GREYHOUND SITE MIXED-USE PROJECT
AIR QUALITY ASSESSMENT
SAN JOSÉ, CALIFORNIA

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Introduction

The purpose of this report is to address air quality impacts associated with the mixed-use development project located at the intersection of Post and San Pedro Street in San José, California. The project consists of two 23-story high-rise residential towers, containing 785 residential dwelling units and up to 20,000 square feet (sf) of commercial/retail uses, located north of W. San Fernando Street, between South Almaden Avenue and South San Pedro Street. A 5-level parking structure with four below-grade levels and 736 parking spaces is proposed.

Air pollutant emissions associated with construction and operation of the project were modeled. In addition, the potential construction health risk impact to nearby sensitive receptors and the impact of existing toxic air contaminant (TAC) sources affecting the proposed residences were evaluated. The health risk assessment included the modeling of construction emissions using the California Emissions Estimator Model Version 2013.2.2 (CalEEMod). A dispersion model was used to predict the off-site DPM concentrations resulting from project construction so that lifetime excess cancer risks could be predicted.

The effects of sources of TACs and fine particulate matter emissions on the project site were evaluated. These sources included roadways and stationary sources that were identified using available screening tools. The screening tools indicate that risk levels from stationary sources could exceed the BAAQMD significance thresholds. Therefore, refined modeling was conducted for these sources. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).

Setting

The project is located in the 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 ($PM_{2.5}$).

Air Pollutants of Concern

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

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

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

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.

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

The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency [EPA]) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has recently published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.[2] *Attachment 1* includes detailed community risk modeling methodology.

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

[1] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: November 21, 2014.
[2] Bay Area Air Quality Management District. 2011. BAAQMD CEQA Air Quality Guidelines. May.

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, elementary schools, and parks. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site include the Plaza Hotel[3] adjacent to the southern boundary of the project site and planned and approved residential apartments to the north of the site.

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 2011). The significance thresholds identified by BAAQMD and used in this analysis are summarized in Table 1.

The BAAQMD's adoption of significance thresholds contained in the 2011 CEQA Air Quality Guidelines was called into question by an order issued March 5, 2012, in California Building Industry Association (CBIA) v. BAAQMD (Alameda Superior Court Case No. RGI0548693). The order requires the BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use development patterns. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds (Cal. Court of Appeal, First Appellate District, Case Nos. A135335 & A136212). CBIA sought review by the California Supreme Court on three issues, including the appellate court's decision to uphold the BAAQMD's adoption of the thresholds, and the Court granted review on just one: Under what circumstances, if any, does CEQA require an analysis of how existing environmental conditions will impact future residents or users of a proposed project? In December 2015, the Supreme Court determined that an analysis of the impacts of the environment on a project – known as "CEQA-in-reverse" – is only required under two limited circumstances: (1) when a statute provides an express legislative directive to consider such impacts; and (2) when a proposed project risks exacerbating environmental hazards or conditions that already exist (Cal. Supreme Court Case No. S213478). The Supreme Court reversed the Court of Appeal's decision and remanded the matter back to the appellate court to reconsider the case in light of the Supreme Court's ruling. Accordingly, the case is currently pending back in the Court of Appeal. Because the Supreme Court's holding concerns the effects of the environment on a project (as contrasted to the effects of a proposed project on the environment), and not the science behind the thresholds, the significance thresholds contained in the 2011 CEQA Air Quality Guidelines are applied to this project.

[3] Has been defunct since 2007. The hotel was acquired by the city of San Jose in 2015 and will soon be converted into a shelter for the homeless.

Table 1. Air Quality Significance Thresholds

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

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

Impact: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable State or federal ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? ***Less than significant with construction-period mitigation measures.***

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

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict emissions from construction and operation of the site assuming full build out of the project. The project land use types and size, and anticipated construction schedule were input to CalEEMod.

Construction period emissions

CalEEMod provided annual emissions for construction. CalEEMod provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. A construction build-out scenario, including equipment list and schedule, was based on information provided by the project applicant. The proposed project land uses were input into CalEEMod, which included: 785 dwelling units entered as "Apartment High- Rise," 736 spaces entered as "Enclosed Parking with Elevator," and 20, 000 sf entered as "Strip Mall" on a 1.74-acre site.

