ALMADEN CORNER HOTEL CONSTRUCTION TOXIC AIR CONTAINMENT ASSESSMENT

San José, CA

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Introduction

The purpose of this report is to address air quality community risk impacts associated with the Almaden Corner Hotel project at located at 270 West Santa Clara Street in San José, California. The project proposes to construct a 19-story, 330-room hotel with a basement level on the 0.20 gross acre site. Project impacts related to increased community risk can occur by project construction affecting nearby sensitive receptors. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1] The BAAQMD recommends using a 1,000-foot screening radius around a project site for purposes of identifying community health risk from siting a new source of toxic air contaminants (TACs).

Setting

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

Toxic Air Contaminants

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

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

Regulatory Agencies

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles.[2] The regulation requires affected vehicles to meet specific performance

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

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.[3] The detailed community risk modeling methodology used in this assessment is contained in *Attachment 1*.

San José Envision 2040 General Plan

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

Applicable Goals – Toxic Air Contaminants

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

Applicable Policies – Toxic Air Contaminants

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

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

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.

Downtown Strategy 2040 Plan

The San José Downtown Strategy (DTS) 2040 Plan is an urban design plan that guides development activities planned within the Downtown area. This strategy would increase the amount of new commercial office by an additional three million -sf (approximately 10,000 jobs

[3] Bay Area Air Quality Management District. 2017. *BAAQMD CEQA Air Quality Guidelines*. May.

with the new total being 14.2 million -sf of commercial by the year 2040. The residential capacity would be increased up to 4,360 units. The amount of new retail development (1.4 million sq. ft.) and hotel room (3,600 rooms) capacities of the Downtown Strategy 2000 would be maintained. The integrated Final Environmental Impact Report was published December 2018.

The DTS identified less-than-significant construction period emissions if development projects are in conformance with 2017 BAAQMD CEQA Guidelines, GP Policy MS-13.1, and current City requirements that include various levels of construction emissions control measures. All projects are required to implement the following control measures:

City requirements, all projects will be required to implement the following control measures:

- 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 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). 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 visible emissions evaluator.
- 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.

Future projects developed under the DTS that incorporate these measures and are below the screening levels would not result in a significant impact related to construction emissions of regional criteria pollutants. Projects that exceed the screening levels would be required to complete additional project level analysis of construction-related emissions of criteria pollutants and may require additional measures to ensure that construction emissions would not exceed the threshold for average daily emissions.

Operational emissions of regional criteria air pollutants with measures included to reduce emissions under the DTS were identified as significant and unavoidable. To reduce operational emissions associated with vehicle travel, future development will be required to implement a transportation demand management (TDM) program, consistent with the Downtown

Transportation Plan. The TDM programs may incorporate, but would not be limited to, the following Transportation Control Measures (TCMs):

- Rideshare Measures:
  - Implement carpool/vanpool program (e.g., carpool ride matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.)
  - Transit Measures:
  - Construct transit facilities such as bus turnouts/bus bulbs, benches, shelters, etc.
  - Design and locate buildings to facilitate transit access (e.g., locate building entrances near transit stops, eliminate building setbacks, etc.)
- Services Measures:
  - Provide on-site shops and services for employees, such as cafeteria, bank/ATM, dry cleaners, convenience market, etc.;
  - Provide on-site child care or contribute to off-site childcare within walking distance.
- Shuttle Measures:
  - Establish mid-day shuttle service from work site to food service establishments/commercial areas;
  - Provide shuttle service to transit stations/multimodal centers
- Parking Measures:
  - Provide preferential parking (e.g., near building entrance, sheltered area, etc.) for carpool and vanpool vehicles;
  - Implement parking fees for single occupancy vehicle commuters;
  - Implement parking cash-out program for employees (i.e., non-driving employees receive transportation allowance equivalent to value of subsidized parking);
- Bicycle and Pedestrian Measures:
  - Provide secure, weather-protected bicycle parking for employees;
  - Provide safe, direct access for bicyclists to adjacent bicycle routes;
  - Provide showers and lockers for employees bicycling or walking to work;
  - Provide secure short-term bicycle parking for retail customers or non-commute trips;
  - Provide direct, safe, attractive pedestrian access from Planning Area to transit stops and
  - adjacent development;
- Other Measures:
  - Implement compressed work week schedule (e.g., 4 days/40 hours, 9 days/80 hours);
  - Implement home-based telecommuting program.

During project-level supplemental review of future individual development projects, the measures will be evaluated for consistency with the Downtown Strategy 2040 and General Plan policies. All feasible and applicable measures will be required as part of project design or as conditions of approval.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. The closest sensitive receptors to the project site are residences north of the northern site boundary. There are additional residences north, east, and southeast of the project site at farther distances.

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

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

Community Risk Assessment

Project Construction Activity

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust are known as a TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects of sensitive receptors at these nearby residences from construction emissions of DPM and $PM_{2.5}$.[4] The closest sensitive receptors to the project site are condominium residences north of the northern site boundary. There are additional residences north, east, and southeast of the project site at farther distances. 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 activity is anticipated to include site preparation, grading, trenching, building construction, and paving. Construction period emissions were modeled using the California Emissions Estimator Model, Version 2016.3.2 (CalEEMod). A build-out construction schedule, including equipment usage assumptions, was based on CalEEMod defaults for a project of this type and size. The proposed project land uses were input into CalEEMod, which included 330 rooms entered as "Hotel" on a 0.20-acre site. In addition, an estimation of 4,200 cubic yards (cy) of excavation was given by the applicant and entered into the model. Construction activity, in terms of schedule, equipment usage and truck traffic generation was based on the model default settings.

The earliest possible construction start date of January 2019 was used. The CalEEMod default provided schedule estimated 390 workdays over 18 months. *Attachment 2* includes the CalEEMod output values for construction emissions, information for schedule, equipment usage, and truck hauling.[5]

Construction Emissions

The CalEEMod model provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.1998 tons (400 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.0634 tons (127 pounds) for the overall construction period.

[4] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

[5] Note that construction health risk modeling was done in September 2018 with the assumption that construction would begin January 2019. Even though that start date has passed, emissions and calculated health risks would still remain the same or slightly less since (1) the health risk assessment is not dependent on the start time; it is dependent on the length of construction and (2) the project has decreased in size since this analysis was done.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[6] The modeling utilized two area sources to represent the on-site construction emissions, one for exhaust emissions and one for fugitive dust emissions. To represent the construction equipment exhaust emissions, an emission release height of 6 meters (19.7 feet) was used for the area source. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 2 meters (6.6 feet) was used for the area source. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources. Construction emissions were modeled as occurring daily between 7 a.m. to 4 p.m., when the majority of construction activity would occur.

The modeling used a five-year data set (2006-2010) of hourly meteorological data from the San José Airport meteorological site that was prepared for use with the AERMOD model by BAAQMD. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2019-2020 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 1.5 meters (5 feet), 4.5 meters (15 feet), 6.1 meters (20 feet) and 7.6 meters (25 feet) were used to represent the breathing heights of residents in nearby condominium complexes, mixed used commercial/residential buildings and apartment buildings on the first, second and third floor levels, respectively. *Attachment 3* includes the construction emission calculations and source information used in the modeling and the cancer risk calculations.

Predicted Cancer Risk and Hazards

Figure 1 shows the locations where the maximum-modeled DPM and $PM_{2.5}$ concentrations occurred. The maximum concentrations occurred on the southeast corner of the third-floor level (7.6 meters) of the condominium complex to the north of the project site. 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. Table 2 reports the predicted increases to cancer risk, annual $PM_{2.5}$ concentrations, and HI caused by construction of the project.

Results of this assessment indicate that the maximum increased residential cancer risks without any mitigation or construction emissions control would be 153.6 in one million for an infant

[6] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

exposure and 2.7 in one million for an adult exposure. The maximum residential excess cancer risk would be above the significance threshold of 10.0 in one million.

Predicted Annual $PM_{2.5}$ Concentration

The maximum-modeled annual $PM_{2.5}$ concentration, which is based on combined exhaust and fugitive dust emissions, would be 0.90 $\mu g/m^3$. This maximum annual $PM_{2.5}$ concentration would exceed the BAAQMD significance threshold of greater than 0.3 $\mu g/m^3$. The location of the receptor with the maximum $PM_{2.5}$ concentration is shown in Figure 1.

Non-Cancer Hazards

The maximum modeled annual residential DPM concentration (i.e., from construction exhaust) would be 0.7322 $\mu g/m^3$. The maximum computed Hazard Index (HI) based on this DPM concentration would be 0.15, which does not exceed the BAAQMD significance criterion of a HI greater than 1.0.

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

Operational Community Risk Impacts

Operational Emergency Generator & Fire Pump Modeling

The project would include installation of one 400-kilowatt (kW) emergency back-up diesel generator (approximately 600 horsepower) to provide emergency backup power. The generator would be operated for testing and maintenance purposes, with a maximum of 50 hours per year of non-emergency operation under normal conditions. During testing periods, the engine would typically be run for less than one hour under light engine loads. The generator engine would be required to meet U.S. EPA emission standards and consume commercially available California low sulfur diesel fuel. The emissions from the operation of the generator were calculated based on CalEEMod emissions data and assuming 50 hours per year operation. Additionally, the project would install one fire pump with an estimated 200 horsepower engine, which is typically the largest diesel engines CARB identified for fire suppression systems.[7] CalEEMod was also used to estimate emissions and it was assumed that the fire pump would also be operating for 50 hours per year for testing and maintenance purposes.

