined-source BAAQMD cumulative thresholds of 100.0 per million for cancer risk and 0.8 µg/m<sup>3</sup> for PM<sub>2.5</sub>. The stationary source calculations are contained in *Attachment 4*.

**Table 2. Cumulative TAC Levels at Construction MEI**

Source	Cancer Risk (per million)	PM <sub>2.5</sub> Concentration (µg/m <sup>3</sup> )	Acute or Chronic Hazard (HI)
Unmitigated Project Construction	<b>30.3 (infant)</b>	0.34	0.03
Unmitigated Baywood Hotel Project	9.4 (infant)	0.23	<0.01
Stevens Creek Boulevard	3.3	0.12	<0.01
Plant #G8469 – Gas Station	0.1	NA	<0.01
<b>Cumulative Total</b>	43.1	0.69	<0.06
<i>BAAQMD Thresholds</i>	<i>100</i>	<i>0.8</i>	<i>10.0</i>
<i>Exceed Threshold?</i>	No	No	No

**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:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- 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.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

- 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.
- 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.
- 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.
- 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.

***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 67 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 CARB-certified Level 3 Diesel Particulate Filters<sup>6</sup> or equivalent. The use of equipment meeting U.S. EPA Tier 4 standards for particulate matter would meet this requirement. Alternatively, the use of equipment that includes alternatively-fueled equipment (i.e., non-diesel) would meet this requirement. Other measures may be the use of added exhaust devices, or a combination of measures, provided that these measures are approved by the City and demonstrated to reduce community risk impacts to less-than-significant.

Effectiveness of Mitigation

Implementation of *Mitigation Measure 1* is considered to reduce exhaust emissions by 5 percent and fugitive dust emissions by over 50 percent. Implementation of *Mitigation Measure 2* would further reduce on-site diesel exhaust emissions by 88 percent. With mitigation, the increased lifetime residential cancer risk from construction, assuming infant exposure, would be less than 4.8 in one million. This cancer risk would be below the BAAQMD threshold of 10 in one million. While not significant, PM<sub>2.5</sub> concentrations would be reduced to 0.1 µg/m<sup>3</sup> or less. *After*

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<sup>6</sup> See <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>

*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 the project construction TACs. Also included are any modeling assumptions.

*Attachment 3* is the construction health risk assessment. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format.

*Attachment 4* includes the screening community risk calculations from sources affecting the project.



## Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.<sup>7</sup> 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.<sup>8</sup> This HRA used the recent 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.<sup>9</sup> 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 of exposure, and the exposure duration. 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, 95<sup>th</sup> percentile breathing rates are used for the third trimester and infant exposures, and 80<sup>th</sup> percentile breathing rates for child and adult exposures. 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).

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<sup>7</sup> 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.

<sup>8</sup> CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

<sup>9</sup> BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

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:

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

Where:

- CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>
- 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)

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

Where:

- C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10<sup>-6</sup> = Conversion factor

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

Parameter	Exposure Type →	Infant		Child		Adult
	Age Range →	3 <sup>rd</sup> Trimester	0<2	2 < 9	2 < 16	16 - 30
DPM Cancer Potency Factor (mg/kg-day) <sup>-1</sup>		1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day)*		361	1,090	631	572	261
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

\* 95<sup>th</sup> percentile breathing rates for 3<sup>rd</sup> trimester and infants and 80<sup>th</sup> percentile for children and adults

## 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 ( $\mu\text{g}/\text{m}^3$ ).

## Annual PM<sub>2.5</sub> Concentrations

While not a TAC, fine particulate matter (PM<sub>2.5</sub>) 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<sub>2.5</sub> (project level and cumulative) are in terms of an increase in the annual average concentration. When considering PM<sub>2.5</sub> impacts, the contribution from all sources of PM<sub>2.5</sub> emissions should be included. For projects with potential impacts from nearby local roadways, the PM<sub>2.5</sub> impacts should include those from vehicle exhaust emissions, PM<sub>2.5</sub> generated from vehicle tire and brake wear, and fugitive emissions from re-suspended dust on the roads.



## **Attachment 2: CalEEMod Modeling Output**

18-053 Hemlock Residential, San Jose - Santa Clara County, Annual

**18-053 Hemlock Residential, San Jose  
Santa Clara County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	18.55	1000sqft	0.00	18,546.00	0
Enclosed Parking with Elevator	67.00	Space	0.00	36,407.00	0
Apartments Mid Rise	48.00	Dwelling Unit	1.26	70,539.00	137

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	4			<b>Operational Year</b>	2021
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	290	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

- Project Characteristics - PG&E CO2 Rate = 290
- Land Use - Applicant Provided Land Uses
- Construction Phase - Applicant Provided Schedule
- Off-road Equipment - Applicant Provided Equipment & Hours
- Off-road Equipment - Applicant Provided Equipment & Hours
- Off-road Equipment - Applicant Provided Equipment & Hours
- Off-road Equipment - Applicant Provided Equipment & Hours

Off-road Equipment - Applicant Provided Equipment & Hours

Off-road Equipment - Applicant Provided Equipment & Hours

Off-road Equipment - Applicant Provided Equipment & Hours

Trips and VMT - 1 Mile Trips, Cement Trucks 40 total round trips = 80 one-way trips, 8 pavement demo tons = 1 round trip / 2 trip, 23 +2 = 25

Demolition - Applicant Provided Demo Volume - 5,008sf

Grading - Applicant Provided Volumes 15,250 export

Woodstoves - No Wood Burning, Imported to Gas

Water And Wastewater - 100% Aerobic

Construction Off-road Equipment Mitigation - BMPs, Tier 3 DPF 3 Mitigation

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	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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	10.00	132.00
tblConstructionPhase	NumDays	200.00	108.00
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	NumDays	4.00	65.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	2.00	22.00
tblConstructionPhase	PhaseEndDate	3/9/2020	9/15/2020
tblConstructionPhase	PhaseEndDate	2/10/2020	3/15/2020
tblConstructionPhase	PhaseEndDate	4/26/2019	5/15/2019
tblConstructionPhase	PhaseEndDate	5/6/2019	9/15/2019
tblConstructionPhase	PhaseEndDate	2/24/2020	10/15/2020

tblConstructionPhase	PhaseEndDate	4/30/2019	6/15/2019
tblConstructionPhase	PhaseStartDate	2/25/2020	3/16/2020
tblConstructionPhase	PhaseStartDate	5/7/2019	10/16/2019
tblConstructionPhase	PhaseStartDate	5/1/2019	6/16/2019
tblConstructionPhase	PhaseStartDate	2/11/2020	9/16/2020
tblConstructionPhase	PhaseStartDate	4/27/2019	5/16/2019
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	7.20	15.36
tblFireplaces	NumberWood	8.16	0.00
tblGrading	AcresOfGrading	0.00	1.50
tblGrading	AcresOfGrading	5.50	1.00
tblGrading	MaterialExported	0.00	15,250.00
tblLandUse	LandUseSquareFeet	18,550.00	18,546.00
tblLandUse	LandUseSquareFeet	26,800.00	36,407.00
tblLandUse	LandUseSquareFeet	48,000.00	70,539.00
tblLandUse	LotAcreage	0.43	0.00
tblLandUse	LotAcreage	0.60	0.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	6.00	5.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
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	23.00	25.00
tblTripsAndVMT	HaulingTripNumber	0.00	80.00
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	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
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	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					
2019	0.0420	0.5290	0.2698	5.9000e- 004	0.0404	0.0206	0.0610	0.0196	0.0190	0.0385	0.0000	54.3811	54.3811	0.0133	0.0000	54.7139
2020	0.7201	0.8763	0.8825	1.4900e- 003	2.0600e- 003	0.0536	0.0556	5.6000e- 004	0.0532	0.0537	0.0000	128.4797	128.4797	0.0126	0.0000	128.7951
<b>Maximum</b>	<b>0.7201</b>	<b>0.8763</b>	<b>0.8825</b>	<b>1.4900e- 003</b>	<b>0.0404</b>	<b>0.0536</b>	<b>0.0610</b>	<b>0.0196</b>	<b>0.0532</b>	<b>0.0537</b>	<b>0.0000</b>	<b>128.4797</b>	<b>128.4797</b>	<b>0.0133</b>	<b>0.0000</b>	<b>128.7951</b>

## 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					
2019	0.0156	0.3423	0.2997	5.9000e-004	0.0196	1.8800e-003	0.0215	4.9600e-003	1.8700e-003	6.8300e-003	0.0000	54.3810	54.3810	0.0133	0.0000	54.7139
2020	0.6333	0.6840	0.9001	1.4900e-003	2.0600e-003	6.7100e-003	8.7600e-003	5.6000e-004	6.7000e-003	7.2600e-003	0.0000	128.4795	128.4795	0.0126	0.0000	128.7950
<b>Maximum</b>	<b>0.6333</b>	<b>0.6840</b>	<b>0.9001</b>	<b>1.4900e-003</b>	<b>0.0196</b>	<b>6.7100e-003</b>	<b>0.0215</b>	<b>4.9600e-003</b>	<b>6.7000e-003</b>	<b>7.2600e-003</b>	<b>0.0000</b>	<b>128.4795</b>	<b>128.4795</b>	<b>0.0133</b>	<b>0.0000</b>	<b>128.7950</b>

	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
<b>Percent Reduction</b>	<b>14.86</b>	<b>26.97</b>	<b>-4.12</b>	<b>0.00</b>	<b>48.92</b>	<b>88.41</b>	<b>74.03</b>	<b>72.58</b>	<b>88.12</b>	<b>84.73</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-1-2019	6-30-2019	0.2338	0.1151
2	7-1-2019	9-30-2019	0.1738	0.1489
3	10-1-2019	12-31-2019	0.1638	0.0950
4	1-1-2020	3-31-2020	0.2582	0.1874
5	4-1-2020	6-30-2020	0.7138	0.6034
6	7-1-2020	9-30-2020	0.6115	0.5161
		<b>Highest</b>	<b>0.7138</b>	<b>0.6034</b>

## 3.0 Construction Detail

### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2019	5/15/2019	5	33	
2	Site Preparation	Site Preparation	5/16/2019	6/15/2019	5	22	



3	Grading	Grading	6/16/2019	9/15/2019	5	65
4	Trenching	Trenching	9/16/2019	10/15/2019	5	22
5	Building Construction	Building Construction	10/16/2019	3/15/2020	5	108
6	Architectural Coating	Architectural Coating	3/16/2020	9/15/2020	5	132
7	Paving	Paving	9/16/2020	10/15/2020	5	22