Approximately 118,831 cubic yards (cy) of soil export are anticipated and were entered into the model. Demolition of 20,800 sf of building and 47,800 sf of pavement is anticipated and was entered into the model. Additionally, 10,620 cement truck round-trips are expected during the building construction phase.

The construction schedule assumes that the project would be built out over a period of approximately 24 months beginning in April 2017, or an estimated 528 construction workdays (assuming an average of 22 construction days per month). Average daily emissions were computed by dividing the total construction emissions by the number of construction days. Table 2 shows average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 2, predicted the construction period emissions would not exceed the BAAQMD significance thresholds.

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

Table 2. Construction Period Emissions

Scenario	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Total construction emissions (tons)	8.06 tons	7.16 tons	0.13 tons	0.12 tons
Average daily emissions (pounds)[1]	30.5 lbs.	27.1 lbs.	0.5 lbs.	0.5 lbs.
BAAQMD Thresholds (pounds per day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	**No**	**No**	**No**	**No**
Notes: [1]Assumes 528 workdays.				

Operational Period Emissions

Operational air emissions from the project would be generated primarily from autos driven by future residents and employees. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod was used to predict emissions from operation of the proposed project assuming full build-out.

Land Uses

The residential component land uses were input to CalEEMod, which included 785 dwelling units entered as "Apartment High-Rise," 736 spaces entered as "Enclosed Parking with Elevator" and 20, 000 sf entered as "Strip Mall."

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest full year the buildout project could possibly be constructed and begin operating would be 2020. Emissions associated with build-out later than 2020 would be lower.

Trip Generation Rates

CalEEMod allows the user to enter specific vehicle trip generation rates, which were input to the model using the daily trip generation rate provided in the project traffic report. The default trip lengths and trip types specified by CalEEMod were used.

Energy

The 2013 Title 24 Building Standards became effective July 1, 2014 and are predicted to use 25 percent less energy for lighting, heating, cooling, ventilation, and water heating for residential uses and 30 percent less energy for non-residential uses than the 2008 standards that CalEEMod

incorporates.[4] Therefore, the CalEEMod project run was adjusted to account for the greater energy efficiency.

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project. No new wood-burning stoves or fireplaces are allowed in the Bay Area, but it was assumed that new residences could include gas-powered fireplaces.

Table 3 reports the predicted emission in terms of annual emissions in tons and average daily operational emissions, assuming 365 days of operation per year. As shown in Table 3, average daily and annual emissions of ROG, NOx, PM_{10}, or $PM_{2.5}$ emissions associated with operation would not exceed the BAAQMD significance thresholds.

Table 3. Operational Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
Project Operational Emissions	8.07 tons	4.71 tons	4.16 tons	1.28 tons
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	**No**	***No***	**No**	**No**
Average Daily Project Operational Emissions (pounds)[1]	44.2 lbs.	25.8 lbs.	22.8 lbs.	7.0 lbs.
BAAQMD Thresholds (pounds/day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	**No**	**No**	**No**	**No**

[1] Assumes 365-day operation.

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

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

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

[4] California Energy Commission, 2014. *New Title 24 Standards Will Cut Residential Energy Use by 25 Percent, Save Water, and Reduce Greenhouse Gas Emissions*. July. Available online: http://www.energy.ca.gov/releases/2014_releases/2014-07-01_new_title24_standards_nr.html

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

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

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

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

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

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

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

Impact: Expose sensitive receptors to substantial pollutant concentrations? ***Less than significant with construction period mitigation.***

Project impacts related to increased community risk can occur either by introducing a new sensitive receptor, such as a residential use, in proximity to an existing source of TACs or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity. 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 sensitive receptor or a new source of TACs. Operation of the project is not expected to cause any localized emissions that could expose sensitive receptors to unhealthy air pollutant levels. No stationary sources of TACs, such as generators, are proposed as part of the project. The project would introduce new sensitive receptors to the area in the form of future residences. There are thresholds that address both the impact of single and cumulative TAC sources upon projects that include new sensitive receptors (see Table 1). Construction activity would generate dust and equipment exhaust on a temporary basis that could affect nearby sensitive receptors.