To estimate potential cancer risks and $PM_{2.5}$ impacts from operation of the generator and fire pump, the AERMOD dispersion model was used to calculate the maximum annual DPM concentration at off-site sensitive receptor locations, as shown on Figure 2. The generator would be located in the basement on the western end of the project site. The fire pump would be located in the basement on the northern end of the project. The locations of the proposed the emergency generator discharge and fire pump are shown in Figure 2. The modeling was conducted using a five-year data set (2006-2010) of hourly meteorological data from the San José Airport meteorological site prepared for use with the AERMOD model by BAAQMD. Building downwash effects of the proposed building on the diesel engines exhaust plumes was included in the modeling. Stack parameters for modeling (stack diameter, exhaust flow rate and exhaust gas temperature) were based on BAAQMD default parameters for emergency generators. A stack release height of ten feet above ground level was used for both the emergency generator and fire pump based on project information. Annual average DPM and $PM_{2.5}$ concentrations were modeled assuming that the generator and fire pump testing could occur at any time between the hours of 7:00 am and 7:00 pm, consistent with the City code requirements (Code Section 20.80.2030) and the generator is operated for 50 hours per year.

The maximum modeled DPM and $PM_{2.5}$ concentrations for off-site receptors occurred at the third-floor level of the mixed-use building just north of the proposed generator and fire pump. This is the same location where maximum impacts from construction occurred (construction MEI location). The maximum annual DPM and $PM_{2.5}$ concentration was 0.00686 $\mu g/m^3$. Based on the maximum DPM concentration, the maximum residential cancer risk would be 5.1 in one million. The maximum HI at this location would be less than 0.001. The location where the maximum off-site cancer risk and $PM_{2.5}$ impacts occurred are shown on Figure 2. The impacts at the location of the MEI are listed in Table 2. The emissions and health risk calculations are provided in *Attachment 3*.

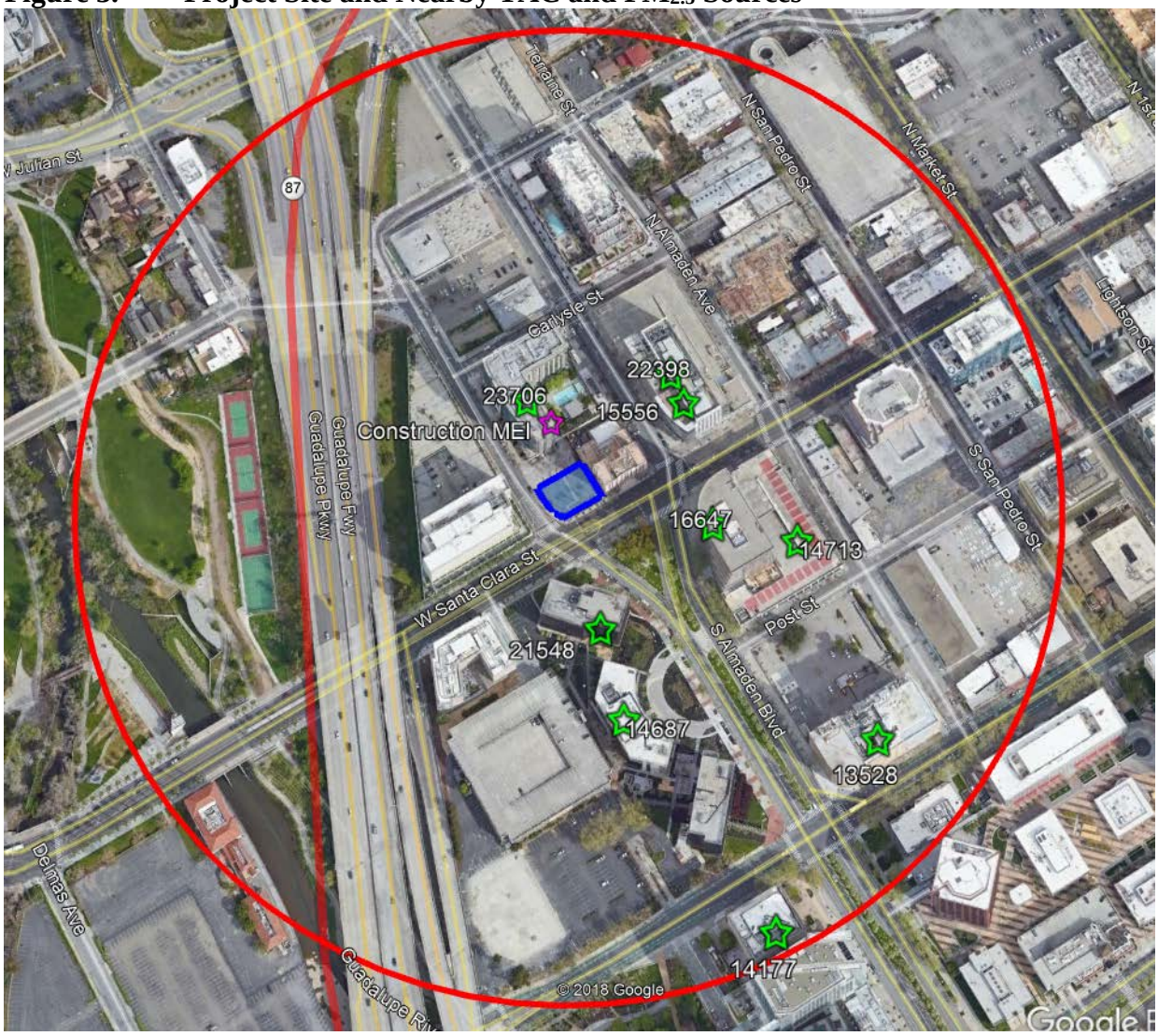
[7] CARB. 2003. *Staff Report: Initial Statement of Reasons for Proposed Rule Making. Airborne Toxic Control Measure for Stationary Compression Ignition Engines.* September.

Figure 2. Project Site, Locations of Emergency Generator and Fire Pump Stacks, Off-Site Sensitive Receptors and Location of Maximum TAC Impacts

Cumulative Impact on Construction MEI

Cumulative community risk impacts were addressed through evaluation of TAC sources located within 1,000 feet of the construction MEI. These sources include freeways or highways, busy surface streets, and stationary sources identified by BAAQMD. A review of the project area indicates that traffic on State Route 87 (S.R. 87) and W. Santa Clara St would exceed 10,000 vehicles per day. Other nearby streets are assumed to have less than 10,000 vehicles per day. A review of BAAQMD's stationary source Google Earth map tool identified nine stationary sources with the potential to affect the construction MEI. Figure 3 shows the sources affecting the project site and construction MEI. Community risk impacts from these sources upon the construction MEI are reported in Table 2. Details of the modeling and community risk calculations are included in *Attachment 4.*

Figure 3. Project Site and Nearby TAC and $PM_{2.5}$ Sources



Highways – S.R. 87

BAAQMD provides a *Highway Screening Analysis* Google Earth Map tool to identify estimated risk and hazard impacts from highways throughout the Bay Area. Cumulative risk, hazard, and $PM_{2.5}$ impacts at various distances from the highway are estimated for different segments of the highways. The tool uses the average annual daily traffic (AADT) count, fleet mix and other modeling parameters specific to that segment of the highway. Impacts from Link 535 (20ft elevation) for S.R. 87, in which the construction MEI was 400 feet east of roadway, were identified.

The cancer risk identified using the BAAQMD tool was adjusted using a factor of 1.3744 to account for new Office of Environmental Health Hazard Assessment (OEHHA) guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.[8] Estimated cancer risk, $PM_{2.5}$ concentrations, and the non-cancerous hazard index from the highway are in Table 2.

[8] Correspondence with Alison Kirk, BAAQMD, November 23, 2015.

Local Roadways – W. Santa Clara Street

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

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

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.

The average daily traffic (ADT) on W. Santa Clara Street near the project site was estimated to be approximately 22,870 vehicles. This estimate was based on the peak-hour traffic volumes included in the project's traffic analysis for background plus project conditions.[9] The AM and PM peak-hour volumes were averaged and then multiplied by 10 to estimate the ADT. Using the BAAQMD *Roadway Screening Analysis Calculator* for Santa Clara County for an east-west directional roadway and at a distance of approximately 200 north of the roadway, risk values were estimated. Results are listed in Table 2. Note that BAAQMD has found that non-cancer hazards from all local roadways would be well below the BAAQMD thresholds. Chronic or acute HI for the roadway would be below 0.03.

Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth and identified the location of four stationary sources and their estimated risk and hazard impacts. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. They provided updated risk levels, emissions and adjustments to account for new OEHHA guidance[10]. 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 #16674, #15556, #14177, #13528, #14687, #14713, #23706, #22398, and #21548, which are emergency diesel generators, were evaluated using emissions data provided by BAAQMD and adjusted for distance based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel*

[9] Hexagon Transportation Consultants, Inc., "270 W. Santa Clara Hotel", July 2018.
[10] Correspondence with Areana Flores, BAAQMD, July 19, 2018.

Internal Combustion Engines. Concentration levels and community risk impacts from these sources upon the project are reported in Table 2.

Summary of Cumulative Impacts

Table 2 reports both the project and cumulative community risk impacts. The project would have a *significant* impact with respect to community risk caused by project construction activities, since the maximum cancer risk exceeds the single-source thresholds of 10.0 per million and the unmitigated $PM_{2.5}$ concentration exceeds the single-source threshold of greater than 0.3 $\mu g/m^3$. Additionally, the combined unmitigated cancer risk and $PM_{2.5}$ also exceed their respective cumulative-source thresholds. However, with *Condition of Approval (COA) AQ-1* the project would reduce all these impacts to a level of *less-than-significant*. Additionally, the combined project risk impact (i.e. lifetime risk from project construction and operation) would not exceed the single-source threshold of greater than 10 per million with implementation of *COA AQ-1*.