**Acres of Grading (Site Preparation Phase): 1**

**Acres of Grading (Grading Phase): 1.5**

**Acres of Paving: 0**

**Residential Indoor: 142,841; Residential Outdoor: 47,614; Non-Residential Indoor: 27,819; Non-Residential Outdoor: 9,273; Striped**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	1.00	81	0.73
Demolition	Excavators	1	2.00	158	0.38
Demolition	Rubber Tired Dozers	1	2.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Site Preparation	Graders	1	4.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	4.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	0	6.00	187	0.41
Grading	Rubber Tired Dozers	0	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	5.00	231	0.29
Building Construction	Forklifts	1	1.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	10	4.00	78	0.48

Paving	Cement and Mortar Mixers	1	4.00	9	0.56
Paving	Pavers	0	6.00	130	0.42
Paving	Paving Equipment	1	4.00	132	0.36
Paving	Rollers	0	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	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	4	10.00	0.00	25.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Grading	1	3.00	0.00	1,906.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	56.00	14.00	80.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	10	11.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	2	5.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

### **3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### **3.2 Demolition - 2019**

#### **Unmitigated Construction On-Site**



Off-Road	2.1200e-003	0.0435	0.0574	9.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	7.9212	7.9212	2.2300e-003	0.0000	7.9770
<b>Total</b>	<b>2.1200e-003</b>	<b>0.0435</b>	<b>0.0574</b>	<b>9.0000e-005</b>	<b>1.1100e-003</b>	<b>3.4000e-004</b>	<b>1.4500e-003</b>	<b>8.0000e-005</b>	<b>3.4000e-004</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>7.9212</b>	<b>7.9212</b>	<b>2.2300e-003</b>	<b>0.0000</b>	<b>7.9770</b>

### 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	3.0000e-005	1.3400e-003	2.2000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.1619	0.1619	2.0000e-005	0.0000	0.1624
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	1.0000e-004	1.2200e-003	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1384	0.1384	1.0000e-005	0.0000	0.1386
<b>Total</b>	<b>2.3000e-004</b>	<b>1.4400e-003</b>	<b>1.4400e-003</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.3004</b>	<b>0.3004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.3010</b>

### 3.3 Site Preparation - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0337	0.0000	0.0337	0.0183	0.0000	0.0183	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.9200e-003	0.1026	0.0337	8.0000e-005		4.4000e-003	4.4000e-003		4.0500e-003	4.0500e-003	0.0000	7.4995	7.4995	2.3700e-003	0.0000	7.5588
<b>Total</b>	<b>8.9200e-003</b>	<b>0.1026</b>	<b>0.0337</b>	<b>8.0000e-005</b>	<b>0.0337</b>	<b>4.4000e-003</b>	<b>0.0381</b>	<b>0.0183</b>	<b>4.0500e-003</b>	<b>0.0223</b>	<b>0.0000</b>	<b>7.4995</b>	<b>7.4995</b>	<b>2.3700e-003</b>	<b>0.0000</b>	<b>7.5588</b>

**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	7.0000e-005	3.0000e-005	4.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0461	0.0461	0.0000	0.0000	0.0462
<b>Total</b>	<b>7.0000e-005</b>	<b>3.0000e-005</b>	<b>4.1000e-004</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0461</b>	<b>0.0461</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0462</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0151	0.0000	0.0151	4.1100e-003	0.0000	4.1100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0400e-003	0.0395	0.0443	8.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	7.4995	7.4995	2.3700e-003	0.0000	7.5588
<b>Total</b>	<b>2.0400e-003</b>	<b>0.0395</b>	<b>0.0443</b>	<b>8.0000e-005</b>	<b>0.0151</b>	<b>2.2000e-004</b>	<b>0.0154</b>	<b>4.1100e-003</b>	<b>2.2000e-004</b>	<b>4.3300e-003</b>	<b>0.0000</b>	<b>7.4995</b>	<b>7.4995</b>	<b>2.3700e-003</b>	<b>0.0000</b>	<b>7.5588</b>

**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
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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
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	7.0000e-005	3.0000e-005	4.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0461	0.0461	0.0000	0.0000	0.0462
<b>Total</b>	<b>7.0000e-005</b>	<b>3.0000e-005</b>	<b>4.1000e-004</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0461</b>	<b>0.0461</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0462</b>

### 3.4 Grading - 2019

#### 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					1.6600e-003	0.0000	1.6600e-003	2.2000e-004	0.0000	2.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5700e-003	0.0760	0.0748	1.0000e-004		5.0700e-003	5.0700e-003		4.6700e-003	4.6700e-003	0.0000	9.0674	9.0674	2.8700e-003	0.0000	9.1391
<b>Total</b>	<b>7.5700e-003</b>	<b>0.0760</b>	<b>0.0748</b>	<b>1.0000e-004</b>	<b>1.6600e-003</b>	<b>5.0700e-003</b>	<b>6.7300e-003</b>	<b>2.2000e-004</b>	<b>4.6700e-003</b>	<b>4.8900e-003</b>	<b>0.0000</b>	<b>9.0674</b>	<b>9.0674</b>	<b>2.8700e-003</b>	<b>0.0000</b>	<b>9.1391</b>

#### 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	2.3100e-003	0.1021	0.0170	1.3000e-004	8.3000e-004	1.3000e-004	9.6000e-004	2.3000e-004	1.2000e-004	3.5000e-004	0.0000	12.3464	12.3464	1.4400e-003	0.0000	12.3824
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Worker	1.2000e-004	6.0000e-005	7.2000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0818	0.0818	0.0000	0.0000	0.0819
<b>Total</b>	<b>2.4300e-003</b>	<b>0.1022</b>	<b>0.0178</b>	<b>1.3000e-004</b>	<b>9.0000e-004</b>	<b>1.3000e-004</b>	<b>1.0300e-003</b>	<b>2.5000e-004</b>	<b>1.2000e-004</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>12.4282</b>	<b>12.4282</b>	<b>1.4400e-003</b>	<b>0.0000</b>	<b>12.4643</b>

**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					7.5000e-004	0.0000	7.5000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4700e-003	0.0564	0.0761	1.0000e-004		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	9.0674	9.0674	2.8700e-003	0.0000	9.1391
<b>Total</b>	<b>2.4700e-003</b>	<b>0.0564</b>	<b>0.0761</b>	<b>1.0000e-004</b>	<b>7.5000e-004</b>	<b>5.9000e-004</b>	<b>1.3400e-003</b>	<b>5.0000e-005</b>	<b>5.9000e-004</b>	<b>6.4000e-004</b>	<b>0.0000</b>	<b>9.0674</b>	<b>9.0674</b>	<b>2.8700e-003</b>	<b>0.0000</b>	<b>9.1391</b>

**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	2.3100e-003	0.1021	0.0170	1.3000e-004	8.3000e-004	1.3000e-004	9.6000e-004	2.3000e-004	1.2000e-004	3.5000e-004	0.0000	12.3464	12.3464	1.4400e-003	0.0000	12.3824
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	6.0000e-005	7.2000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0818	0.0818	0.0000	0.0000	0.0819
<b>Total</b>	<b>2.4300e-003</b>	<b>0.1022</b>	<b>0.0178</b>	<b>1.3000e-004</b>	<b>9.0000e-004</b>	<b>1.3000e-004</b>	<b>1.0300e-003</b>	<b>2.5000e-004</b>	<b>1.2000e-004</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>12.4282</b>	<b>12.4282</b>	<b>1.4400e-003</b>	<b>0.0000</b>	<b>12.4643</b>

**3.5 Trenching - 2019**

**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	2.5600e-003	0.0257	0.0253	3.0000e-005		1.7200e-003	1.7200e-003		1.5800e-003	1.5800e-003	0.0000	3.0690	3.0690	9.7000e-004	0.0000	3.0932
<b>Total</b>	<b>2.5600e-003</b>	<b>0.0257</b>	<b>0.0253</b>	<b>3.0000e-005</b>		<b>1.7200e-003</b>	<b>1.7200e-003</b>		<b>1.5800e-003</b>	<b>1.5800e-003</b>	<b>0.0000</b>	<b>3.0690</b>	<b>3.0690</b>	<b>9.7000e-004</b>	<b>0.0000</b>	<b>3.0932</b>

**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	2.4000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0277	0.0277	0.0000	0.0000	0.0277
<b>Total</b>	<b>4.0000e-005</b>	<b>2.0000e-005</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0277</b>	<b>0.0277</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0277</b>

**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
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Category	tons/yr										MT/yr					
	Off-Road	8.4000e-004	0.0191	0.0258	3.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	3.0690	3.0690	9.7000e-004	0.0000
<b>Total</b>	<b>8.4000e-004</b>	<b>0.0191</b>	<b>0.0258</b>	<b>3.0000e-005</b>		<b>2.0000e-004</b>	<b>2.0000e-004</b>		<b>2.0000e-004</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>3.0690</b>	<b>3.0690</b>	<b>9.7000e-004</b>	<b>0.0000</b>	<b>3.0932</b>

### 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	2.4000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0277	0.0277	0.0000	0.0000	0.0277
<b>Total</b>	<b>4.0000e-005</b>	<b>2.0000e-005</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0277</b>	<b>0.0277</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0277</b>

### 3.6 Building Construction - 2019

#### 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	9.2100e-003	0.1082	0.0435	1.0000e-004		4.7600e-003	4.7600e-003		4.3800e-003	4.3800e-003	0.0000	9.3783	9.3783	2.9700e-003	0.0000	9.4525
<b>Total</b>	<b>9.2100e-003</b>	<b>0.1082</b>	<b>0.0435</b>	<b>1.0000e-004</b>		<b>4.7600e-003</b>	<b>4.7600e-003</b>		<b>4.3800e-003</b>	<b>4.3800e-003</b>	<b>0.0000</b>	<b>9.3783</b>	<b>9.3783</b>	<b>2.9700e-003</b>	<b>0.0000</b>	<b>9.4525</b>