Operational Community Risk Impacts

TAC Sources Considered

Community health risk assessments typically look at all substantial sources of TACs located within 1,000 feet of project sites. 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 W. Santa Clara Street is a substantial source of traffic TAC emissions within 1,000 feet of the project site. A review of BAAQMD's Google Earth map tool used to identify stationary sources identified several emergency back-up generators within 1,000 feet of the site.

Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Screening Analysis Tool*. This mapping tool uses Google Earth to identify the location of stationary sources and their estimated risk and hazard impacts. In cases where screening risk exceeded BAAQMD thresholds, BAAQMD was contacted to obtain emissions data and information for specific facilities. BAAQMD correspondence[5] and stationary source emissions data and modeling results are contained in *Attachment 2*. The BAAQMD tool identified multiple sources that could affect the project site:

- Plant 13588 has been assigned a new facility number. It is Plant 20903 now and consists of six diesel generators operated by CoreSite. The plant is located about 75 feet east of the project site. However, even after using BAAQMD screening tools, screening level risk potentially exceeds BAAQMD significance thresholds. Therefore, refined modeling of this source was conducted, as described below.
- Plant 19758 operated by SMS/VEF Winthrop Management, which consists of one emergency back-up generator and one fire pump located at 60 South Market Street about 380 feet east of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration were adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 0.5 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of 0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 14985, which is an emergency back-up generator located at 121 Park Central Plaza about 250 feet southeast of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration were adjusted based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)* and *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD's *Risk and Hazards Emissions Screening Calculator* (and adjusted for distance), this facility would result in

[5] Correspondence between Tanushree Ganguly, Illingworth & Rodkin, and Alison Kirk, BAAQMD, July 26 and August 1, 2016.

an excess cancer risk of 1.2 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.

- Plant 12969, which is an emergency back-up generator located at 55 South Market Street operated by Verizon Business about 100 feet east of the project site. However, even after using BAAQMD screening tools, screening level risk potentially exceeds BAAQMD significance thresholds. Therefore, refined modeling of this source was conducted, as described below.
- Plant 8556 operated by Fairmont Hotel, which consists of emergency back-up generators located at 170 South Market Street about 780 feet southeast of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration was adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 0.5 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 16778 operated by Owl Energy Resources, which consists of two cogeneration engines located at 170 South Market Street about 780 feet southeast of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration were adjusted based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)* and *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD's *Risk and Hazards Emissions Calculator* (and adjusted for distance), this facility would result in an excess cancer risk of 1.2 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of 0.13, all of which would be below BAAQMD thresholds of significance.
- Plant 13528 operated by Pacific Bell, which consists of two emergency back-up generators and an emergency standby fire pump engine located at 95 South Almaden Avenue and located about 80 feet west of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration were adjusted based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)* and *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. However, even after using BAAQMD screening tools, screening level risk potentially exceeds BAAQMD significance thresholds. Therefore, refined modeling of this source was conducted, as described below.
- Plant 14713 operated by Verizon Business, which consists of an emergency back-up generator located at 55 South Almaden Boulevard about 270 feet northwest of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration were adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 1.5 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 19420 has been assigned a new facility number. It is Plant 21548 now and consists of three emergency generators operated by Harvest Properties LLC. The plant is located about 560feet north west of the project site. At BAAQMD's direction, risk and $PM_{2.5}$

concentration were adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 7.5 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.

- Plant 14687 operated by Qwest Communications Corporation, which consists of an emergency back-up generator located at 55 Almaden Boulevard about 630 feet west of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration were adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 0.7 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.

- Plant 14177 operated by Pacific Gas and Electricity, which consists of emergency back-up generators located at 111 Alamden Boulevard operated about 670 feet southwest of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration were adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 1.9 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.