Table 2. Impacts from Combined Sources at MEI

Source	Maximum Cancer Risk (per million)	$PM_{2.5}$ concentration ($\mu g/m^3$)	Hazard Index
Project Construction Unmitigated Mitigated	**153.6** (infant) 6.7 (infant)	**0.90** 0.08	0.15 0.01
Project Emergency Diesel Generator (400 kW) and Fire Pump (200 HP)	2.8	0.01	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Significant? Unmitigated Mitigated	 ***Yes*** *No*	 ***Yes*** *No*	 *No* *No*
S.R. 87 - Link 535 (20ft elevation) at 400 feet	8.2	0.08	<0.01
W. Santa Clara Street at 200 feet, 22,870 ADT	3.6	0.10	<0.03
Plant #16674 (Diesel Generator) at 400 feet	6.1	<0.01	0.01
Plant #15556 (Diesel Generator) at 280 feet	<0.1	<0.01	<0.01
Plant #14177 (Diesel Generator) at 1000 feet	0.7	<0.01	<0.01
Plant #13528 (Diesel Generator) at 850 feet	12.7	0.01	0.02
Plant #14687 (Diesel Generator) at 500 feet	0.7	<0.01	<0.01
Plant #14713 (Diesel Generator) at 570 feet	1.4	<0.01	<0.01
Plant #23706 (Diesel Generator) at 60 feet	0.8	<0.01	<0.01
Plant #22398 (Diesel Generator) at 270 feet	3.5	<0.01	<0.01
Plant #21548 (Diesel Generator) at 340 feet	12.7	<0.01	0.02
Combined Sources *Unmitigated* *Mitigated*	**204.6** 60.0	**1.18** 0.36	0.31 0.17
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Significant? Unmitigated Mitigated	 ***Yes*** *No*	 ***Yes*** *No*	 *No* *No*

Condition of Approval AQ-1: **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 96-percent fleet-wide average 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. U.S. EPA particulate matter emissions standards for Tier 4 engines. An alternative option would be equipment that meets Tier 3 engines that includes CARB-certified Level 3 Diesel Particulate Filters[11] or equivalent. 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.

- Large cranes shall be powered by electricity.

- Generator and welders using diesel fuel usage shall be limited to 200 hours.

Effectiveness of Mitigation

Project construction activities were analyzed in CalEEMod with the assumptions described above in the feasible plans, which included Tier 4 interim equipment usage, electrical cranes, and reduced hours for specific pieces of equipment. With COA AQ-1, the computed maximum increased lifetime residential cancer risk from construction, assuming infant exposure, would be 6.7 in one million or less, the maximum annual $PM_{2.5}$ concentration would be 0.08 $\mu g/m^3$, and the Hazard Index would be 0.01. The combined project increased lifetime residential cancer risk from construction and operation would be 9.5 per million. All these risk values would be below their respective significance thresholds as stated in Table 2. As a result, impacts would be reduced to *less-than- significant* with respect to community risk caused by construction activities.

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

Supporting Documentation

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

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

Attachment 3 is the construction health risk assessment and project emergency diesel generator/fire pump 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 construction MEI.

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.[12] 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.[13] 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.[14] 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, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th 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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[12] 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.

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

[14] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. January 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:

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

Where:

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

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

Where:

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

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

Parameter	*Exposure Type* →	Infant		Child		Adult
	Age Range →	3rd Trimester	0<2	2 < 9	2 < 16	16 - 30
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day)*		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

* 95th percentile breathing rates for 3rd trimester and infants and 80th 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 ($\mu g/m^3$).

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: CalEEMod Modeling Output

Rev. 18-087 Almaden Corner Hotel TAC

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	330.00	Room	0.20	479,160.00	0

1.2 Other Project Characteristics

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 rate of 290

Land Use - Default square footage on 0.2 acre site

Construction Phase - Added Trenching, Default construction schedule

Off-road Equipment -

Off-road Equipment - Generator and welders limited hours

Off-road Equipment - Longer default equipment

Off-road Equipment - Longer default equipment

Off-road Equipment - Longer default equipment

Off-road Equipment - Longer default equipment

Off-road Equipment - Longer default equipment

Trips and VMT - TAC Trip Length 1 mile

Demolition -

Grading - 4200 cy from correspondance

Water And Wastewater - 100% aerobic

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim no DPF, eletrical crane

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	PhaseEndDate	1/1/2019	1/14/2019
tblConstructionPhase	PhaseEndDate	1/3/2019	2/25/2019
tblConstructionPhase	PhaseEndDate	5/23/2019	4/20/2020
tblConstructionPhase	PhaseEndDate	5/30/2019	5/18/2020
tblConstructionPhase	PhaseEndDate	6/6/2019	6/15/2020
tblConstructionPhase	PhaseStartDate	1/2/2019	1/15/2019
tblConstructionPhase	PhaseStartDate	1/4/2019	2/26/2019
tblConstructionPhase	PhaseStartDate	5/24/2019	4/21/2020
tblConstructionPhase	PhaseStartDate	5/31/2019	5/19/2020
tblGrading	MaterialExported	0.00	4,200.00
tblLandUse	LotAcreage	11.00	0.20
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tblOffRoadEquipment	LoadFactor	0.36	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Graders

tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
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tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00

tblTripsAndVMT	VendorTripLength	7.30	1.00
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tblTripsAndVMT	WorkerTripLength	10.80	1.00
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tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3144	3.4502	2.3193	4.2300e-003	0.1555	0.1564	0.3119	0.0609	0.1443	0.2052	0.0000	383.5615	383.5615	0.0986	0.0000	386.0264
2020	2.5879	0.9538	0.7548	1.3400e-003	9.1900e-003	0.0434	0.0526	2.5300e-003	0.0401	0.0427	0.0000	119.9814	119.9814	0.0297	0.0000	120.7233
Maximum	**2.5879**	**3.4502**	**2.3193**	**4.2300e-003**	**0.1555**	**0.1564**	**0.3119**	**0.0609**	**0.1443**	**0.2052**	**0.0000**	**383.5615**	**383.5615**	**0.0986**	**0.0000**	**386.0264**

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	0.1006	1.6948	2.1868	4.2300e-003	0.0838	6.7400e-003	0.0905	0.0191	6.6600e-003	0.0257	0.0000	333.4584	333.4584	0.0827	0.0000	335.5270
2020	2.5298	0.5639	0.7128	1.3400e-003	9.1900e-003	1.9300e-003	0.0111	2.5300e-003	1.9100e-003	4.4400e-003	0.0000	102.4607	102.4607	0.0240	0.0000	103.0609
Maximum	**2.5298**	**1.6948**	**2.1868**	**4.2300e-003**	**0.0838**	**6.7400e-003**	**0.0905**	**0.0191**	**6.6600e-003**	**0.0257**	**0.0000**	**333.4584**	**333.4584**	**0.0827**	**0.0000**	**335.5270**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**9.37**	**48.71**	**5.67**	**0.00**	**43.54**	**95.66**	**72.11**	**65.96**	**95.35**	**87.83**	**0.00**	**13.43**	**13.43**	**16.77**	**0.00**	**13.45**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2019**	**3-31-2019**	1.3946	0.5672
2	**4-1-2019**	**6-30-2019**	0.7848	0.4076
3	**7-1-2019**	**9-30-2019**	0.7935	0.4120
4	**10-1-2019**	**12-31-2019**	0.7896	0.4081
5	**1-1-2020**	**3-31-2020**	0.7131	0.3927
6	**4-1-2020**	**6-30-2020**	2.8306	2.7015
		Highest	2.8306	2.7015

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	2.1215	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.9000e-003	5.9000e-003	2.0000e-005	0.0000	6.2900e-003

Energy	0.1145	1.0408	0.8742	6.2400e-003		0.0791	0.0791		0.0791	0.0791	0.0000	1,613.2832	1,613.2832	0.0697	0.0307	1,624.1780
Mobile	0.6095	2.4403	6.5823	0.0208	1.8315	0.0182	1.8497	0.4903	0.0170	0.5073	0.0000	1,901.2452	1,901.2452	0.0693	0.0000	1,902.9783
Waste						0.0000	0.0000		0.0000	0.0000	36.6744	0.0000	36.6744	2.1674	0.0000	90.8592
Water						0.0000	0.0000		0.0000	0.0000	2.9617	6.3865	9.3482	0.0108	6.5700e-003	11.5777
Total	**2.8455**	**3.4810**	**7.4596**	**0.0270**	**1.8315**	**0.0973**	**1.9289**	**0.4903**	**0.0962**	**0.5864**	**39.6361**	**3,520.9208**	**3,560.5568**	**2.3173**	**0.0373**	**3,629.5995**

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	2.1215	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.9000e-003	5.9000e-003	2.0000e-005	0.0000	6.2900e-003
Energy	0.1145	1.0408	0.8742	6.2400e-003		0.0791	0.0791		0.0791	0.0791	0.0000	1,613.2832	1,613.2832	0.0697	0.0307	1,624.1780
Mobile	0.6095	2.4403	6.5823	0.0208	1.8315	0.0182	1.8497	0.4903	0.0170	0.5073	0.0000	1,901.2452	1,901.2452	0.0693	0.0000	1,902.9783
Waste						0.0000	0.0000		0.0000	0.0000	36.6744	0.0000	36.6744	2.1674	0.0000	90.8592
Water						0.0000	0.0000		0.0000	0.0000	2.9617	6.3865	9.3482	0.0108	6.5700e-003	11.5777
Total	**2.8455**	**3.4810**	**7.4596**	**0.0270**	**1.8315**	**0.0973**	**1.9289**	**0.4903**	**0.0962**	**0.5864**	**39.6361**	**3,520.9208**	**3,560.5568**	**2.3173**	**0.0373**	**3,629.5995**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/14/2019	5	10	
2	Grading	Grading	1/15/2019	2/25/2019	5	30	
3	Trenching/Foundation	Trenching	1/15/2019	1/28/2019	5	10	
4	Building Construction	Building Construction	2/26/2019	4/20/2020	5	300	
5	Paving	Paving	4/21/2020	5/18/2020	5	20	
6	Architectural Coating	Architectural Coating	5/19/2020	6/15/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 718,740; Non-Residential Outdoor: 239,580; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Site Preparation	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Rubber Tired Loaders	3	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Graders	1	8.00	187	0.41
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Scrapers	2	8.00	367	0.48
Paving	Pavers	2	8.00	130	0.42