**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	2.1800e-003	3.6000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.2639	0.2639	3.0000e-005	0.0000	0.2647
Vendor	8.4000e-004	0.0271	7.8000e-003	3.0000e-005	3.6000e-004	7.0000e-005	4.2000e-004	1.0000e-004	6.0000e-005	1.7000e-004	0.0000	3.0877	3.0877	3.3000e-004	0.0000	3.0959
Worker	1.8900e-003	8.9000e-004	0.0114	1.0000e-005	1.1400e-003	2.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.2918	1.2918	6.0000e-005	0.0000	1.2934
<b>Total</b>	<b>2.7800e-003</b>	<b>0.0302</b>	<b>0.0195</b>	<b>4.0000e-005</b>	<b>1.5300e-003</b>	<b>9.0000e-005</b>	<b>1.6100e-003</b>	<b>4.2000e-004</b>	<b>7.0000e-005</b>	<b>5.0000e-004</b>	<b>0.0000</b>	<b>4.6433</b>	<b>4.6433</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>4.6540</b>

**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	2.5700e-003	0.0501	0.0568	1.0000e-004		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	9.3783	9.3783	2.9700e-003	0.0000	9.4525
<b>Total</b>	<b>2.5700e-003</b>	<b>0.0501</b>	<b>0.0568</b>	<b>1.0000e-004</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>9.3783</b>	<b>9.3783</b>	<b>2.9700e-003</b>	<b>0.0000</b>	<b>9.4525</b>

**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	2.1800e-003	3.6000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.2639	0.2639	3.0000e-005	0.0000	0.2647
Vendor	8.4000e-004	0.0271	7.8000e-003	3.0000e-005	3.6000e-004	7.0000e-005	4.2000e-004	1.0000e-004	6.0000e-005	1.7000e-004	0.0000	3.0877	3.0877	3.3000e-004	0.0000	3.0959
Worker	1.8900e-003	8.9000e-004	0.0114	1.0000e-005	1.1400e-003	2.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.2918	1.2918	6.0000e-005	0.0000	1.2934
<b>Total</b>	<b>2.7800e-003</b>	<b>0.0302</b>	<b>0.0195</b>	<b>4.0000e-005</b>	<b>1.5300e-003</b>	<b>9.0000e-005</b>	<b>1.6100e-003</b>	<b>4.2000e-004</b>	<b>7.0000e-005</b>	<b>5.0000e-004</b>	<b>0.0000</b>	<b>4.6433</b>	<b>4.6433</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>4.6540</b>

### 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	7.9900e-003	0.0936	0.0390	1.0000e-004		4.0000e-003	4.0000e-003		3.6800e-003	3.6800e-003	0.0000	8.8408	8.8408	2.8600e-003	0.0000	8.9123
<b>Total</b>	<b>7.9900e-003</b>	<b>0.0936</b>	<b>0.0390</b>	<b>1.0000e-004</b>		<b>4.0000e-003</b>	<b>4.0000e-003</b>		<b>3.6800e-003</b>	<b>3.6800e-003</b>	<b>0.0000</b>	<b>8.8408</b>	<b>8.8408</b>	<b>2.8600e-003</b>	<b>0.0000</b>	<b>8.9123</b>

#### Unmitigated Construction Off-Site

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

Hauling	4.0000e-005	2.0200e-003	3.3000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.2550	0.2550	3.0000e-005	0.0000	0.2556
Vendor	7.0000e-004	0.0248	6.8900e-003	3.0000e-005	3.4000e-004	4.0000e-005	3.8000e-004	1.0000e-004	4.0000e-005	1.4000e-004	0.0000	2.9783	2.9783	2.9000e-004	0.0000	2.9856
Worker	1.6400e-003	7.5000e-004	9.7300e-003	1.0000e-005	1.1000e-003	2.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.1000e-004	0.0000	1.2068	1.2068	5.0000e-005	0.0000	1.2081
<b>Total</b>	<b>2.3800e-003</b>	<b>0.0276</b>	<b>0.0170</b>	<b>4.0000e-005</b>	<b>1.4700e-003</b>	<b>6.0000e-005</b>	<b>1.5300e-003</b>	<b>4.1000e-004</b>	<b>5.0000e-005</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>4.4400</b>	<b>4.4400</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>4.4493</b>

**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	2.4700e-003	0.0483	0.0547	1.0000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	8.8408	8.8408	2.8600e-003	0.0000	8.9123
<b>Total</b>	<b>2.4700e-003</b>	<b>0.0483</b>	<b>0.0547</b>	<b>1.0000e-004</b>		<b>2.9000e-004</b>	<b>2.9000e-004</b>		<b>2.9000e-004</b>	<b>2.9000e-004</b>	<b>0.0000</b>	<b>8.8408</b>	<b>8.8408</b>	<b>2.8600e-003</b>	<b>0.0000</b>	<b>8.9123</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	2.0200e-003	3.3000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.2550	0.2550	3.0000e-005	0.0000	0.2556
Vendor	7.0000e-004	0.0248	6.8900e-003	3.0000e-005	3.4000e-004	4.0000e-005	3.8000e-004	1.0000e-004	4.0000e-005	1.4000e-004	0.0000	2.9783	2.9783	2.9000e-004	0.0000	2.9856
Worker	1.6400e-003	7.5000e-004	9.7300e-003	1.0000e-005	1.1000e-003	2.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.1000e-004	0.0000	1.2068	1.2068	5.0000e-005	0.0000	1.2081

<b>Total</b>	<b>2.3800e-003</b>	<b>0.0276</b>	<b>0.0170</b>	<b>4.0000e-005</b>	<b>1.4700e-003</b>	<b>6.0000e-005</b>	<b>1.5300e-003</b>	<b>4.1000e-004</b>	<b>5.0000e-005</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>4.4400</b>	<b>4.4400</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>4.4493</b>
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### 3.7 Architectural Coating - 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					
Archit. Coating	0.6009					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1066	0.7409	0.8058	1.3100e-003		0.0488	0.0488		0.0488	0.0488	0.0000	112.3432	112.3432	8.7000e-003	0.0000	112.5606
<b>Total</b>	<b>0.7074</b>	<b>0.7409</b>	<b>0.8058</b>	<b>1.3100e-003</b>		<b>0.0488</b>	<b>0.0488</b>		<b>0.0488</b>	<b>0.0488</b>	<b>0.0000</b>	<b>112.3432</b>	<b>112.3432</b>	<b>8.7000e-003</b>	<b>0.0000</b>	<b>112.5606</b>

#### 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	8.0000e-004	3.7000e-004	4.7600e-003	1.0000e-005	5.4000e-004	1.0000e-005	5.5000e-004	1.4000e-004	1.0000e-005	1.5000e-004	0.0000	0.5904	0.5904	3.0000e-005	0.0000	0.5910
<b>Total</b>	<b>8.0000e-004</b>	<b>3.7000e-004</b>	<b>4.7600e-003</b>	<b>1.0000e-005</b>	<b>5.4000e-004</b>	<b>1.0000e-005</b>	<b>5.5000e-004</b>	<b>1.4000e-004</b>	<b>1.0000e-005</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>0.5904</b>	<b>0.5904</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.5910</b>

#### 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	0.6009					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0262	0.5971	0.8063	1.3100e-003		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	112.3430	112.3430	8.7000e-003	0.0000	112.5605
<b>Total</b>	<b>0.6270</b>	<b>0.5971</b>	<b>0.8063</b>	<b>1.3100e-003</b>		<b>6.2800e-003</b>	<b>6.2800e-003</b>		<b>6.2800e-003</b>	<b>6.2800e-003</b>	<b>0.0000</b>	<b>112.3430</b>	<b>112.3430</b>	<b>8.7000e-003</b>	<b>0.0000</b>	<b>112.5605</b>

### 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	8.0000e-004	3.7000e-004	4.7600e-003	1.0000e-005	5.4000e-004	1.0000e-005	5.5000e-004	1.4000e-004	1.0000e-005	1.5000e-004	0.0000	0.5904	0.5904	3.0000e-005	0.0000	0.5910
<b>Total</b>	<b>8.0000e-004</b>	<b>3.7000e-004</b>	<b>4.7600e-003</b>	<b>1.0000e-005</b>	<b>5.4000e-004</b>	<b>1.0000e-005</b>	<b>5.5000e-004</b>	<b>1.4000e-004</b>	<b>1.0000e-005</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>0.5904</b>	<b>0.5904</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.5910</b>

### **3.8 Paving - 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	1.4600e-003	0.0138	0.0156	3.0000e-005		6.7000e-004	6.7000e-004		6.2000e-004	6.2000e-004	0.0000	2.2206	2.2206	6.6000e-004	0.0000	2.2371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.4600e-003</b>	<b>0.0138</b>	<b>0.0156</b>	<b>3.0000e-005</b>		<b>6.7000e-004</b>	<b>6.7000e-004</b>		<b>6.2000e-004</b>	<b>6.2000e-004</b>	<b>0.0000</b>	<b>2.2206</b>	<b>2.2206</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>2.2371</b>

**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	3.6000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0447	0.0447	0.0000	0.0000	0.0448
<b>Total</b>	<b>6.0000e-005</b>	<b>3.0000e-005</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0447</b>	<b>0.0447</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0448</b>

**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	5.5000e-004	0.0107	0.0171	3.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	2.2206	2.2206	6.6000e-004	0.0000	2.2371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.5000e-004</b>	<b>0.0107</b>	<b>0.0171</b>	<b>3.0000e-005</b>		<b>8.0000e-005</b>	<b>8.0000e-005</b>		<b>8.0000e-005</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>2.2206</b>	<b>2.2206</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>2.2371</b>

## 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	3.6000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0447	0.0447	0.0000	0.0000	0.0448
<b>Total</b>	<b>6.0000e-005</b>	<b>3.0000e-005</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0447</b>	<b>0.0447</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0448</b>

## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	97.6278	97.6278	9.7600e-003	2.0200e-003	98.4738
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	97.6278	97.6278	9.7600e-003	2.0200e-003	98.4738
Natural Gas Mitigated	3.8700e-003	0.0340	0.0206	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.3308	38.3308	7.3000e-004	7.0000e-004	38.5586



NaturalGas Unmitigated	3.8700e-003	0.0340	0.0206	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.3308	38.3308	7.3000e-004	7.0000e-004	38.5586
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## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	414694	2.2400e-003	0.0191	8.1300e-003	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	22.1296	22.1296	4.2000e-004	4.1000e-004	22.2611
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	303598	1.6400e-003	0.0149	0.0125	9.0000e-005		1.1300e-003	1.1300e-003		1.1300e-003	1.1300e-003	0.0000	16.2012	16.2012	3.1000e-004	3.0000e-004	16.2974
<b>Total</b>		<b>3.8800e-003</b>	<b>0.0340</b>	<b>0.0206</b>	<b>2.1000e-004</b>		<b>2.6700e-003</b>	<b>2.6700e-003</b>		<b>2.6700e-003</b>	<b>2.6700e-003</b>	<b>0.0000</b>	<b>38.3308</b>	<b>38.3308</b>	<b>7.3000e-004</b>	<b>7.1000e-004</b>	<b>38.5586</b>

### Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	414694	2.2400e-003	0.0191	8.1300e-003	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	22.1296	22.1296	4.2000e-004	4.1000e-004	22.2611
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	303598	1.6400e-003	0.0149	0.0125	9.0000e-005		1.1300e-003	1.1300e-003		1.1300e-003	1.1300e-003	0.0000	16.2012	16.2012	3.1000e-004	3.0000e-004	16.2974
<b>Total</b>		<b>3.8800e-003</b>	<b>0.0340</b>	<b>0.0206</b>	<b>2.1000e-004</b>		<b>2.6700e-003</b>	<b>2.6700e-003</b>		<b>2.6700e-003</b>	<b>2.6700e-003</b>	<b>0.0000</b>	<b>38.3308</b>	<b>38.3308</b>	<b>7.3000e-004</b>	<b>7.1000e-004</b>	<b>38.5586</b>

## 5.3 Energy by Land Use - Electricity

### Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	198161	26.0664	2.6100e-003	5.4000e-004	26.2923
Enclosed Parking with Elevator	213345	28.0638	2.8100e-003	5.8000e-004	28.3070
General Office Building	330675	43.4976	4.3500e-003	9.0000e-004	43.8745
<b>Total</b>		<b>97.6278</b>	<b>9.7700e-003</b>	<b>2.0200e-003</b>	<b>98.4738</b>

### Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	198161	26.0664	2.6100e-003	5.4000e-004	26.2923
Enclosed Parking with Elevator	213345	28.0638	2.8100e-003	5.8000e-004	28.3070
General Office Building	330675	43.4976	4.3500e-003	9.0000e-004	43.8745
<b>Total</b>		<b>97.6278</b>	<b>9.7700e-003</b>	<b>2.0200e-003</b>	<b>98.4738</b>

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

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	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	0.4215	5.7900e-003	0.3587	3.0000e-005		2.1100e-003	2.1100e-003		2.1100e-003	2.1100e-003	0.0000	2.5012	2.5012	6.0000e-004	4.0000e-005	2.5268
Unmitigated	0.4215	5.7900e-003	0.3587	3.0000e-005		2.1100e-003	2.1100e-003		2.1100e-003	2.1100e-003	0.0000	2.5012	2.5012	6.0000e-004	4.0000e-005	2.5268

## 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	0.0601					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3503					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.9000e-004	1.6600e-003	7.0000e-004	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.9175	1.9175	4.0000e-005	4.0000e-005	1.9289
Landscaping	0.0109	4.1300e-003	0.3580	2.0000e-005		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	0.5837	0.5837	5.7000e-004	0.0000	0.5979
<b>Total</b>	<b>0.4215</b>	<b>5.7900e-003</b>	<b>0.3587</b>	<b>3.0000e-005</b>		<b>2.1000e-003</b>	<b>2.1000e-003</b>		<b>2.1000e-003</b>	<b>2.1000e-003</b>	<b>0.0000</b>	<b>2.5012</b>	<b>2.5012</b>	<b>6.1000e-004</b>	<b>4.0000e-005</b>	<b>2.5269</b>

### 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	0.0601					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3503					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.9000e-004	1.6600e-003	7.0000e-004	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.9175	1.9175	4.0000e-005	4.0000e-005	1.9289
Landscaping	0.0109	4.1300e-003	0.3580	2.0000e-005		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	0.5837	0.5837	5.7000e-004	0.0000	0.5979
<b>Total</b>	<b>0.4215</b>	<b>5.7900e-003</b>	<b>0.3587</b>	<b>3.0000e-005</b>		<b>2.1000e-003</b>	<b>2.1000e-003</b>		<b>2.1000e-003</b>	<b>2.1000e-003</b>	<b>0.0000</b>	<b>2.5012</b>	<b>2.5012</b>	<b>6.1000e-004</b>	<b>4.0000e-005</b>	<b>2.5269</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.6837	8.4600e-003	5.0800e-003	10.4078
Unmitigated	8.6837	8.4600e-003	5.0800e-003	10.4078

### 7.2 Water by Land Use

#### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	4.2402	4.1200e-003	2.4700e-003	5.0796
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	3.29696 / 2.02072	4.4435	4.3400e-003	2.6000e-003	5.3282
<b>Total</b>		<b>8.6837</b>	<b>8.4600e-003</b>	<b>5.0700e-003</b>	<b>10.4078</b>

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	4.2402	4.1200e-003	2.4700e-003	5.0796
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	3.29696 / 2.02072	4.4435	4.3400e-003	2.6000e-003	5.3282
<b>Total</b>		<b>8.6837</b>	<b>8.4600e-003</b>	<b>5.0700e-003</b>	<b>10.4078</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.9836	0.4718	0.0000	19.7791
Unmitigated	7.9836	0.4718	0.0000	19.7791

## 8.2 Waste by Land Use

### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	17.25	3.5016	0.2069	0.0000	8.6751
<b>Total</b>		<b>7.9836</b>	<b>0.4718</b>	<b>0.0000</b>	<b>19.7791</b>

### Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041

Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	17.25	3.5016	0.2069	0.0000	8.6751
<b>Total</b>		<b>7.9836</b>	<b>0.4718</b>	<b>0.0000</b>	<b>19.7791</b>

## 9.0 Operational Offroad

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

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### Fire Pumps and Emergency Generators

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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### User Defined Equipment

Equipment Type	Number
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## 11.0 Vegetation

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Project Name:		<b>Hemlock Residential Project</b>								
Project Size		48 Dwelling Units		0.49 total project acres disturbed						
		54862 s.f. residential		n/a s.f. retail						
		19,130 s.f. office/commercial		n/a s.f. other, specify:						
		s.f. other, specify:				<b>Complete ALL Portions in Yellow</b>				
		36652 s.f. parking garage		70 spaces						
Construction Hours		n/a s.f. parking lot		n/a spaces						
		7 am to		5 pm						
Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Comments			
	<b>Demolition</b>	<b>Start Date:</b>	<b>4/1/2019</b>	<b>Total phase:</b>	<b>33</b>		<b>Overall Import/Export Volumes</b>			
		<b>End Date:</b>	<b>5/15/2019</b>				<b>Demolition Volume</b>			
1	Concrete/Industrial Saws	81	0.73	8	6	1	Square footage of buildings to be demolished (or total tons to be hauled)			
1	Excavators	162	0.38	8	8	2	5,008 square feet or			
1	Rubber-Tired Dozers	255	0.4	8	8	2	Hauling volume (tons)			
1	Tractors/Loaders/Backhoes	97	0.37	8	11	3	Any pavement demolished and hauled? <b>8 tons</b>			
	<b>Site Preparation</b>	<b>Start Date:</b>	<b>5/16/2019</b>	<b>Total phase:</b>	<b>22</b>		<b>Soil Hauling Volume</b>			
		<b>End Date:</b>	<b>6/15/2019</b>				Export volume = <u>  ?  </u> cubic yards? See below			
1	Graders	174	0.41	8	11	4	Import volume = <u>  ?  </u> cubic yards? See below			
1	Rubber Tired Dozers	255	0.4	8	11	4				
	Tractors/Loaders/Backhoes	97	0.37			0				
	<b>Grading / Excavation</b>	<b>Start Date:</b>	<b>6/16/2019</b>	<b>Total phase:</b>	<b>65</b>		<b>Soil Hauling Volume</b>			
		<b>End Date:</b>	<b>9/15/2019</b>				Export volume = <b>15,250</b> cubic yards			
	Scrapers	<b>361</b>	<b>0.48</b>	<b>1/8/1900</b>		0	Import volume = <b>0</b> cubic yards			
	Excavators	162	0.38			0				
	Graders	174	0.41			0				
	Rubber Tired Dozers	255	0.4			0				
1	Tractors/Loaders/Backhoes	97	0.37	8	65	8				
	Other Equipment?									
	<b>Trenching</b>	<b>Start Date:</b>	<b>9/16/2019</b>	<b>Total phase:</b>	<b>22</b>		<b>Cement Trucks? 40 Total Round-Trips</b>			
		<b>End Date:</b>	<b>10/15/2019</b>				Electric? (Y/N) <u>  </u> Otherwise assumed diesel			
1	Tractor/Loader/Backhoe	97	0.37	8	22	8	Liquid Propane (LPG)? (Y/N) <u>  </u> Otherwise Assumed diesel			
	Excavators	162	0.38			0	Or temporary line power? (Y/N) <u>  </u>			
	Other Equipment?						otherwise, assume diesel generator			
	<b>Building - Exterior</b>	<b>Start Date:</b>	<b>10/16/2019</b>	<b>Total phase:</b>	<b>108</b>					
		<b>End Date:</b>	<b>3/15/2020</b>							
1	Cranes	226	0.29	8	68	5				
1	Forklifts	89	0.2	4	40	1				
	Generator Sets	84	0.74			0				
	Tractors/Loaders/Backhoes	97	0.37			0				
	Welders	46	0.45			0				
	Other Equipment?					0				
	<b>Building - Interior/Architectural Coating</b>	<b>Start Date:</b>	<b>3/16/2020</b>	<b>Total phase:</b>	<b>132</b>					
		<b>End Date:</b>	<b>9/5/2020</b>							
10	Air Compressors	78	0.48	4	132	4				
	Aerial Lift	62	0.31			0				
	Other Equipment?									
	<b>Paving</b>	<b>Start Date:</b>	<b>9/16/2020</b>	<b>Total phase:</b>	<b>22</b>		<b>Asphalt? <u>  </u> cubic yards or <u>  </u> round trips? N/A</b>			
		<b>Start Date:</b>	<b>10/5/2020</b>							
1	Cement and Mortar Mixers	9	0.56	8	11	4				
	Pavers	125	0.42			0				
1	Paving Equipment	130	0.36	8	11	4				
	Rollers	80	0.38			0				
	Tractors/Loaders/Backhoes	97	0.37			0				
	Other Equipment?									
Equipment listed in this sheet is to provide an example of inputs				Add or subtract phases and equipment, as appropriate						
It is assumed that water trucks would be used during grading				Modify horsepower or load factor, as appropriate						