- Plant 15169, which are six emergency back-up generators operated by Adobe Systems, Inc. located at 151 Almaden Boulevard about 630 feet southwest of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)* and *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. However, even after using BAAQMD screening tools, screening level risk potentially exceeds BAAQMD significance thresholds. Therefore, refined modeling of this source was conducted, as described below.

- Plant 16706 has been assigned a new facility number. It is Plant 22398 now and consists of an emergency diesel generator and fire pump operated by Harvest Properties LLC. The plant is located about 700 feet north west of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration were adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 1.14 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.

- Plant 16647 operated by Equity Office Properties, which consists of an emergency generator and a fire pump located at 10 Almaden Boulevard about 300 feet northwest of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentration were adjusted

based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)* and *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. However, even after using BAAQMD screening tools, screening level risk potentially exceeds BAAQMD significance thresholds. Therefore, refined modeling of this source was conducted, as described below.

Refined modeling of emergency back-up generators and emergency diesel fire pumps at five facility locations (BAAQMD Plants) was conducted to assess cancer risks and annual $PM_{2.5}$ concentrations at residential receptor locations at the proposed project site. Table 4 identifies the BAAQMD Plant numbers, locations, and the emission source types at each facility. Based on the BAAQMD emission inventory data the daily $PM_{2.5}$ and DPM emissions from the diesel engines at each facility are included in Table 4. Figure 1 shows the locations of these buildings where the sources modeled are located relative to the project site and the on-site project receptors used to represent locations of future project residents.

Table 4. Facility Information and DPM/$PM_{2.5}$ Emission Rates for Sources Modeled

BAAQMD Plant Number	Facility Name	Facility Address	Emission Sources	DPM/$PM_{2.5}$ Emission Rates[a] (lb/day)	DPM/$PM_{2.5}$ Emission Rates[a] (lb/hr)
12969	Verizon Business	55 S Market Street	1 Generator	0.109	0.004542
13528	Pacific Bell	95 S Almaden Avenue	2 Generators 1 Fire Pump	0.105	0.004375
15169	Adobe Systems, Inc	151 Almaden Boulevard	3 Generators 3 Fire Pump	0.199	0.008292
16647	Equity Office Properties	Ten Almaden	1 Generators 1 Fire Pump	0.027	0.001121
13588	CoreSite	55 S Market Street	4 Generators	0.052	0.002170

[a] Daily emissions provided by BAAQMD. Hourly emissions used for modeling.

To obtain an estimate of potential increased cancer risks to future project residents from these sources, the AERMOD dispersion model was used. This modeling included the use of a five-year data set (2006-2010) of hourly meteorological data from the San Jose International Airport prepared for use with the AERMOD model by the BAAQMD. Since there are a number of tall buildings, including the buildings with the emission sources, in close proximity to the project building, the effects of building downwash on the diesel engine exhaust plumes were included in the modeling analysis. The buildings with the emergency diesel engine sources were evaluated for potential downwash effects and are identified in Figure 1. The AERMOD model was used to calculate DPM concentrations at locations of future residential units at the proposed project site. Because the actual locations of the emission sources are unknown, the emergency diesel engines were assumed to be located at ground level near each building where the engines are located on the side of the building closest to the project site.

Potential impacts at the proposed project were evaluated at the third through ninth floors of the twenty-three residential floor levels to identify where maximum impacts would occur from each emission source. The third floor level is the first building level with residential units in it.

Receptors for modeling were placed at intervals of 8 meters (about 26 feet) in each of the residential areas on each of the floor levels evaluated (see Figure 1). Default BAAQMD stack parameters for diesel engines (12 feet high stack, 0.6 foot diameter, 45.3 meter/sec exit velocity, and exit temperature of 872 degrees F) were used for the diesel engines in the modeling.