Trenching/Foundation	Excavators	1	8.00	158	0.38
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Trenching/Foundation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Generator Sets	1	1.00	84	0.74
Building Construction	Welders	1	1.00	46	0.45
Paving	Paving Equipment	2	8.00	132	0.36

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
Site Preparation	7	18.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	525.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Trenching/Foundation	2	5.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	201.00	79.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	40.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1446	0.0801	1.9000e-004		6.4000e-003	6.4000e-003		5.8900e-003	5.8900e-003	0.0000	16.9641	16.9641	5.3700e-003	0.0000	17.0983
Total	**0.0127**	**0.1446**	**0.0801**	**1.9000e-004**	**0.0000**	**6.4000e-003**	**6.4000e-003**	**0.0000**	**5.8900e-003**	**5.8900e-003**	**0.0000**	**16.9641**	**16.9641**	**5.3700e-003**	**0.0000**	**17.0983**

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	1.1000e-004	5.0000e-005	6.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0755	0.0755	0.0000	0.0000	0.0756
Total	**1.1000e-004**	**5.0000e-005**	**6.6000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0755**	**0.0755**	**0.0000**	**0.0000**	**0.0756**

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	3.4800e-003	0.0608	0.1148	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.9641	16.9641	5.3700e-003	0.0000	17.0982
Total	**3.4800e-003**	**0.0608**	**0.1148**	**1.9000e-004**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**16.9641**	**16.9641**	**5.3700e-003**	**0.0000**	**17.0982**

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	1.1000e-004	5.0000e-005	6.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0755	0.0755	0.0000	0.0000	0.0756
Total	**1.1000e-004**	**5.0000e-005**	**6.6000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0755**	**0.0755**	**0.0000**	**0.0000**	**0.0756**

3.3 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					0.1303	0.0000	0.1303	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0711	0.8178	0.5007	9.3000e-004		0.0357	0.0357		0.0329	0.0329	0.0000	83.5520	83.5520	0.0264	0.0000	84.2129
Total	**0.0711**	**0.8178**	**0.5007**	**9.3000e-004**	**0.1303**	**0.0357**	**0.1661**	**0.0540**	**0.0329**	**0.0869**	**0.0000**	**83.5520**	**83.5520**	**0.0264**	**0.0000**	**84.2129**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.4000e-004	0.0281	4.6900e-003	4.0000e-005	2.3000e-004	4.0000e-005	2.6000e-004	6.0000e-005	3.0000e-005	1.0000e-004	0.0000	3.4008	3.4008	4.0000e-004	0.0000	3.4107
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	1.7000e-004	2.2200e-003	0.0000	2.2000e-004	0.0000	2.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2517	0.2517	1.0000e-005	0.0000	0.2520
Total	**1.0100e-003**	**0.0283**	**6.9100e-003**	**4.0000e-005**	**4.5000e-004**	**4.0000e-005**	**4.9000e-004**	**1.2000e-004**	**3.0000e-005**	**1.6000e-004**	**0.0000**	**3.6524**	**3.6524**	**4.1000e-004**	**0.0000**	**3.6626**

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					0.0587	0.0000	0.0587	0.0122	0.0000	0.0122	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.2891	0.5508	9.3000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	83.5519	83.5519	0.0264	0.0000	84.2128
Total	**0.0152**	**0.2891**	**0.5508**	**9.3000e-004**	**0.0587**	**1.5200e-003**	**0.0602**	**0.0122**	**1.5200e-003**	**0.0137**	**0.0000**	**83.5519**	**83.5519**	**0.0264**	**0.0000**	**84.2128**

Mitigated Construction Off-Site

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

Hauling	6.4000e-004	0.0281	4.6900e-003	4.0000e-005	2.3000e-004	4.0000e-005	2.6000e-004	6.0000e-005	3.0000e-005	1.0000e-004	0.0000	3.4008	3.4008	4.0000e-004	0.0000	3.4107
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	1.7000e-004	2.2200e-003	0.0000	2.2000e-004	0.0000	2.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2517	0.2517	1.0000e-005	0.0000	0.2520
Total	**1.0100e-003**	**0.0283**	**6.9100e-003**	**4.0000e-005**	**4.5000e-004**	**4.0000e-005**	**4.9000e-004**	**1.2000e-004**	**3.0000e-005**	**1.6000e-004**	**0.0000**	**3.6524**	**3.6524**	**4.1000e-004**	**0.0000**	**3.6626**

3.4 Trenching/Foundation - 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	2.4700e-003	0.0251	0.0278	4.0000e-005		1.4300e-003	1.4300e-003		1.3100e-003	1.3100e-003	0.0000	3.7134	3.7134	1.1700e-003	0.0000	3.7428
Total	**2.4700e-003**	**0.0251**	**0.0278**	**4.0000e-005**		**1.4300e-003**	**1.4300e-003**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**3.7134**	**3.7134**	**1.1700e-003**	**0.0000**	**3.7428**

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	3.0000e-005	1.0000e-005	1.8000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0210	0.0210	0.0000	0.0000	0.0210
Total	**3.0000e-005**	**1.0000e-005**	**1.8000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0210**	**0.0210**	**0.0000**	**0.0000**	**0.0210**

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	6.7000e-004	0.0182	0.0313	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.7134	3.7134	1.1700e-003	0.0000	3.7428
Total	**6.7000e-004**	**0.0182**	**0.0313**	**4.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**3.7134**	**3.7134**	**1.1700e-003**	**0.0000**	**3.7428**

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	3.0000e-005	1.0000e-005	1.8000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0210	0.0210	0.0000	0.0000	0.0210
Total	**3.0000e-005**	**1.0000e-005**	**1.8000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0210**	**0.0210**	**0.0000**	**0.0000**	**0.0210**

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	0.1807	1.8069	1.3619	2.0900e-003		0.1111	0.1111		0.1025	0.1025	0.0000	186.9431	186.9431	0.0568	0.0000	188.3626
Total	**0.1807**	**1.8069**	**1.3619**	**2.0900e-003**		**0.1111**	**0.1111**		**0.1025**	**0.1025**	**0.0000**	**186.9431**	**186.9431**	**0.0568**	**0.0000**	**188.3626**

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	0.0190	0.6146	0.1770	7.3000e-004	8.0600e-003	1.5000e-003	9.5700e-003	2.3500e-003	1.4400e-003	3.7900e-003	0.0000	70.0094	70.0094	7.5200e-003	0.0000	70.1975
Worker	0.0272	0.0129	0.1641	2.1000e-004	0.0165	2.3000e-004	0.0167	4.4200e-003	2.1000e-004	4.6300e-003	0.0000	18.6308	18.6308	9.0000e-004	0.0000	18.6532
Total	**0.0463**	**0.6275**	**0.3410**	**9.4000e-004**	**0.0246**	**1.7300e-003**	**0.0263**	**6.7700e-003**	**1.6500e-003**	**8.4200e-003**	**0.0000**	**88.6402**	**88.6402**	**8.4200e-003**	**0.0000**	**88.8507**

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	0.0339	0.6710	1.1411	2.0900e-003		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	136.8401	136.8401	0.0409	0.0000	137.8633

Total	**0.0339**	**0.6710**	**1.1411**	**2.0900e-003**		**3.0700e-003**	**3.0700e-003**		**3.0700e-003**	**3.0700e-003**	**0.0000**	**136.8401**	**136.8401**	**0.0409**	**0.0000**	**137.8633**

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	0.0190	0.6146	0.1770	7.3000e-004	8.0600e-003	1.5000e-003	9.5700e-003	2.3500e-003	1.4400e-003	3.7900e-003	0.0000	70.0094	70.0094	7.5200e-003	0.0000	70.1975
Worker	0.0272	0.0129	0.1641	2.1000e-004	0.0165	2.3000e-004	0.0167	4.4200e-003	2.1000e-004	4.6300e-003	0.0000	18.6308	18.6308	9.0000e-004	0.0000	18.6532
Total	**0.0463**	**0.6275**	**0.3410**	**9.4000e-004**	**0.0246**	**1.7300e-003**	**0.0263**	**6.7700e-003**	**1.6500e-003**	**8.4200e-003**	**0.0000**	**88.6402**	**88.6402**	**8.4200e-003**	**0.0000**	**88.8507**

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	0.0581	0.5833	0.4764	7.5000e-004		0.0343	0.0343		0.0317	0.0317	0.0000	65.4456	65.4456	0.0203	0.0000	65.9520
Total	**0.0581**	**0.5833**	**0.4764**	**7.5000e-004**		**0.0343**	**0.0343**		**0.0317**	**0.0317**	**0.0000**	**65.4456**	**65.4456**	**0.0203**	**0.0000**	**65.9520**

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	5.8900e-003	0.2087	0.0579	2.6000e-004	2.8800e-003	3.4000e-004	3.2200e-003	8.4000e-004	3.2000e-004	1.1600e-003	0.0000	25.0507	25.0507	2.4400e-003	0.0000	25.1118
Worker	8.7900e-003	4.0300e-003	0.0521	7.0000e-005	5.9000e-003	8.0000e-005	5.9800e-003	1.5800e-003	7.0000e-005	1.6500e-003	0.0000	6.4564	6.4564	2.8000e-004	0.0000	6.4634
Total	**0.0147**	**0.2127**	**0.1100**	**3.3000e-004**	**8.7800e-003**	**4.2000e-004**	**9.2000e-003**	**2.4200e-003**	**3.9000e-004**	**2.8100e-003**	**0.0000**	**31.5071**	**31.5071**	**2.7200e-003**	**0.0000**	**31.5752**