## Attachment 3: Construction Health Risk Calculations

Hemlock Residential, San Jose, CA

### DPM Construction Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions			Emissions per Point Source
					(lb/yr)	(lb/hr)	(g/s)	(g/s)
2019	Construction	0.0206	Point	60	41.2	0.01254	1.58E-03	2.63E-05
2020	Construction	0.0536	Point	60	107.2	0.03263	4.11E-03	6.85E-05
<b>Total</b>		<b>0.0742</b>			<b>148</b>	<b>0.0452</b>	<b>0.0057</b>	

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

### PM2.5 Fugitive Dust Construction Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	PM2.5 Emissions			Modeled Area (m <sup>2</sup> )	PM2.5 Emission Rate g/s/m <sup>2</sup>	
			(ton/year)	(lb/yr)	(lb/hr)			(g/s)
2019	Construction	CON_FUG	0.0196	39.2	0.01193	1.50E-03	1,956	7.69E-07
2020	Construction	CON_FUG	0.00056	1.1	0.00034	4.30E-05	1,956	2.20E-08
<b>Total</b>			<b>0.0202</b>	<b>40.3</b>	<b>0.0123</b>	<b>0.0015</b>		

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)	Source Type	No. Sources	DPM Emissions			Emissions per Point Source
					(lb/yr)	(lb/hr)	(g/s)	(g/s)
2019	Construction	0.0019	Point	60	3.8	0.00114	1.44E-04	2.40E-06
2020	Construction	0.0067	Point	60	13.4	0.00409	5.15E-04	8.58E-06
<b>Total</b>		<b>0.0086</b>			<b>17</b>	<b>0.0052</b>	<b>0.0007</b>	

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			Modeled Area (m <sup>2</sup> )	PM2.5 Emission Rate g/s/m <sup>2</sup>	
			(ton/year)	(lb/yr)	(lb/hr)			(g/s)
2019	Construction	CON_FUG	0.00496	9.9	0.00302	3.80E-04	1,956	1.95E-07
2020	Construction	CON_FUG	0.00056	1.1	0.00034	4.30E-05	1,956	2.20E-08
<b>Total</b>			<b>0.0055</b>	<b>11.0</b>	<b>0.0034</b>	<b>0.0004</b>		

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

Hemlock Residential, San Jose, CA  
 Construction Health Impacts Summary

Maximum Impacts at Construction MEI Location - Unmitigated

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m <sup>3</sup> )
	Exhaust PM10/DPM (µg/m <sup>3</sup> )	Fugitive PM2.5 (µg/m <sup>3</sup> )	Infant	Adult		
	2019	0.0512	0.3270	8.4	0.1	0.010
2020	0.1333	0.0094	21.9	0.4	0.027	0.14
<b>Total</b>	-	-	<b>30.3</b>	<b>0.5</b>		
<b>Maximum</b>	0.1333	0.3270	-	-	<b>0.027</b>	<b>0.34</b>

Maximum Impacts at Construction MEI Location - With Mitigation

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m <sup>3</sup> )
	Exhaust PM10/DPM (µg/m <sup>3</sup> )	Fugitive PM2.5 (µg/m <sup>3</sup> )	Infant	Adult		
	2019	0.0064	0.0394	1.1	0.0	0.001
2020	0.0230	0.0045	3.8	0.1	0.005	0.03
<b>Total</b>	-	-	<b>4.8</b>	<b>0.1</b>		
<b>Maximum</b>	0.0230	0.0394	-	-	<b>0.005</b>	<b>0.05</b>

Maximum Impacts at Hemlock Residential Project Construction MEI Location - Unmitigated  
 From Construction Activities for the Baywood Hotel Project

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m <sup>3</sup> )
	Exhaust PM10/DPM (µg/m <sup>3</sup> )	Fugitive PM2.5 (µg/m <sup>3</sup> )	Infant	Adult		
	2019	0.0200	0.1905	3.3	0.1	0.004
2020	0.0374	0.0033	6.1	0.1	0.007	0.07
<b>Total</b>	-	-	<b>9.4</b>	<b>0.2</b>		
<b>Maximum</b>	0.0374	0.1905	-	-	<b>0.007</b>	<b>0.23</b>

Maximum Impacts at Hemlock Residential Project Construction MEI Location - With Mitigation  
 From Construction Activities for the Baywood Hotel Project

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m <sup>3</sup> )
	Exhaust PM10/DPM (µg/m <sup>3</sup> )	Fugitive PM2.5 (µg/m <sup>3</sup> )	Infant	Adult		
	2019	0.0015	0.0465	0.2	0.0	0.000
2020	0.0047	0.0033	0.8	0.0	0.001	0.01
<b>Total</b>	-	-	<b>1.0</b>	<b>0.0</b>		
<b>Maximum</b>	0.0047	0.0465	-	-	<b>0.001</b>	<b>0.05</b>

**Hemlock Residential, San Jose, CA - Without Mitigation**  
**Maximum DPM Cancer Risk Calculations From Construction**  
**Impacts at Off-Site Receptors - 1.5 meter**

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-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

Values

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
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**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum	
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor		Fugitive PM2.5	Total PM2.5
			Year	Annual	Factor		Year	Annual	Factor			
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-	-	-
1	1	0 - 1	2019	0.0512	10	8.41	2019	0.0512	1	0.15	0.3270	0.343
2	1	1 - 2	2020	0.1333	10	21.89	2020	0.1333	1	0.38	0.0094	0.140
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
<b>Total Increased Cancer Risk</b>						<b>30.30</b>				<b>0.53</b>		

\* Third trimester of pregnancy

**Hemlock Residential, San Jose, CA - Without Mitigation**  
**Maximum DPM Cancer Risk Calculations From Construction**  
**Impacts at Off-Site Receptors - 4.5 meter**

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-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Values**

Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
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**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor			
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-	-	-
1	1	0 - 1	2019	0.0705	10	11.58	2019	0.0705	1	0.20	0.1555	0.226
2	1	1 - 2	2020	0.1835	10	30.14	2020	0.1835	1	0.53	0.0045	0.188
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
<b>Total Increased Cancer Risk</b>						<b>41.72</b>				<b>0.73</b>		

\* Third trimester of pregnancy

**Hemlock Residential, San Jose, CA - With Mitigation**  
**Maximum DPM Cancer Risk Calculations From Construction**  
**Impacts at Off-Site Receptors - 1.5 meter**

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-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
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**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Maximum		
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-	-	-
1	1	0 - 1	2019	0.0047	10	0.77	2019	0.0047	1	0.01	0.0829	0.084
2	1	1 - 2	2020	0.0167	10	2.74	2020	0.0167	1	0.05	0.0094	0.023
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
<b>Total Increased Cancer Risk</b>						<b>3.51</b>				<b>0.06</b>		

\* Third trimester of pregnancy

**Hemlock Residential, San Jose, CA - With Mitigation**  
**Maximum DPM Cancer Risk Calculations From Construction**  
**Impacts at Off-Site Receptors - 4.5 meter**

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-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
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**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Fugitive PM2.5	Total PM2.5	
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor			Adult Cancer Risk (per million)
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-	-	
1	1	0 - 1	2019	0.0064	10	1.06	2019	0.0064	1	0.02	0.0394	
2	1	1 - 2	2020	0.0230	10	3.78	2020	0.0230	1	0.07	0.0045	
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
<b>Total Increased Cancer Risk</b>						<b>4.84</b>				<b>0.08</b>		

\* Third trimester of pregnancy

**Baywood Hotel, San Jose, CA - Without Mitigation**  
**Maximum DPM Cancer Risk Calculations From Construction**  
**Impacts at Hemlock Residential Project Cancer Risk and PM2.5 MEI Receptors-4.5 meter**

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-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
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**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Fugitive PM2.5	Total PM2.5	
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor			Adult Cancer Risk (per million)
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-	-	
1	1	0 - 1	2019	0.0200	10	3.28	2019	0.0200	1	0.06	0.1905	
2	1	1 - 2	2020	0.0374	10	6.14	2020	0.0374	1	0.11	0.0033	
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
<b>Total Increased Cancer Risk</b>						<b>9.43</b>					<b>0.16</b>	

\* Third trimester of pregnancy

**Baywood Hotel, San Jose, CA - Without Mitigation**  
**Maximum DPM Cancer Risk Calculations From Construction**  
**Impacts at Hemlock Residential Project Cancer Risk and PM2.5 MEI Receptors-4.5 meter**

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-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Values**

Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
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**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Fugitive PM2.5	Total PM2.5	
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor			Adult Cancer Risk (per million)
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-	-	
1	1	0 - 1	2019	0.0015	10	0.25	2019	0.0015	1	0.00	0.0465	
2	1	1 - 2	2020	0.0047	10	0.77	2020	0.0047	1	0.01	0.0033	
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
<b>Total Increased Cancer Risk</b>						<b>1.02</b>					<b>0.02</b>	

\* Third trimester of pregnancy



**Attachment 4: Operational Community Risk**

# 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

Roadway Direction

Side of the Roadway

Distance from Roadway  feet

Annual Average Daily Traffic (ADT)

### Results

## Santa Clara County

### EAST-WEST DIRECTIONAL ROADWAY

#### PM2.5 annual average

**0.110** ( $\mu\text{g}/\text{m}^3$ )

#### Cancer Risk

**4.40** (per million)

**Stevens Creek Boulevard**

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 OEHH  
and EMFAC2014 for 2018

**3.02**

(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggregate 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 vehicles 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 Cal3qhc 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 OEHH 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 conducting 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	5/24/2018
Contact Name	Casey Zaglin
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x23
Email	<a href="mailto:czaglin@illingworthrodkin.com">czaglin@illingworthrodkin.com</a>
Project Name	Baywood Hotel
Address	375 S Baywood Ave
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Hotel
Project Size (# of units or building square feet)	105 rooms
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** - the source information 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](mailto:aflores@baaqmd.gov)

**Table B: Google Earth data**

Table B: Google Earth data											Res MEI			
Distance from Receptor (feet) or MEI <sup>1</sup>	Facility Name	Address	Plant No.	Cancer Risk <sup>2</sup>	Hazard Risk <sup>2</sup>	PM <sub>2.5</sub> <sup>2</sup>	Source No. <sup>3</sup>	Type of Source <sup>4</sup>	Fuel Code <sup>5</sup>	Status/Comments	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
650	Valley Fair Unocal 76 #253969	2850 Stevens Creek Blvd	G8469	3.23	0.03798363	na				No updated screening values; consider using available screening values with distance multiplier	0.03	0.09	0.00	#VALUE!