The maximum-modeled annual average DPM (exhaust $PM_{2.5}$) concentration from each facility's emergency engines at the on-site project receptors for each floor level are summarized in Table 5. The maximum modeled cumulative DPM concentrations from engine operation at all facilities at the on-site receptors on each project floor level are also shown in the table. Using these maximum DPM concentrations increased cancer risks were calculated using the methods described in Attachment 1. Table 6 summarizes the maximum increased cancer risk for each project residential floor level modeled from operation of the diesel engines at each off-site facility, as well as the maximum increased cancer risks (cumulative cancer risk) from operation of all diesel engines. The maximum on-site increased cancer risk was 18.7 in one million from BAAQMD Plant 13528, occurring on the seventh residential floor level of the proposed project This cancer risk would be greater than the BAAQMD cancer risk significance threshold of greater than 10.0 in one million and would be considered a *significant* impact.

Table 5. Maximum DPM Concentrations (µg/m^3) from Nearby Emergency Diesel Engines

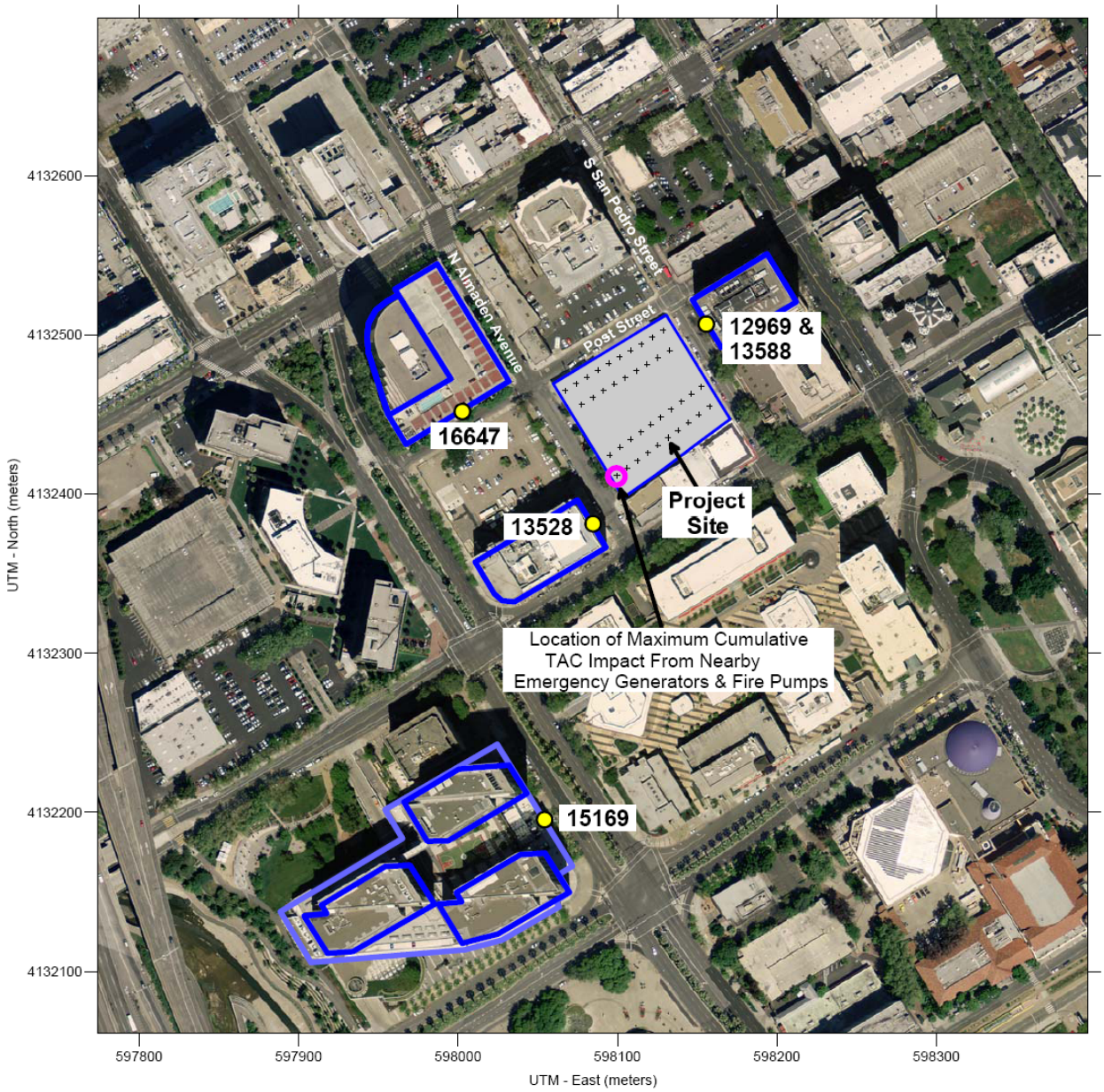
Project Floor Level	On-Site Receptor Height (m)	Maximum DPM/$PM_{2.5}$ Concentration (µg/m^3)					
		BAAQMD Plant Number					All Sources
		12969	13528	15169	16647	13588	
3rd	10.6	0.01	0.02	<0.01	<0.01	<0.01	0.02
4th	13.7	0.01	0.02	<0.01	<0.01	<0.01	0.03
5th	16.7	0.01	0.03	<0.01	<0.01	<0.01	0.03
6th	19.8	0.01	0.03	<0.01	<0.01	<0.01	0.04
7th	22.8	0.01	0.03	<0.01	<0.01	<0.01	0.04
8th	25.9	0.01	0.03	<0.01	<0.01	<0.01	0.04
9th	28.9	0.01	0.02	<0.01	<0.01	<0.01	0.03
Maximum		***0.01***	***0.03***	***<0.01***	***<0.01***	***<0.01***	***0.04***