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	0.0121	0.2399	0.4079	7.5000e-004		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	47.9249	47.9249	0.0146	0.0000	48.2897
Total	**0.0121**	**0.2399**	**0.4079**	**7.5000e-004**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**47.9249**	**47.9249**	**0.0146**	**0.0000**	**48.2897**

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	5.8900e-003	0.2087	0.0579	2.6000e-004	2.8800e-003	3.4000e-004	3.2200e-003	8.4000e-004	3.2000e-004	1.1600e-003	0.0000	25.0507	25.0507	2.4400e-003	0.0000	25.1118
Worker	8.7900e-003	4.0300e-003	0.0521	7.0000e-005	5.9000e-003	8.0000e-005	5.9800e-003	1.5800e-003	7.0000e-005	1.6500e-003	0.0000	6.4564	6.4564	2.8000e-004	0.0000	6.4634
Total	**0.0147**	**0.2127**	**0.1100**	**3.3000e-004**	**8.7800e-003**	**4.2000e-004**	**9.2000e-003**	**2.4200e-003**	**3.9000e-004**	**2.8100e-003**	**0.0000**	**31.5071**	**31.5071**	**2.7200e-003**	**0.0000**	**31.5752**

3.6 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	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1902
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0136**	**0.1407**	**0.1465**	**2.3000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1902**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	8.0000e-005	9.8000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1220	0.1220	1.0000e-005	0.0000	0.1221
Total	**1.7000e-004**	**8.0000e-005**	**9.8000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1220**	**0.1220**	**1.0000e-005**	**0.0000**	**0.1221**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.3400e-003	0.1004	0.1730	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1901
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3400e-003**	**0.1004**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1901**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	8.0000e-005	9.8000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1220	0.1220	1.0000e-005	0.0000	0.1221
Total	**1.7000e-004**	**8.0000e-005**	**9.8000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1220**	**0.1220**	**1.0000e-005**	**0.0000**	**0.1221**

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	2.4985					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4200e-003	0.0168	0.0183	3.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**2.5009**	**0.0168**	**0.0183**	**3.0000e-005**		**1.1100e-003**	**1.1100e-003**		**1.1100e-003**	**1.1100e-003**	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

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	4.4000e-004	2.0000e-004	2.6200e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.3253	0.3253	1.0000e-005	0.0000	0.3256
Total	**4.4000e-004**	**2.0000e-004**	**2.6200e-003**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.3253**	**0.3253**	**1.0000e-005**	**0.0000**	**0.3256**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4985					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	5.4000e-004	0.0106	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**2.4991**	**0.0106**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

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	4.4000e-004	2.0000e-004	2.6200e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.3253	0.3253	1.0000e-005	0.0000	0.3256
Total	**4.4000e-004**	**2.0000e-004**	**2.6200e-003**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.3253**	**0.3253**	**1.0000e-005**	**0.0000**	**0.3256**

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	0.6095	2.4403	6.5823	0.0208	1.8315	0.0182	1.8497	0.4903	0.0170	0.5073	0.0000	1,901.2452	1,901.2452	0.0693	0.0000	1,902.9783
Unmitigated	0.6095	2.4403	6.5823	0.0208	1.8315	0.0182	1.8497	0.4903	0.0170	0.5073	0.0000	1,901.2452	1,901.2452	0.0693	0.0000	1,902.9783

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	2,696.10	2,702.70	1963.50	4,925,353	4,925,353
Total	2,696.10	2,702.70	1,963.50	4,925,353	4,925,353

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	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	480.2853	480.2853	0.0480	9.9400e-003	484.4472
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	480.2853	480.2853	0.0480	9.9400e-003	484.4472

NaturalGas Mitigated	0.1145	1.0408	0.8742	6.2400e-003		0.0791	0.0791		0.0791	0.0791	0.0000	1,132.9979	1,132.9979	0.0217	0.0208	1,139.7308
NaturalGas Unmitigated	0.1145	1.0408	0.8742	6.2400e-003		0.0791	0.0791		0.0791	0.0791	0.0000	1,132.9979	1,132.9979	0.0217	0.0208	1,139.7308

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					
Hotel	2.12316e+007	0.1145	1.0408	0.8742	6.2400e-003		0.0791	0.0791		0.0791	0.0791	0.0000	1,132.9979	1,132.9979	0.0217	0.0208	1,139.7308
Total		**0.1145**	**1.0408**	**0.8742**	**6.2400e-003**		**0.0791**	**0.0791**		**0.0791**	**0.0791**	**0.0000**	**1,132.9979**	**1,132.9979**	**0.0217**	**0.0208**	**1,139.7308**

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					
Hotel	2.12316e+007	0.1145	1.0408	0.8742	6.2400e-003		0.0791	0.0791		0.0791	0.0791	0.0000	1,132.9979	1,132.9979	0.0217	0.0208	1,139.7308
Total		**0.1145**	**1.0408**	**0.8742**	**6.2400e-003**		**0.0791**	**0.0791**		**0.0791**	**0.0791**	**0.0000**	**1,132.9979**	**1,132.9979**	**0.0217**	**0.0208**	**1,139.7308**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	3.6512e+006	480.2853	0.0480	9.9400e-003	484.4472
Total		**480.2853**	**0.0480**	**9.9400e-003**	**484.4472**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	3.6512e+006	480.2853	0.0480	9.9400e-003	484.4472
Total		**480.2853**	**0.0480**	**9.9400e-003**	**484.4472**

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	2.1215	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.9000e-003	5.9000e-003	2.0000e-005	0.0000	6.2900e-003
Unmitigated	2.1215	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.9000e-003	5.9000e-003	2.0000e-005	0.0000	6.2900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2499					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.9000e-003	5.9000e-003	2.0000e-005	0.0000	6.2900e-003
Total	**2.1215**	**3.0000e-005**	**3.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.9000e-003**	**5.9000e-003**	**2.0000e-005**	**0.0000**	**6.2900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2499					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Landscaping	2.8000e-004	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.9000e-003	5.9000e-003	2.0000e-005	0.0000	6.2900e-003
Total	**2.1215**	**3.0000e-005**	**3.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.9000e-003**	**5.9000e-003**	**2.0000e-005**	**0.0000**	**6.2900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.3482	0.0108	6.5700e-003	11.5777
Unmitigated	9.3482	0.0108	6.5700e-003	11.5777

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	8.37103 / 0.930115	9.3482	0.0108	6.5700e-003	11.5777
Total		**9.3482**	**0.0108**	**6.5700e-003**	**11.5777**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	8.37103 / 0.930115	9.3482	0.0108	6.5700e-003	11.5777
Total		**9.3482**	**0.0108**	**6.5700e-003**	**11.5777**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	36.6744	2.1674	0.0000	90.8592
Unmitigated	36.6744	2.1674	0.0000	90.8592

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	180.67	36.6744	2.1674	0.0000	90.8592
Total		**36.6744**	**2.1674**	**0.0000**	**90.8592**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	180.67	36.6744	2.1674	0.0000	90.8592
Total		**36.6744**	**2.1674**	**0.0000**	**90.8592**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Rev. 18-087 Almaden Corner Hotel Gen & Fire Pump

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	330.00	Room	0.20	479,160.00	0

1.2 Other Project Characteristics

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 rate of 290

Land Use - Default square footage on 0.2 acre site

Construction Phase - Added Trenching, Default construction schedule

Off-road Equipment -

Off-road Equipment - Generator and welders limited hours

Off-road Equipment - Longer default equipment

Off-road Equipment - Longer default equipment

Off-road Equipment - Longer default equipment

Off-road Equipment - Longer default equipment

Off-road Equipment - Longer default equipment

Trips and VMT -

Demolition -

Grading - 4200 cy from correspondance

Water And Wastewater - 100% aerobic

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim no DPF, eletrical crane

Stationary Sources - Emergency Generators and Fire Pumps - 400 kW emergency generator with an assumed 600 HP. Assuming that fire pump is diesel and is 200 HP maximum. Both operate max at 50 hours per year

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	100.00	300.00
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	10.00
tblGrading	MaterialExported	0.00	4,200.00
tblLandUse	LotAcreage	11.00	0.20
tblOffRoadEquipment	HorsePower	203.00	247.00
tblOffRoadEquipment	LoadFactor	0.36	0.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00

tblOffRoadEquipment	UsageHours	4.00	7.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	600.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	200.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	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	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
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	600	0.73	Diesel
Fire Pump	1	0	50	200	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (600 - 750 HP)	0.0246	0.0688	0.0628	1.2000e-004		3.6200e-003	3.6200e-003		3.6200e-003	3.6200e-003	0.0000	11.4239	11.4239	1.6000e-003	0.0000	11.4640
Fire Pump - Diesel (175 - 300 HP)	8.2000e-003	0.0229	0.0209	4.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	3.8080	3.8080	5.3000e-004	0.0000	3.8213
Total	**0.0328**	**0.0917**	**0.0837**	**1.6000e-004**		**4.8300e-003**	**4.8300e-003**		**4.8300e-003**	**4.8300e-003**	**0.0000**	**15.2319**	**15.2319**	**2.1300e-003**	**0.0000**	**15.2853**

Attachment 3: Construction Health Risk Calculations

8 N Almaden, San Jose, CA

DPM Emissions and Modeling Emission Rates - Unmitigated

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2019	Construction	0.1564	DPM	312.8	0.09522	1.20E-02	852	**1.41E-05**
2020	Construction	0.0434	DPM	86.8	0.02642	3.33E-03	852	**3.91E-06**
Total		***0.1998***		***399.6***	***0.1216***	***0.0153***		

Operation Hours

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

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2019	Construction	FUG	0.06090	121.8	0.03708	4.67E-03	852	**5.49E-06**
2020	Construction	FUG	0.00253	5.1	0.00154	1.94E-04	852	**2.28E-07**
Total			***0.0634***	***126.9***	***0.0386***	***0.0049***		