**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
  - 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 Multiplier 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:  
03/13/2018

Hemlock Residential Project - Santa Clara County, Annual

**Hemlock Residential Project  
Santa Clara County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	48.00	Dwelling Unit	0.46	69,956.00	153
General Office Building	19.13	1000sqft	0.00	19,130.00	0
Enclosed Parking with Elevator	67.00	Space	0.00	36,407.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	4			<b>Operational Year</b>	2021
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	290	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics - Based on PG&E Greenhouse Gas Emissions Factors: Guidance for PG&E Customers

Land Use - Population based on 3.20 persons per household rate provided by CA Dept of Finance

Vehicle Trips - based on trip gen info from traffic report

Energy Use -

Mobile Land Use Mitigation -

Construction Phase - Construction dates based on construction phasing info provided by applicant.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	131.00
tblConstructionPhase	NumDays	10.00	33.00
tblConstructionPhase	NumDays	2.00	65.00
tblConstructionPhase	NumDays	100.00	153.00
tblConstructionPhase	NumDays	1.00	22.00
tblConstructionPhase	PhaseEndDate	6/27/2019	10/15/2020
tblConstructionPhase	PhaseEndDate	1/28/2019	5/15/2019
tblConstructionPhase	PhaseEndDate	1/31/2019	9/15/2019
tblConstructionPhase	PhaseEndDate	6/20/2019	4/15/2020
tblConstructionPhase	PhaseEndDate	1/29/2019	6/15/2019
tblConstructionPhase	PhaseStartDate	6/21/2019	4/16/2020
tblConstructionPhase	PhaseStartDate	1/15/2019	4/1/2019
tblConstructionPhase	PhaseStartDate	1/30/2019	6/16/2019
tblConstructionPhase	PhaseStartDate	2/1/2019	9/16/2019
tblConstructionPhase	PhaseStartDate	1/29/2019	5/16/2019
tblGrading	AcresOfGrading	11.00	0.50
tblLandUse	LandUseSquareFeet	48,000.00	69,956.00
tblLandUse	LandUseSquareFeet	26,800.00	36,407.00
tblLandUse	LotAcreage	1.26	0.46
tblLandUse	LotAcreage	0.44	0.00
tblLandUse	LotAcreage	0.60	0.00
tblLandUse	Population	137.00	153.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	WorkerTripNumber	11.00	56.00
tblVehicleTrips	ST_TR	6.39	5.31
tblVehicleTrips	ST_TR	2.46	9.41
tblVehicleTrips	SU_TR	5.86	5.31
tblVehicleTrips	SU_TR	1.05	9.41
tblVehicleTrips	WD_TR	6.65	5.31

tblVehicleTrips	WD_TR	11.03	9.41
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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-15-2019	4-14-2019	0.0481	0.0481
2	4-15-2019	7-14-2019	0.3132	0.3132
3	7-15-2019	10-14-2019	0.3508	0.3508
4	10-15-2019	1-14-2020	0.4210	0.4210
5	1-15-2020	4-14-2020	0.3805	0.3805
6	4-15-2020	7-14-2020	0.7371	0.7371
7	7-15-2020	9-30-2020	0.6352	0.6352
		Highest	0.7371	0.7371

## 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	0.5319	6.6800e-003	0.5105	3.2000e-004		0.0238	0.0238		0.0238	0.0238	2.1883	1.4826	3.6709	4.0900e-003	1.4000e-004	3.8158
Energy	3.9200e-003	0.0345	0.0210	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	137.8385	137.8385	0.0106	2.7600e-003	138.9271
Mobile	0.1093	0.4580	1.2825	4.2300e-003	0.3790	3.6600e-003	0.3826	0.1014	3.4200e-003	0.1049	0.0000	387.2689	387.2689	0.0135	0.0000	387.6061
Waste						0.0000	0.0000		0.0000	0.0000	8.0933	0.0000	8.0933	0.4783	0.0000	20.0507
Water						0.0000	0.0000		0.0000	0.0000	2.0709	6.5132	8.5841	0.2134	5.1600e-003	15.4545
<b>Total</b>	<b>0.6451</b>	<b>0.4991</b>	<b>1.8140</b>	<b>4.7600e-003</b>	<b>0.3790</b>	<b>0.0302</b>	<b>0.4091</b>	<b>0.1014</b>	<b>0.0299</b>	<b>0.1314</b>	<b>12.3524</b>	<b>533.1031</b>	<b>545.4555</b>	<b>0.7199</b>	<b>8.0600e-003</b>	<b>565.8542</b>

**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	0.5319	6.6800e-003	0.5105	3.2000e-004		0.0238	0.0238		0.0238	0.0238	2.1883	1.4826	3.6709	4.0900e-003	1.4000e-004	3.8158
Energy	3.9200e-003	0.0345	0.0210	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	137.8385	137.8385	0.0106	2.7600e-003	138.9271
Mobile	0.1093	0.4580	1.2825	4.2300e-003	0.3790	3.6600e-003	0.3826	0.1014	3.4200e-003	0.1049	0.0000	387.2689	387.2689	0.0135	0.0000	387.6061
Waste						0.0000	0.0000		0.0000	0.0000	8.0933	0.0000	8.0933	0.4783	0.0000	20.0507
Water						0.0000	0.0000		0.0000	0.0000	2.0709	6.5132	8.5841	0.2134	5.1600e-003	15.4545
<b>Total</b>	<b>0.6451</b>	<b>0.4991</b>	<b>1.8140</b>	<b>4.7600e-003</b>	<b>0.3790</b>	<b>0.0302</b>	<b>0.4091</b>	<b>0.1014</b>	<b>0.0299</b>	<b>0.1314</b>	<b>12.3524</b>	<b>533.1031</b>	<b>545.4555</b>	<b>0.7199</b>	<b>8.0600e-003</b>	<b>565.8542</b>

	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
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	4/1/2019	5/15/2019	5	33	
2	Site Preparation	Site Preparation	5/16/2019	6/15/2019	5	22	
3	Grading	Grading	6/16/2019	9/15/2019	5	65	
4	Building Construction	Building Construction	9/16/2019	4/15/2020	5	153	
5	Architectural Coating	Architectural Coating	4/16/2020	10/15/2020	5	131	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 141,661; Residential Outdoor: 47,220; Non-Residential Indoor: 28,695; Non-Residential Outdoor: 9,565; Striped

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Architectural Coating	Cranes	1	4.00	231	0.29
Architectural Coating	Forklifts	2	6.00	89	0.20

### Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	
Demolition		4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation		2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading		4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating		6	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating		6	56.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction		5	56.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 3.2 Demolition - 2019

#### 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	0.0157	0.1420	0.1269	2.0000e-004		8.8600e-003	8.8600e-003		8.4600e-003	8.4600e-003	0.0000	17.3584	17.3584	3.3100e-003	0.0000	17.4411
<b>Total</b>	<b>0.0157</b>	<b>0.1420</b>	<b>0.1269</b>	<b>2.0000e-004</b>		<b>8.8600e-003</b>	<b>8.8600e-003</b>		<b>8.4600e-003</b>	<b>8.4600e-003</b>	<b>0.0000</b>	<b>17.3584</b>	<b>17.3584</b>	<b>3.3100e-003</b>	<b>0.0000</b>	<b>17.4411</b>

**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-004	4.5000e-004	4.6100e-003	1.0000e-005	1.3100e-003	1.0000e-005	1.3200e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1584	1.1584	3.0000e-005	0.0000	1.1592
<b>Total</b>	<b>6.0000e-004</b>	<b>4.5000e-004</b>	<b>4.6100e-003</b>	<b>1.0000e-005</b>	<b>1.3100e-003</b>	<b>1.0000e-005</b>	<b>1.3200e-003</b>	<b>3.5000e-004</b>	<b>1.0000e-005</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>1.1584</b>	<b>1.1584</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.1592</b>

**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	0.0157	0.1420	0.1269	2.0000e-004		8.8600e-003	8.8600e-003		8.4600e-003	8.4600e-003	0.0000	17.3584	17.3584	3.3100e-003	0.0000	17.4411
<b>Total</b>	<b>0.0157</b>	<b>0.1420</b>	<b>0.1269</b>	<b>2.0000e-004</b>		<b>8.8600e-003</b>	<b>8.8600e-003</b>		<b>8.4600e-003</b>	<b>8.4600e-003</b>	<b>0.0000</b>	<b>17.3584</b>	<b>17.3584</b>	<b>3.3100e-003</b>	<b>0.0000</b>	<b>17.4411</b>

**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-004	4.5000e-004	4.6100e-003	1.0000e-005	1.3100e-003	1.0000e-005	1.3200e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1584	1.1584	3.0000e-005	0.0000	1.1592
<b>Total</b>	<b>6.0000e-004</b>	<b>4.5000e-004</b>	<b>4.6100e-003</b>	<b>1.0000e-005</b>	<b>1.3100e-003</b>	<b>1.0000e-005</b>	<b>1.3200e-003</b>	<b>3.5000e-004</b>	<b>1.0000e-005</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>1.1584</b>	<b>1.1584</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.1592</b>

**3.3 Site Preparation - 2019**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9100e-003	0.0981	0.0456	1.1000e-004		4.0400e-003	4.0400e-003		3.7200e-003	3.7200e-003	0.0000	9.6315	9.6315	3.0500e-003	0.0000	9.7076
<b>Total</b>	<b>7.9100e-003</b>	<b>0.0981</b>	<b>0.0456</b>	<b>1.1000e-004</b>	<b>2.7000e-004</b>	<b>4.0400e-003</b>	<b>4.3100e-003</b>	<b>3.0000e-005</b>	<b>3.7200e-003</b>	<b>3.7500e-003</b>	<b>0.0000</b>	<b>9.6315</b>	<b>9.6315</b>	<b>3.0500e-003</b>	<b>0.0000</b>	<b>9.7076</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.5000e-004	1.5400e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3862	0.3862	1.0000e-005	0.0000	0.3864
<b>Total</b>	<b>2.0000e-004</b>	<b>1.5000e-004</b>	<b>1.5400e-003</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>0.3862</b>	<b>0.3862</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.3864</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9100e-003	0.0981	0.0456	1.1000e-004		4.0400e-003	4.0400e-003		3.7200e-003	3.7200e-003	0.0000	9.6314	9.6314	3.0500e-003	0.0000	9.7076
<b>Total</b>	<b>7.9100e-003</b>	<b>0.0981</b>	<b>0.0456</b>	<b>1.1000e-004</b>	<b>2.7000e-004</b>	<b>4.0400e-003</b>	<b>4.3100e-003</b>	<b>3.0000e-005</b>	<b>3.7200e-003</b>	<b>3.7500e-003</b>	<b>0.0000</b>	<b>9.6314</b>	<b>9.6314</b>	<b>3.0500e-003</b>	<b>0.0000</b>	<b>9.7076</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.5000e-004	1.5400e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3862	0.3862	1.0000e-005	0.0000	0.3864
<b>Total</b>	<b>2.0000e-004</b>	<b>1.5000e-004</b>	<b>1.5400e-003</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>0.3862</b>	<b>0.3862</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.3864</b>