Table 6. Maximum Increased Cancer Risks from Nearby Emergency Diesel Engines

Project Floor Level	On-Site Receptor Height (m)	Maximum Cancer Risk (per million)					
		BAAQMD Plant Number					All Sources
		12969	13528	15169	16647	13588	
3rd	10.6	7.1	9.5	1.6	1.1	3.5	13.3
4th	13.7	7.9	12.6	1.6	1.1	3.8	16.0
5th	16.7	8.0	15.7	1.6	1.2	3.8	19.2
6th	19.8	8.0	18.4	1.6	1.2	3.8	22.0
7th	22.8	7.7	18.7	1.6	1.2	3.7	22.3
8th	25.9	7.2	16.4	1.6	1.2	3.4	20.0
9th	28.9	6.4	13.7	1.6	1.2	3.1	17.3
Maximum		***8.0***	***18.7***	***1.6***	***1.2***	***3.8***	***22.3***

The maximum modeled annual $PM_{2.5}$ concentration from an individual facility was 0.03 µg/m^3 from BAAQMD Plant 13528, occurring on the seventh residential floor level of the proposed project, and the maximum Hazard Index would be less than 0.01. $PM_{2.5}$ concentrations and Hazard Indexes at other floor levels would be lower than the maximum values. The maximum $PM_{2.5}$ concentration and Hazard Index would be below BAAQMD significance thresholds of 0.3 µg/m^3 for $PM_{2.5}$ and 1.0 for a Hazard Index and would be considered a *less-than-significant* impact. Details of the modeling and risk calculations are included in *Attachment 2.*

Figure 1 – Project Site, On-Site Residential Receptor Locations, and Nearby Stationary Sources Evaluated in the Refined Modeling



Local Roadway TAC Sources

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 and adjustment of cancer risk to reflect new OEHHA guidance described above.

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 is not likely to be occupied prior to 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 year 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.[6]

There are several local roadways near the project site, with the busiest being West Santa Clara Street. The City of San Jose's Envision San Jose 2040 General Plan Draft Program EIR provides existing roadway segment average daily traffic (ADT). Based on data collected in May 2008, West Santa Clara Street has an average daily traffic volume of 26,700. Other nearby roadways are assumed in this analysis to have less than 10,000 average daily trips.