Operation Hours

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

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2019	Construction	0.0067	DPM	13.5	0.00410	5.17E-04	852	**6.07E-07**
2020	Construction	0.0019	DPM	3.9	0.00118	1.48E-04	852	**1.74E-07**
Total		***0.0087***		***17.3***	***0.0053***	***0.0007***		

Operation Hours

hr/day = 9 (7am - 4pm)

days/yr = 365

hours/year = 3285

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

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2019	Construction	FUG	0.01910	38.2	0.01163	1.47E-03	852	**1.72E-06**
2020	Construction	FUG	0.00253	5.1	0.00154	1.94E-04	852	**2.28E-07**
Total			***0.0216***	***43.3***	***0.0132***	***0.0017***		

Operation Hours

hr/day = 9 (7am - 4pm)

days/yr = 365

hours/year = 3285

8 N Almaden, San Jose, CA
Construction Health Impacts Summary

Maximum Impacts at Construction MEI Location - Unmitigated

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2019	0.7322	0.1660	120.26	2.10	0.146	0.90
2020	0.2030	0.0069	33.35	0.58	0.041	0.21
Total	-	-	**153.6**	**2.7**	-	-
Maximum	0.7322	0.1660	**-**	**-**	**0.146**	**0.90**

Maximum Impacts at Construction MEI Location - With Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2018	0.0315	0.0520	5.18	0.09	0.006	0.08
2019	0.0090	0.0069	1.48	0.03	0.002	0.02
Total	-	-	**6.7**	**0.1**	-	-
Maximum	0.0315	0.0520	**-**	**-**	**0.006**	**0.08**

8 N Almaden, San Jose, CA - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors-7.6 meter

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information					
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled DPM Conc (ug/m3)		Age	Adult	Maximum	
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2019	0.7322	10	120.26	2019	0.7322	1	2.10	0.1660	0.898
2	1	1 - 2	2020	0.2030	10	33.35	2020	0.2030	1	0.58	0.0069	0.210
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		
Total Increased Cancer Risk						**153.61**				**2.69**		

* Third trimester of pregnancy

8 N Almaden, San Jose, CA - With Mitigation
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors-7.6 meter

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum	
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled		Age	Adult		
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**DPM Conc (ug/m3) Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2019	0.0315	10	5.18	2019	0.0315	1	0.09	0.0520	0.084
2	1	1 - 2	2020	0.0090	10	1.48	2020	0.0090	1	0.03	0.0069	0.016
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		
Total Increased Cancer Risk						**6.7**				**0.12**		

* Third trimester of pregnancy

Project Emergency Diesel Generator & Fire Pump Health Risk Calculations

8 N Almaden Blvd, San Jose - Emissions and AERMOD Modeling Parameters
Project Generator & Fire Pump

DPM Emission Rates					
		DPM Emissions*			
	Engine	Ave Hourly	Ave Daily	Annual	
Diesel Engine Type	Horsepower	(lb/hr)	(lb/day)	(lb/yr)	(ton/yr)
Fire Pump	200	2.75E-04	0.0066	2.413	1.21E-03
400 kW Emergency Generator	600	8.26E-04	0.0198	7.240	3.62E-03

* emissions calculated with CalEEMod 50 hours/year operation and load factor of 0.73

Modeling Information		
Model:	AERMOD	
Source	Diesel Engine	
Source Types	Point	
Receptor Spacing	receptors at off-site residences	
Meteorological Data	2006-2010 BAAQMD San Jose Airport data	
Point Source Stack Parameters* **		
Generator engine size (hp)	200 & 600	
Stack Height (ft)	10	
Stack Diameter (ft)	0.6	
Exhaust Gass Flowrate (ACFM)	8,923	
Stack Exit Velocity (ft/sec)	149	
Exhaust Temperature (F)	872	
Emergency Generator Modeled Emission Rate		
Annual Emission Rate (lb/year)	7.24	Calculated for operation 50 hours/year
Hourly Emission Rate (lb/hr)	1.65E-03	operation between 7am-7pm
Fire Pump Engine Modeled Emission Rate		
Annual Emission Rate (lb/year)	2.41	Calculated for operation 50 hours/year
Hourly Emission Rate (lb/hr)	5.51E-04	operation between 7am-7pm

** Generator modeling parameters from *The San Francisco Community Risk Reduction Plan: Technical Support Document* BAAQMD, San Francisco Dept. of Public Health, and San Francisco Planning Dept., December 2012

8 N Almaden Blvd, San Jose, CA - Cancer Risks from Project Operation
Project Emergency Diesel Engines
Off-Site Receptors

Cancer Risk Calculation Method

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

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

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

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

Values

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

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - <2**	**2 - <16**	**16 - 30**
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

MEI Cancer Risk From: Project Emergency Diesel Engines
3rd Floor Receptor

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.00686	0.09
2	1 - 2	10	0.00686	2.25
14	3 - 16	3	0.00686	2.48
14	17 - 30	1	0.00686	0.28
Total Increased Cancer Risk				**5.1**

* Third trimester of pregnancy

Maximum Cancer Risk by Receptor Height
Project Emergency Diesel Engines

Receptor Height (m)	DPM Annual Conc (ug/m3)	Maximum DPM Cancer Risk (per million)	
1.5	7.00E-04	0.521	
4.5	6.90E-04	0.514	
6.1	7.00E-04	0.521	
7.6	**6.86E-03**	**5.106**	**3rd Floor Level**
10.6	6.85E-03	5.098	
13.7	6.60E-03	4.912	
16.7	6.33E-03	4.711	

8 N Almaden Blvd, San Jose, CA - Cancer Risks from Project Operation
Project Emergency Diesel Engines
Construction MEI Receptor

Cancer Risk Calculation Method

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

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

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

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

Values

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

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - <2**	**2 - <16**	**16 - 30**
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

MEI Cancer Risk From: Project Emergency Diesel Engines
Construction MEI Receptor

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	-0.25 - 0*	10	0.00686	0.00
0	1 - 2	10	0.00686	0.00
14	3 - 16	3	0.00686	2.48
14	17 - 30	1	0.00686	0.28
Total Increased Cancer Risk				**2.8**

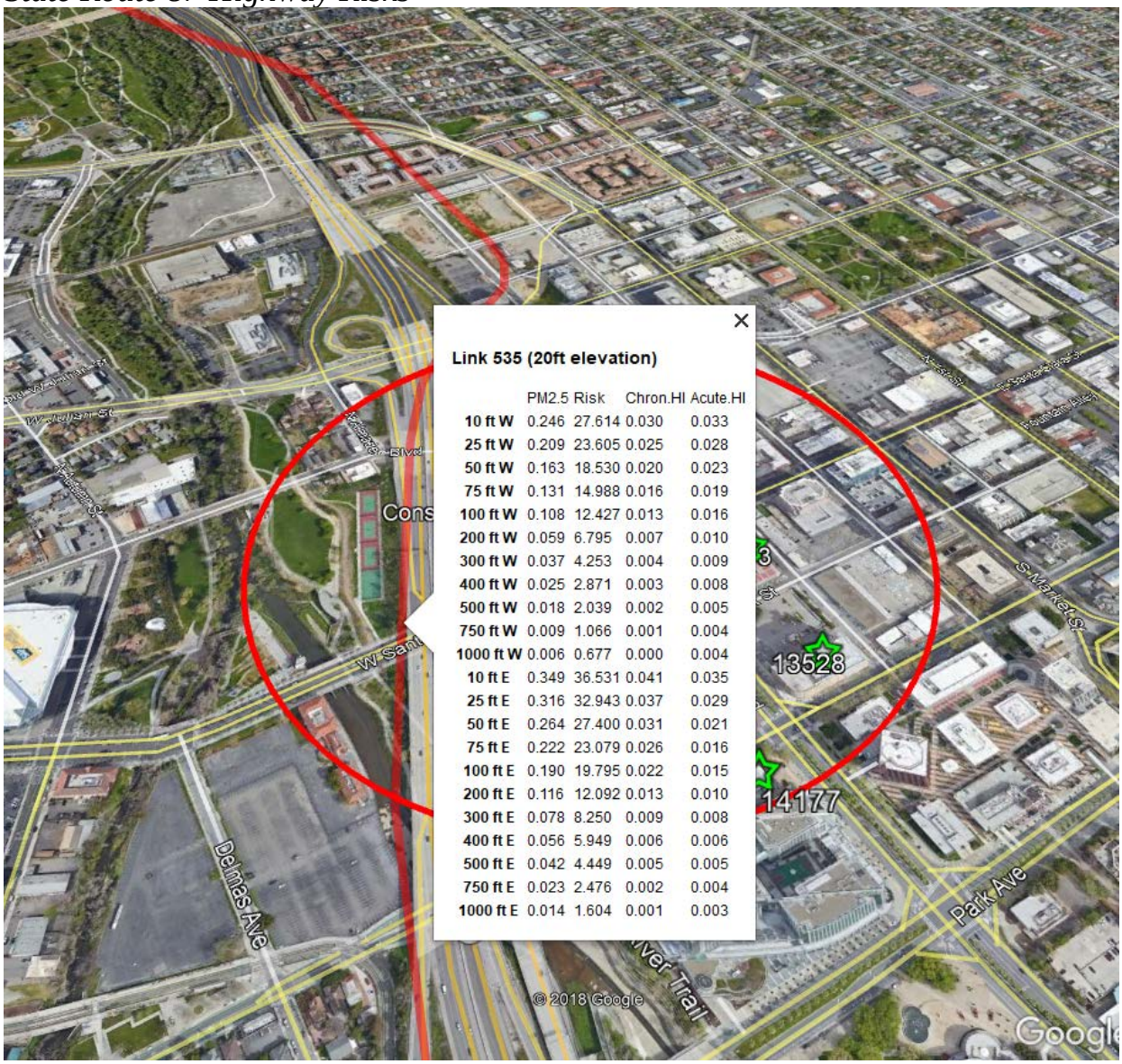
* Third trimester of pregnancy

Maximum Cancer Risk by Receptor Height
Project Emergency Diesel Engines

Receptor Height (m)	DPM Annual Conc (ug/m3)	Maximum DPM Cancer Risk (per million)	
1.5	7.00E-04	0.521	
4.5	6.90E-04	0.514	
6.1	7.00E-04	0.521	
7.6	**6.86E-03**	**5.106**	**3rd Floor Level**
10.6	6.85E-03	5.098	
13.7	6.60E-03	4.912	
16.7	6.33E-03	4.711	