**3.4 Grading - 2019**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0245	0.0000	0.0245	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0310	0.2796	0.2500	3.9000e-004		0.0175	0.0175		0.0167	0.0167	0.0000	34.1908	34.1908	6.5200e-003	0.0000	34.3537
<b>Total</b>	<b>0.0310</b>	<b>0.2796</b>	<b>0.2500</b>	<b>3.9000e-004</b>	<b>0.0245</b>	<b>0.0175</b>	<b>0.0419</b>	<b>0.0135</b>	<b>0.0167</b>	<b>0.0301</b>	<b>0.0000</b>	<b>34.1908</b>	<b>34.1908</b>	<b>6.5200e-003</b>	<b>0.0000</b>	<b>34.3537</b>



**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	1.1800e-003	8.8000e-004	9.0800e-003	3.0000e-005	2.5800e-003	2.0000e-005	2.5900e-003	6.9000e-004	2.0000e-005	7.0000e-004	0.0000	2.2818	2.2818	6.0000e-005	0.0000	2.2833
<b>Total</b>	<b>1.1800e-003</b>	<b>8.8000e-004</b>	<b>9.0800e-003</b>	<b>3.0000e-005</b>	<b>2.5800e-003</b>	<b>2.0000e-005</b>	<b>2.5900e-003</b>	<b>6.9000e-004</b>	<b>2.0000e-005</b>	<b>7.0000e-004</b>	<b>0.0000</b>	<b>2.2818</b>	<b>2.2818</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>2.2833</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0245	0.0000	0.0245	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0310	0.2796	0.2500	3.9000e-004		0.0175	0.0175		0.0167	0.0167	0.0000	34.1907	34.1907	6.5200e-003	0.0000	34.3537
<b>Total</b>	<b>0.0310</b>	<b>0.2796</b>	<b>0.2500</b>	<b>3.9000e-004</b>	<b>0.0245</b>	<b>0.0175</b>	<b>0.0419</b>	<b>0.0135</b>	<b>0.0167</b>	<b>0.0301</b>	<b>0.0000</b>	<b>34.1907</b>	<b>34.1907</b>	<b>6.5200e-003</b>	<b>0.0000</b>	<b>34.3537</b>

**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	1.1800e-003	8.8000e-004	9.0800e-003	3.0000e-005	2.5800e-003	2.0000e-005	2.5900e-003	6.9000e-004	2.0000e-005	7.0000e-004	0.0000	2.2818	2.2818	6.0000e-005	0.0000	2.2833
<b>Total</b>	<b>1.1800e-003</b>	<b>8.8000e-004</b>	<b>9.0800e-003</b>	<b>3.0000e-005</b>	<b>2.5800e-003</b>	<b>2.0000e-005</b>	<b>2.5900e-003</b>	<b>6.9000e-004</b>	<b>2.0000e-005</b>	<b>7.0000e-004</b>	<b>0.0000</b>	<b>2.2818</b>	<b>2.2818</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>2.2833</b>

**3.5 Building Construction - 2019**

**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	0.0369	0.3781	0.2904	4.4000e-004		0.0233	0.0233		0.0214	0.0214	0.0000	39.3857	39.3857	0.0125	0.0000	39.6972
<b>Total</b>	<b>0.0369</b>	<b>0.3781</b>	<b>0.2904</b>	<b>4.4000e-004</b>		<b>0.0233</b>	<b>0.0233</b>		<b>0.0214</b>	<b>0.0214</b>	<b>0.0000</b>	<b>39.3857</b>	<b>39.3857</b>	<b>0.0125</b>	<b>0.0000</b>	<b>39.6972</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.6400e-003	0.0681	0.0183	1.5000e-004	3.5500e-003	4.9000e-004	4.0300e-003	1.0300e-003	4.7000e-004	1.4900e-003	0.0000	14.1785	14.1785	7.0000e-004	0.0000	14.1961
Worker	7.8300e-003	5.8300e-003	0.0602	1.7000e-004	0.0171	1.1000e-004	0.0172	4.5500e-003	1.0000e-004	4.6500e-003	0.0000	15.1369	15.1369	4.1000e-004	0.0000	15.1472
<b>Total</b>	<b>0.0105</b>	<b>0.0739</b>	<b>0.0785</b>	<b>3.2000e-004</b>	<b>0.0207</b>	<b>6.0000e-004</b>	<b>0.0212</b>	<b>5.5800e-003</b>	<b>5.7000e-004</b>	<b>6.1400e-003</b>	<b>0.0000</b>	<b>29.3154</b>	<b>29.3154</b>	<b>1.1100e-003</b>	<b>0.0000</b>	<b>29.3433</b>

**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	0.0369	0.3781	0.2904	4.4000e-004		0.0233	0.0233		0.0214	0.0214	0.0000	39.3856	39.3856	0.0125	0.0000	39.6972
<b>Total</b>	<b>0.0369</b>	<b>0.3781</b>	<b>0.2904</b>	<b>4.4000e-004</b>		<b>0.0233</b>	<b>0.0233</b>		<b>0.0214</b>	<b>0.0214</b>	<b>0.0000</b>	<b>39.3856</b>	<b>39.3856</b>	<b>0.0125</b>	<b>0.0000</b>	<b>39.6972</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.6400e-003	0.0681	0.0183	1.5000e-004	3.5500e-003	4.9000e-004	4.0300e-003	1.0300e-003	4.7000e-004	1.4900e-003	0.0000	14.1785	14.1785	7.0000e-004	0.0000	14.1961
Worker	7.8300e-003	5.8300e-003	0.0602	1.7000e-004	0.0171	1.1000e-004	0.0172	4.5500e-003	1.0000e-004	4.6500e-003	0.0000	15.1369	15.1369	4.1000e-004	0.0000	15.1472
<b>Total</b>	<b>0.0105</b>	<b>0.0739</b>	<b>0.0785</b>	<b>3.2000e-004</b>	<b>0.0207</b>	<b>6.0000e-004</b>	<b>0.0212</b>	<b>5.5800e-003</b>	<b>5.7000e-004</b>	<b>6.1400e-003</b>	<b>0.0000</b>	<b>29.3154</b>	<b>29.3154</b>	<b>1.1100e-003</b>	<b>0.0000</b>	<b>29.3433</b>

**3.5 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	0.0328	0.3364	0.2807	4.3000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	38.0230	38.0230	0.0123	0.0000	38.3304
<b>Total</b>	<b>0.0328</b>	<b>0.3364</b>	<b>0.2807</b>	<b>4.3000e-004</b>		<b>0.0199</b>	<b>0.0199</b>		<b>0.0183</b>	<b>0.0183</b>	<b>0.0000</b>	<b>38.0230</b>	<b>38.0230</b>	<b>0.0123</b>	<b>0.0000</b>	<b>38.3304</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1100e-003	0.0606	0.0161	1.5000e-004	3.5000e-003	3.0000e-004	3.8000e-003	1.0100e-003	2.9000e-004	1.3000e-003	0.0000	13.9088	13.9088	6.4000e-004	0.0000	13.9247
Worker	7.0700e-003	5.0800e-003	0.0533	1.6000e-004	0.0169	1.1000e-004	0.0170	4.4900e-003	1.0000e-004	4.5900e-003	0.0000	14.4736	14.4736	3.6000e-004	0.0000	14.4825
<b>Total</b>	<b>9.1800e-003</b>	<b>0.0657</b>	<b>0.0694</b>	<b>3.1000e-004</b>	<b>0.0204</b>	<b>4.1000e-004</b>	<b>0.0208</b>	<b>5.5000e-003</b>	<b>3.9000e-004</b>	<b>5.8900e-003</b>	<b>0.0000</b>	<b>28.3823</b>	<b>28.3823</b>	<b>1.0000e-003</b>	<b>0.0000</b>	<b>28.4072</b>

**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	0.0328	0.3364	0.2807	4.3000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	38.0229	38.0229	0.0123	0.0000	38.3304
<b>Total</b>	<b>0.0328</b>	<b>0.3364</b>	<b>0.2807</b>	<b>4.3000e-004</b>		<b>0.0199</b>	<b>0.0199</b>		<b>0.0183</b>	<b>0.0183</b>	<b>0.0000</b>	<b>38.0229</b>	<b>38.0229</b>	<b>0.0123</b>	<b>0.0000</b>	<b>38.3304</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1100e-003	0.0606	0.0161	1.5000e-004	3.5000e-003	3.0000e-004	3.8000e-003	1.0100e-003	2.9000e-004	1.3000e-003	0.0000	13.9088	13.9088	6.4000e-004	0.0000	13.9247
Worker	7.0700e-003	5.0800e-003	0.0533	1.6000e-004	0.0169	1.1000e-004	0.0170	4.4900e-003	1.0000e-004	4.5900e-003	0.0000	14.4736	14.4736	3.6000e-004	0.0000	14.4825
<b>Total</b>	<b>9.1800e-003</b>	<b>0.0657</b>	<b>0.0694</b>	<b>3.1000e-004</b>	<b>0.0204</b>	<b>4.1000e-004</b>	<b>0.0208</b>	<b>5.5000e-003</b>	<b>3.9000e-004</b>	<b>5.8900e-003</b>	<b>0.0000</b>	<b>28.3823</b>	<b>28.3823</b>	<b>1.0000e-003</b>	<b>0.0000</b>	<b>28.4072</b>

**3.6 Architectural Coating - 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					
Archit. Coating	0.5998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0723	0.6901	0.6038	9.4000e-004		0.0415	0.0415		0.0387	0.0387	0.0000	82.2634	82.2634	0.0225	0.0000	82.8257
<b>Total</b>	<b>0.6721</b>	<b>0.6901</b>	<b>0.6038</b>	<b>9.4000e-004</b>		<b>0.0415</b>	<b>0.0415</b>		<b>0.0387</b>	<b>0.0387</b>	<b>0.0000</b>	<b>82.2634</b>	<b>82.2634</b>	<b>0.0225</b>	<b>0.0000</b>	<b>82.8257</b>