The average daily traffic, or ADT, volume on W. Santa Clara Street is estimated at 30,000 vehicles or less in the project area based on the Envision 2040 Draft Program EIR traffic analysis. Using the BAAQMD *Roadway Screening Analysis Calculator* for Santa Clara County for east-west directional roadways and at a distance of approximately 375 feet south of the roadway, estimated cancer risk from W. Santa Clara Street at the project site would be 2.8 per million and $PM_{2.5}$ concentration would be 0.1 $\mu g/m^3$. Chronic or acute HI for the roadway would be below 0.03. Note that screening risk levels above the ground floor would be even lower.

Combined Community Risk Impacts

As discussed above, the project site is affected by multiple sources of TACs. Table 7 shows the cancer risk associated with each source affecting the project site. The sum of impacts from combined sources (i.e., sources within 1,000 feet of the project) would be below the thresholds of significance. Therefore, the combined impact from operational community risk at the project site would be considered *less-than-significant*. Similarly, the maximally exposed individual (MEI) during project construction (see Figure 2) was evaluated for combined community risk from construction and operational sources in Table 8.

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

Table 7. Impacts from Combined Sources at Project Site

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration ($\mu g/m^3$)
Plants 12969, 13528, 15169, and 16647 combined	21.9	<0.01	0.04
Plant 19758, SMS/VEF Winthrop Management	4.7	0.01	<0.01
Plant 14985, Wells Fargo Bank	1.2	<0.01	<0.01
Plant 8556, Fairmont Hotel	0.5	<0.01	<0.01
Plant 16778, Owl Energy Resources	1.2	0.13	<0.01
Plant 14713, Verizon Business	1.5	<0.01	<0.01
Plant 14687, Qwest Communication Corporation	0.7	<0.01	<0.01
Plant 14177, Pacific Gas & Electric	1.9	<0.01	<0.01
Plant 16706 (Now 22398) , Harvest Properties LLC	1.2	<0.01	<0.01
Plant 19420 (Now 21548), ECI	7.5	<0.01	<0.01
Plant 13588 (Now 20903), CoreSite	3.8	<0.01	<0.01
W. Santa Clara Street at 375 feet	2.8	<0.03	0.1
Combined Sources	48.9	<0.26	<0.24
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

Mitigation Measure 2: **Mechanical Ventilation with Filtration**

Maintained ventilation systems with high-efficiency air filtration of the fresh air supply could reduce overall concentrations of DPM, substantially lowering cancer risk. These systems should be installed on either an individual unit-by-unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system.

The U.S. EPA reports particle size removal efficiency for filters rated MERV13 of 90 percent for particles in the size range of 1 to 3 µm and less than 75 percent for particles 0.3 to 1 µm.[7,8] The BAAQMD's *Planning Healthy Places* guidance indicates that MERV13 air filtration devices installed on an HVAC air intake system can remove 80-90 percent of indoor particulate matter (greater than 0.3 microns in diameter).[9]

The project shall include the following measures to minimize the long-term TAC exposure for new project occupants:

a. Install air filtration that serves all residential dwelling units in the first through third floors. Air filtration devices shall be rated MERV13 or higher. To ensure adequate

[7] American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 2007. *Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size*. ANSI/ASHRAE Addendum b to Standard 52.2-2007

[8] United States Environmental Protection Agency (U.S. EPA), 2009. *Residential Air Cleaners (Second Edition): A Summary of Available Information*. U.S. EPA 402-F-09-002. Revised August 2009.

[9] Bay Area Air Quality Management District (BAAQMD), 2016. *Planning Healthy Places A Guidebook for addressing local sources of air pollutants in community planning*. May.

health protection to sensitive receptors, a ventilation system shall meet the following minimal design standards:

- A MERV13 or higher rating (as specified above);
- At least one air exchange(s) per hour of fresh outside filtered air; and
- At least four air exchange(s) per hour recirculation.