Attachment 4: Screening Community Risk Calculations

State Route 87 Highway Risks



Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

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

INSTRUCTIONS:

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

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

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

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

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

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

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

Notes and References listed below the Search Boxes

Search Parameters

County	Santa Clara
Roadway Direction	East-West
Side of the Roadway	North
Distance from Roadway	200 feet
Annual Average Daily Traffic (ADT)	22,870

Results

Santa Clara County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

5.23 (per million)

W. Santa Clara Street

Cumulative plus project volumes from traffic report

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

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

3.59

(per million)

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

Notes and References:

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

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Risk & Hazard Stationary Source Inquiry Form

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

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

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

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

Table A: Requester Contact Information

Date of Request	**7/16/2018**
Contact Name	Casey Zaglin
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x23
Email	czaglin@illingworthrodkin.com
Project Name	18-087 8 N Almaden
Address	8 N Almaden
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	320DU, 353,395 SQFT
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 e section only.

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

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

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

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

Table B: Google Earth data

											Construction MEI			
Distance from Receptor (feet) or MEI[1]	Facility Name	Address	Plant No.	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
400	Equity Office Properties	TEN ALMADEN	16647	38.143	0.0198	0.0497	1	Generator	98	Use Diesel Multiplier	0.16	6.10	0.00	0.01
280	Jeppesen	225 W Santa Clara St	15556	0.001	0.0000	0.00098	1	Generator	98	Use Diesel Multiplier	0.28	0.00	0.00	0.00
1000	Pacific Gas and Electric	111 Almaden Boulevard	14177	17.159	0.0093	0.02638	1	Generator	98	Use Diesel Multiplier	0.04	0.69	0.00	0.00
850	Pacific Bell	95 So Almaden Avenue	13528	253.541	0.1869	0.32853	1	Generator	98	Use Diesel Multiplier	0.05	12.68	0.01	0.02
500	CenturyLink Communications, LL	55 Almaden Boulevard	14687	6.070	0.0082	0.00774	1	Generator	98	Use Diesel Multiplier	0.12	0.73	0.00	0.00
570	Verizon Business	55 So Almaden	14713	15.400	0.0080	0.02007	1	Generator	98	Use Diesel Multiplier	0.09	1.39	0.00	0.00
60	Rosendin Electric, Inc	38 N ALMADEN BLVD	23706	1.85	0.0037	0.00309	1	Generator	98	New Plant # 23706, see attached emissions, use beta calculator, use Diesel Multplier	0.41	0.76	0.00	0.00
270	225 West Santa Clara LLC c/o Ha	225 W SANTA CLARA ST	22398	12.674	0.0105	0.01638	1	Generator	98	New Plant # 22398, Use Diesel Multplier	0.28	3.55	0.00	0.00
340	ECI Three Embarcadero LLC	1 ALMADEN BOULEVARD	21548	57.851	0.0300	0.07538	1	Generator	98	New Plant # 21548, Use Diesel Multiplier	0.22	12.73	0.01	0.02

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
    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,
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.

Date last updated:
03/13/2018

BAAQMD Risk and Hazards Emissions Screening Calculator Instructions (Beta Version)

Based on emissions data provided by BAAQMD, this calculator will estimate screening-level cancer risk, PM2.5 concentrations, and non-cancer acute/chronic indices. This method should only be used for permitted facilites where screening-level risks have not already been calculated by BAAQMD and BAAQMD Health Risk Screening Assessments have not been completed.

BAAQMD staff will provide emissions information for each requested permitted facility. If a facility contains more than one permitted source, the plant's total emissions can be used, which BAAQMD staff will provide.

Below, note that there are individual worksheets for estimating cancer risk, non-cancer chronic hazard, non-cancer acute hazard and PM2.5 concentrations. To calculate risks, etc., enter daily emissions in each worksheet in column B for each chemical in the emissions printout. Sum the individual risk and hazard from each chemical to determine the total risks and hazards at the facility.

EXAMPLE:

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: DEC 22, 2011
DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2011)

Plant Name: Example 1

S# SOURCE NAME MATERIAL THROUGHPUT	SOURCE CODE DATE	POLLUTANT	CODE	LBS/DAY
This plant contains 4 permitted sources. These source emissions are combined and presented in the plant total:				
PLANT TOTAL:				
Lbs/day Pollutant				
Benzene	41	1.26E-03		
Formaldehyde	124	1.04E-04		
Organics (part not specel	990	6.06E-02		
Arsenic (all)	1030	1.09E-06		
Beryllium (all) pollutant	1040	6.41E-07		
Cadmium	1070	2.73E-06		
Chromium (hexavalent)	1095	5.65E-08		
Lead (all) pollutant	1140	2.32E-06		
Manganese	1160	3.64E-06		
Nickel pollutant	1180	4.42E-05		
Mercury (all) pollutant	1190	7.73E-07		
Diesel Engine Exhaust Part	1350	6.31E-02		
PAH's (non-speciated)	1840	5.77E-06		
Nitrous Oxide (N2O)	2030	3.36E-04		
Nitrogen Oxides (part not	2990	8.84E-01		
Sulfur Dioxide (SO2)	3990	4.10E-04		
Carbon Monoxide (CO) pollu	4990	1.92E-01		
Carbon Dioxide, non-biogen	6960	4.20E+01		
Methane (CH4)	6970	1.68E-03		

Daily emissions

Pollutant Name	Emission/lbs per day	Cancer Risk
ARSENIC	1.09E-06	5.50E-08
BENZENE	1.26E-03	1.22E-07
BERYLLIUM	6.41E-07	4.98E-09
CADMIUM	2.73E-06	3.79E-08
CHROMIUM	5.65E-08	2.67E-08
DIESEL PM	6.31E-02	6.70E-05
FORMALDEHYDE	1.04E-04	2.11E-09
LEAD	2.32E-06	2.65E-10
NICKEL	4.42E-05	3.73E-08
PAH'S	5.77E-06	5.77E-06
TOTAL:		**7.31E-05**

Using this screening approach, the cancer risk associated with this facility is estimated to be 7.31E-05, also expressed as **73 in a million**. If the facility contains only diesel back-up engines, the distance multiplier can be used to adjust the estimated cancer risk.

Note: Not all of the chemicals being emitted by the plant in this example are associated with cancer risk, therefore those chemicals are not included in the cancer risk estimation. Similarly, not all of the chemicals emitted by the plant in this example are associated with acute or chronic hazards.

Plug in the emissions in column B in the remaining tabs in the same fashion to estimate chronic and acute hazards, and PM2.5 concentrations.

Notes: Created 7/11/2012. Version 1.3 Beta. This calculator will create screening level values. More detailed modeling methods will result in more accurate values. For questions and comments contact Alison Kirk at akirk@baaqmd.gov.

Plant #: 23706
Plant Name: Axis HOA
Number of Sources:

Pollutant Name	Emissions/lbs per day	Cancer Risk (in millions)
ACETALDEHYDE		0.00E+00
ACETAMIDE		0.00E+00
ACRYLAMIDE		0.00E+00
ACRYLONITRILE		0.00E+00
ALLYL CHLORIDE		0.00E+00
2-AMINOANTHRAQUINONE		0.00E+00
ANILINE		0.00E+00
ARSENIC AND COMPOUNDS (INORGANIC)[1,2]	2.10E-07	1.06E-08
ASBESTOS[3]		0.00E+00
BENZENE[1]	2.41E-04	2.33E-08
BENZIDINE (AND ITS SALTS) values also apply to:		0.00E+00
Benzidine based dyes		0.00E+00
Direct Black 38		0.00E+00
Direct Blue 6		0.00E+00
Direct Brown 95 (technical grade)		0.00E+00
BENZYL CHLORIDE		0.00E+00
BERYLLIUM AND COMPOUNDS[2]	1.23E-07	9.55E-10
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)		0.00E+00
BIS(CHLOROMETHYL)ETHER		0.00E+00
POTASSIUM BROMATE		0.00E+00
1,3-BUTADIENE		0.00E+00
CADMIUM AND COMPOUNDS[2]	5.24E-07	7.27E-09
CARBON TETRACHLORIDE[1] (Tetrachloromethane)		0.00E+00
CHLORINATED PARAFFINS		0.00E+00
4-CHLORO-O-PHENYLENEDIAMINE		0.00E+00
CHLOROFORM[1]		0.00E+00
PENTACHLOROPHENOL		0.00E+00
2,4,6-TRICHLOROPHENOL		0.00E+00
p-CHLORO-o-TOLUIDINE		0.00E+00
CHROMIUM 6+2	1.08E-08	5.11E-09
Barium chromate2		0.00E+00
Calcium chromate2		0.00E+00
Lead chromate2		0.00E+00
Sodium dichromate2		0.00E+00
Strontium chromate2		0.00E+00
CHROMIC TRIOXIDE (as chromic acid mist)		0.00E+00
p-CRESIDINE		0.00E+00
CUPFERRON		0.00E+00
2,4-DIAMINOANISOLE		0.00E+00
2,4-DIAMINOTOLUENE		0.00E+00
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)		0.00E+00
1,4-DICHLOROBENZENE		0.00E+00
3,3-DICHLOROBENZIDINE		0.00E+00
1,1,-DICHLOROETHANE (Ethylidene dichloride)		0.00E+00
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)		0.00E+00
p-DIMETHYLAMINOAZOBENZENE		0.00E+00
2,4-DINITROTOLUENE		0.00E+00
1,4-DIOXANE (1,4-Diethylene dioxide)		0.00E+00
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0.00E+00
ETHYL BENZENE		0.00E+00
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0.00E+00
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0.00E+00
ETHYLENE OXIDE (1,2-Epoxyethane)		0.00E+00
ETHYLENE THIOUREA		0.00E+00
FORMALDEHYDE	1.99E-05	4.03E-10
HEXACHLOROBENZENE		0.00E+00
HEXACHLOROCYCLOHEXANES (mixed or technical grade)		0.00E+00
alpha-HEXACHLOROCYCLOHEXANE		0.00E+00
beta- HEXACHLOROCYCLOHEXANE		0.00E+00
gamma-HEXACHLOROCYCLOHEXANE (Lindane)		0.00E+00
HYDRAZINE		0.00E+00
LEAD AND COMPOUNDS 2,4 (inorganic) values also apply to:	4.45E-07	5.09E-11
Lead acetate2	4.45E-07	5.09E-11
Lead phosphate2	4.45E-07	5.09E-11
Lead subacetate2	4.45E-07	5.09E-11
METHYL tertiary-BUTYL ETHER		0.00E+00
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)		0.00E+00
METHYLENE CHLORIDE (Dichloromethane)		0.00E+00
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0.00E+00
MICHLER'S KETONE (4,4'-Bis(dimethylamino)benzophenone)		0.00E+00
N-NITROSODI-n-BUTYLAMINE		0.00E+00
N-NITROSODI-n-PROPYLAMINE		0.00E+00
N-NITROSODIETHYLAMINE		0.00E+00
N-NITROSODIMETHYLAMINE		0.00E+00
N-NITROSODIPHENYLAMINE		0.00E+00
N-NITROSO-N-METHYLETHYLAMINE		0.00E+00
N-NITROSOMORPHOLINE		0.00E+00
N-NITROSOPIPERIDINE		0.00E+00
N-NITROSOPYRROLIDINE		0.00E+00
NICKEL AND COMPOUNDS2 (values also apply to:)	8.48E-06	7.15E-09
Nickel acetate2	8.48E-06	7.15E-09
Nickel carbonate2	8.48E-06	7.15E-09
Nickel carbonyl2	8.48E-06	7.15E-09
Nickel hydroxide2	8.48E-06	7.15E-09
Nickelocene2	8.48E-06	7.15E-09
NICKEL OXIDE2		0.00E+00
Nickel refinery dust from the pyrometallurgical process2		0.00E+00
Nickel subsulfide2		0.00E+00
p-NITROSODIPHENYLAMINE		0.00E+00
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	1.60E-03	1.70E-06
PERCHLOROETHYLENE (Tetrachloroethylene)		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [low risk] 2,6		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [high risk] 2,6		0.00E+00
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0.00E+00
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0.00E+00
POLYCYCLIC AROMATIC HYDROCARBON2 (PAH) (AS B(a)P-EQUIV)5	1.11E-06	5.85E-08
BENZO(A)PYRENE2,5		0.00E+00
NAPHTHALENE		0.00E+00
1,3-PROPANE SULTONE		0.00E+00
PROPYLENE OXIDE		0.00E+00
1,1,2,2-TETRACHLOROETHANE		0.00E+00
THIOACETAMIDE		0.00E+00
Toluene diisocyantates		0.00E+00
TOLUENE-2,4-DIISOCYANATE		0.00E+00
TOLUENE-2,6-DIISOCYANATE		0.00E+00
1,1,2-TRICHLOROETHANE (Vinyl trichloride)		0.00E+00
TRICHLOROETHYLENE		0.00E+00
URETHANE (Ethyl carbamate)		0.00E+00
VINYL CHLORIDE (Chloroethylene)		0.00E+00
	TOTAL:	1.85E-06

Plant #: 23706
Plant Name: Axis HOA
Number of Sources:

Pollutant Name	Emission/lbs per day	Chronic Hazard
ACETALDEHYDE		0
ACROLEIN		0
ACRYLONITRILE		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2	2.10E-07	0.000999012
ARSINE		0
BENZENE1	2.41E-04	7.58258E-06
BERYLLIUM AND COMPOUNDS2	1.23E-07	3.32041E-05
1,3-BUTADIENE		0
CADMIUM AND COMPOUNDS2	5.24E-07	5.5296E-05
CARBON DISULFIDE1		0
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLORINE DIOXIDE		0
CHLOROBENZENE		0
CHLOROFORM1		0
2,3,4,6-Tetrachlorophenol		0
CHLOROPICRIN		0
CHROMIUM 6+2	1.08E-08	1.0194E-07
Barium chromate2		0
Calcium chromate2		0
Lead chromate2		0
Sodium dichromate2		0
Strontium chromate2		0
CHROMIC TRIOXIDE (as chromic acid mist)		0
CRESOLS		0
M-CRESOL		0
O-CRESOL		0
P-CRESOL		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DICHLOROBENZENE		0
DIETHANOLAMINE		0
DIMETHYLAMINE		0
N,N-DIMETHYL FORMAMIDE		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
1,2-EPOXYBUTANE		0
ETHYL BENZENE		0
ETHYL CHLORIDE (Chloroethane)		0
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0
ETHYLENE GLYCOL		0
ETHYLENE OXIDE (1,2-Epoxyethane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE	1.99E-05	4.17409E-06
GASOLINE VAPORS		0
GLUTARALDEHYDE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
ETHYLENE GLYCOL METHYL ETHER ACETATE – EGMEA		0
n-HEXANE		0
HYDRAZINE		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPHORONE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MALEIC ANHYDRIDE		0
MANGANESE AND COMPOUNDS	6.98E-07	1.46408E-05
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:	1.48E-07	3.93942E-05
Mercuric chloride	1.48E-07	3.93942E-05
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL tertiary-BUTYL ETHER		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ISOCYANATE		0
METHYLENE CHLORIDE (Dichloromethane)		0
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0
METHYLENE DIPHENYL ISOCYANATE		0
NICKEL AND COMPOUNDS2 (values also apply to:)	8.48E-06	0.000320167
Nickel acetate2	8.48E-06	0.000320167
Nickel carbonate2	8.48E-06	0.000320167
Nickel carbonyl2	8.48E-06	0.000320167
Nickel hydroxide2	8.48E-06	0.000320167
Nickelocene2	8.48E-06	0.000320167
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITROGEN DIOXIDE		0
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	0.0016	0.000604089
PERCHLOROETHYLENE (Tetrachloroethylene)		0
PHENOL		0
PHOSPHINE		0
PHOSPHORIC ACID		0
PHOSPHORUS (WHITE)		0
PHTHALIC ANHYDRIDE		0
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN2,7		0
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0
1,2,3,7,8-PENTACHLORODIBENZOFURAN2,7		0
2,3,4,7,8-PENTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN2,7		0
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN2,7		0
NAPHTHALENE		0
PROPYLENE (PROPENE)		0
PROPYLENE GLYCOL MONOMETHYL ETHER		0
PROPYLENE OXIDE		0
SELENIUM AND COMPOUNDS		0
Selenium sulfide		0
SILICA (Crystalline, Respirable)		0
STYRENE		0
SULFUR DIOXIDE	7.87E-05	2.25103E-07
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
Toluene diisocyantates		0
TOLUENE-2,4-DIISOCYANATE		0
TOLUENE-2,6-DIISOCYANATE		0
TRICHLOROETHYLENE		0
TRIETHYLAMINE		0
VINYL ACETATE		0
VINYLIDENE CHLORIDE (1,1-Dichloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	3.72E-03

Plant #: 23706

Plant Name: Axis HOA

Number of Sources:

Pollutant Name	Emission/lbs per day	Acute Hazard
ACETALDEHYDE		0
ACROLEIN		0
ACRYLIC ACID		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2	2.10E-07	1.98217E-05
ARSINE		0
BENZENE1	2.41E-04	3.49965E-06
BENZYL CHLORIDE		0
CARBON DISULFIDE1		0
CARBON MONOXIDE	1.10E-02	9.02851E-06
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLOROFORM1		0
CHLOROPICRIN		0
COPPER AND COMPOUNDS		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE	1.99E-05	6.83033E-06
ETHYLENE GLYCOL BUTYL ETHER – EGBE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:	1.48E-07	4.65652E-06
Mercuric chloride	0.000000148	4.65652E-06
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ETHYL KETONE (2-Butanone)		0
METHYLENE CHLORIDE (Dichloromethane)		0
NICKEL AND COMPOUNDS2 (values also apply to:)	8.48E-06	2.66806E-05
Nickel acetate2	8.48E-06	2.66806E-05
Nickel carbonate2	8.48E-06	2.66806E-05
Nickel carbonyl2	8.48E-06	2.66806E-05
Nickel hydroxide2	8.48E-06	2.66806E-05

Nickelocene2	8.48E-06	2.66806E-05
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITRIC ACID		0
OZONE		0
PROPYLENE OXIDE		0
HYDROGEN SELENIDE		0
SODIUM HYDROXIDE		0
STYRENE		0
SULFATES		0
SULFUR DIOXIDE	7.87E-05	2.25103E-06
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
TRIETHYLAMINE		0
Vanadium (fume or dust)		0
VANADIUM PENTOXIDE		0
VINYL CHLORIDE (Chloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	2.11E-04

Plant #: 23706

Plant Name: Axis HOA

Number of Sources:

Diesel PM Concentrations	Emissions (lbs/day)	M2.5 Concentration (ug/m3)
Diesel Engine Exhaust Part	1.60E-03	0.00308936
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
TOTAL:		0.00308936