**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	3.6300e-003	0.1044	0.0278	2.5000e-004	0.0103	5.2000e-004	0.0108	2.7900e-003	4.9000e-004	3.2800e-003	0.0000	23.9743	23.9743	1.1000e-003	0.0000	24.0018
Worker	0.0146	0.0105	0.1098	3.3000e-004	0.0649	2.2000e-004	0.0651	0.0166	2.1000e-004	0.0169	0.0000	29.8484	29.8484	7.3000e-004	0.0000	29.8667
<b>Total</b>	<b>0.0182</b>	<b>0.1149</b>	<b>0.1376</b>	<b>5.8000e-004</b>	<b>0.0752</b>	<b>7.4000e-004</b>	<b>0.0759</b>	<b>0.0194</b>	<b>7.0000e-004</b>	<b>0.0201</b>	<b>0.0000</b>	<b>53.8227</b>	<b>53.8227</b>	<b>1.8300e-003</b>	<b>0.0000</b>	<b>53.8685</b>

**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	0.5998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0723	0.6901	0.6038	9.4000e-004		0.0415	0.0415		0.0387	0.0387	0.0000	82.2633	82.2633	0.0225	0.0000	82.8256
<b>Total</b>	<b>0.6721</b>	<b>0.6901</b>	<b>0.6038</b>	<b>9.4000e-004</b>		<b>0.0415</b>	<b>0.0415</b>		<b>0.0387</b>	<b>0.0387</b>	<b>0.0000</b>	<b>82.2633</b>	<b>82.2633</b>	<b>0.0225</b>	<b>0.0000</b>	<b>82.8256</b>

## 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	3.6300e-003	0.1044	0.0278	2.5000e-004	0.0103	5.2000e-004	0.0108	2.7900e-003	4.9000e-004	3.2800e-003	0.0000	23.9743	23.9743	1.1000e-003	0.0000	24.0018
Worker	0.0146	0.0105	0.1098	3.3000e-004	0.0649	2.2000e-004	0.0651	0.0166	2.1000e-004	0.0169	0.0000	29.8484	29.8484	7.3000e-004	0.0000	29.8667
<b>Total</b>	<b>0.0182</b>	<b>0.1149</b>	<b>0.1376</b>	<b>5.8000e-004</b>	<b>0.0752</b>	<b>7.4000e-004</b>	<b>0.0759</b>	<b>0.0194</b>	<b>7.0000e-004</b>	<b>0.0201</b>	<b>0.0000</b>	<b>53.8227</b>	<b>53.8227</b>	<b>1.8300e-003</b>	<b>0.0000</b>	<b>53.8685</b>

## 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	0.1093	0.4580	1.2825	4.2300e-003	0.3790	3.6600e-003	0.3826	0.1014	3.4200e-003	0.1049	0.0000	387.2689	387.2689	0.0135	0.0000	387.6061
Unmitigated	0.1093	0.4580	1.2825	4.2300e-003	0.3790	3.6600e-003	0.3826	0.1014	3.4200e-003	0.1049	0.0000	387.2689	387.2689	0.0135	0.0000	387.6061



## 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	255.00	255.00	255.00	588,950	588,950
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	179.99	179.99	179.99	430,142	430,142
<b>Total</b>	<b>434.99</b>	<b>434.99</b>	<b>434.99</b>	<b>1,019,091</b>	<b>1,019,091</b>

## 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4

## 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.607897	0.037434	0.184004	0.107261	0.014919	0.004991	0.012447	0.020659	0.002115	0.001554	0.005334	0.000623	0.000761
Enclosed Parking with Elevator	0.607897	0.037434	0.184004	0.107261	0.014919	0.004991	0.012447	0.020659	0.002115	0.001554	0.005334	0.000623	0.000761
General Office Building	0.607897	0.037434	0.184004	0.107261	0.014919	0.004991	0.012447	0.020659	0.002115	0.001554	0.005334	0.000623	0.000761

## 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	98.9975	98.9975	9.9000e-003	2.0500e-003	99.8554
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	98.9975	98.9975	9.9000e-003	2.0500e-003	99.8554
NaturalGas Mitigated	3.9200e-003	0.0345	0.0210	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.8409	38.8409	7.4000e-004	7.1000e-004	39.0718
NaturalGas Unmitigated	3.9200e-003	0.0345	0.0210	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.8409	38.8409	7.4000e-004	7.1000e-004	39.0718

## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	414694	2.2400e-003	0.0191	8.1300e-003	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	22.1296	22.1296	4.2000e-004	4.1000e-004	22.2611
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	313158	1.6900e-003	0.0154	0.0129	9.0000e-005		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	16.7113	16.7113	3.2000e-004	3.1000e-004	16.8106
<b>Total</b>		<b>3.9300e-003</b>	<b>0.0345</b>	<b>0.0210</b>	<b>2.1000e-004</b>		<b>2.7100e-003</b>	<b>2.7100e-003</b>		<b>2.7100e-003</b>	<b>2.7100e-003</b>	<b>0.0000</b>	<b>38.8409</b>	<b>38.8409</b>	<b>7.4000e-004</b>	<b>7.2000e-004</b>	<b>39.0718</b>

### Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	414694	2.2400e-003	0.0191	8.1300e-003	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	22.1296	22.1296	4.2000e-004	4.1000e-004	22.2611
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	313158	1.6900e-003	0.0154	0.0129	9.0000e-005		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	16.7113	16.7113	3.2000e-004	3.1000e-004	16.8106
<b>Total</b>		<b>3.9300e-003</b>	<b>0.0345</b>	<b>0.0210</b>	<b>2.1000e-004</b>		<b>2.7100e-003</b>	<b>2.7100e-003</b>		<b>2.7100e-003</b>	<b>2.7100e-003</b>	<b>0.0000</b>	<b>38.8409</b>	<b>38.8409</b>	<b>7.4000e-004</b>	<b>7.2000e-004</b>	<b>39.0718</b>

### 5.3 Energy by Land Use - Electricity

#### Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	198161	26.0664	2.6100e-003	5.4000e-004	26.2923
Enclosed Parking with Elevator	213345	28.0638	2.8100e-003	5.8000e-004	28.3070
General Office Building	341088	44.8673	4.4900e-003	9.3000e-004	45.2561
<b>Total</b>		<b>98.9975</b>	<b>9.9100e-003</b>	<b>2.0500e-003</b>	<b>99.8554</b>

#### Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	198161	26.0664	2.6100e-003	5.4000e-004	26.2923
Enclosed Parking with Elevator	213345	28.0638	2.8100e-003	5.8000e-004	28.3070
General Office Building	341088	44.8673	4.4900e-003	9.3000e-004	45.2561
<b>Total</b>		<b>98.9975</b>	<b>9.9100e-003</b>	<b>2.0500e-003</b>	<b>99.8554</b>

## 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	0.5319	6.6800e-003	0.5105	3.2000e-004		0.0238	0.0238		0.0238	0.0238	2.1883	1.4826	3.6709	4.0900e-003	1.4000e-004	3.8158
Unmitigated	0.5319	6.6800e-003	0.5105	3.2000e-004		0.0238	0.0238		0.0238	0.0238	2.1883	1.4826	3.6709	4.0900e-003	1.4000e-004	3.8158

### 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	0.0600					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3503					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1108	2.5500e-003	0.1525	3.0000e-004		0.0218	0.0218		0.0218	0.0218	2.1883	0.8988	3.0872	3.5200e-003	1.4000e-004	3.2178
Landscaping	0.0109	4.1300e-003	0.3580	2.0000e-005		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	0.5837	0.5837	5.7000e-004	0.0000	0.5979
<b>Total</b>	<b>0.5319</b>	<b>6.6800e-003</b>	<b>0.5105</b>	<b>3.2000e-004</b>		<b>0.0238</b>	<b>0.0238</b>		<b>0.0238</b>	<b>0.0238</b>	<b>2.1883</b>	<b>1.4826</b>	<b>3.6709</b>	<b>4.0900e-003</b>	<b>1.4000e-004</b>	<b>3.8158</b>

**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	0.0600						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3503						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1108	2.5500e-003	0.1525	3.0000e-004			0.0218	0.0218		0.0218	0.0218	2.1883	0.8988	3.0872	3.5200e-003	1.4000e-004	3.2178
Landscaping	0.0109	4.1300e-003	0.3580	2.0000e-005			1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	0.5837	0.5837	5.7000e-004	0.0000	0.5979
<b>Total</b>	<b>0.5319</b>	<b>6.6800e-003</b>	<b>0.5105</b>	<b>3.2000e-004</b>			<b>0.0238</b>	<b>0.0238</b>		<b>0.0238</b>	<b>0.0238</b>	<b>2.1883</b>	<b>1.4826</b>	<b>3.6709</b>	<b>4.0900e-003</b>	<b>1.4000e-004</b>	<b>3.8158</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.5841	0.2134	5.1600e-003	15.4545
Unmitigated	8.5841	0.2134	5.1600e-003	15.4545

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	4.1259	0.1022	2.4700e-003	7.4178
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	3.40005 / 2.0839	4.4582	0.1111	2.6900e-003	8.0368
<b>Total</b>		<b>8.5841</b>	<b>0.2134</b>	<b>5.1600e-003</b>	<b>15.4545</b>

### Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	4.1259	0.1022	2.4700e-003	7.4178
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	3.40005 / 2.0839	4.4582	0.1111	2.6900e-003	8.0368
<b>Total</b>		<b>8.5841</b>	<b>0.2134</b>	<b>5.1600e-003</b>	<b>15.4545</b>

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	8.0933	0.4783	0.0000	20.0507
Unmitigated	8.0933	0.4783	0.0000	20.0507

### 8.2 Waste by Land Use

#### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	17.79	3.6112	0.2134	0.0000	8.9466
<b>Total</b>		<b>8.0933</b>	<b>0.4783</b>	<b>0.0000</b>	<b>20.0507</b>



## Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	17.79	3.6112	0.2134	0.0000	8.9466
<b>Total</b>		<b>8.0933</b>	<b>0.4783</b>	<b>0.0000</b>	<b>20.0507</b>

## 9.0 Operational Offroad

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

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### Fire Pumps and Emergency Generators

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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### User Defined Equipment

Equipment Type	Number
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## 11.0 Vegetation

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