Alternately, at the approval of the City, equivalent control technology may be used if it is shown by a qualified air quality consultant or heating, ventilation, and air conditioning (HVAC) engineer that it would reduce risk below significance thresholds.

b. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required. Recognizing that emissions from air pollution sources are decreasing, the maintenance period shall last as long as significant excess cancer risk exposures are predicted. Subsequent studies could be conducted by an air quality expert approved by the City to identify the ongoing need for the filtered ventilation systems as future information becomes available.

c. Ensure that the lease agreement and other property documents (1) require cleaning, maintenance, and monitoring of the affected units for air flow leaks; (2) include assurance that new owners and tenants are provided information on the ventilation system; and (3) include provisions that fees associated with owning or leasing a unit(s) in the building include funds for cleaning, maintenance, monitoring, and replacements of the filters, as needed.

d. Require that, prior to final design or occupancy, an authorized air pollutant consultant verify the all necessary measures to reduce TAC exposure.

Significance After Mitigation

A properly installed and operated ventilation system with MERV 13 air filters will reduce $PM_{2.5}$ concentrations, including from DPM, from mobile and stationary sources by approximately 80 percent indoors when compared to outdoors. The overall effectiveness calculations take into consideration time spent outside and the outdoor exposure of each affected unit. The U.S. EPA reports that people, on average, spend 90 percent of their time indoors[10]. The overall effectiveness calculations should take into effect time spent outdoors. Assuming two hours of outdoor exposure plus one hour of open windows (calculated as outdoor exposure) per day, the overall effectiveness of the MERV 13 filtration systems would be 70 percent. Reducing the maximum cancer risk by 70 percent to assess the effect of the mitigation yields a mitigated cancer risk of 5.6 in one million, which is below the BAAQMD significance threshold.

[10] Klepeis, N.E., Nelsen, WC., Ott, WR., Robinson, JP., Tsang, AM., Switzer, P., Behar, JV., Hern, SC., and Engelmann, WH. 2001. *The National Human Activity Pattern Survey (NHAPS): a resource for assessing exposure to environmental pollutants*. J. Expo Anal Environ Epidemial. 2001 May-Jun;11(3):231-52.

Project Construction Activity

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

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose community risks for sensitive receptors such as nearby 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 community 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 $PM_{2.5}$.[11] The closest sensitive receptors to the project site include the Plaza Hotel [12]adjacent to the southern project boundary and the proposed apartments to the north of the project site. There are other residences at further distances to the east of the project site (see Figure 2). Emissions and dispersion modeling was conducted to predict the off-site DPM concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

<u>On-Site Construction TAC Emissions</u>

Construction period emissions were computed using CalEEMod along with projected construction activity, as described above. The CalEEMod model provided total annual $PM_{2.5}$ exhaust emissions (assumed to be DPM) for the off road construction equipment used for construction of the project and for the exhaust emissions from on-road vehicles (haul trucks, vendor trucks, and worker vehicles) of 0.0393 tons (80 pounds) over the construction period. A trip length of one-half mile was used to represent vehicle travel while at or near the construction site. For modeling purposes, it was assumed that these emissions from on-road vehicles would occur at the construction site. Fugitive dust $PM_{2.5}$ emissions were also computed and included in this analysis. The model predicts emissions of 0.0406 tons (80 pounds) of fugitive $PM_{2.5}$ over the construction period.

[11] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.
[12] Has been defunct seen 2007 but has been acquired by the City of San Jose and will soon be converted into a shelter for the homeless (http://www.bizjournals.com/sanjose/news/2015/06/12/city-eyes-defunct-downtown-hotel-for-homeless.html)

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.[13] For each phase of construction the AERMOD 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 5-year meteorological data set (2006-2010) from the San Jose Airport prepared for use with the AERMOD model by the BAAQMD. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2017-2019 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptor locations. Receptor heights of 1.5 meters (4.9 feet) and 4.5 meters (14.7 feet) were used to represent the breathing heights of residents in nearby single family homes and for residences on the second floor level of buildings with first floor retail use.

The maximum-modeled annual $PM_{2.5}$ concentrations which includes both the DPM and Fugitve $PM_{2.5}$ concentrations, occurred at the first floor level of the Plaza Hotel to the south of the site, as shown in Figure 2 for the maximally exposed individual (MEI). The maximum cancer risks occurred at the second floor level of the residential MEI. Using the maximum annual modeled DPM concentrations, the maximum increased cancer risks were calculated. *Attachment 3* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

Cancer Risks

Results of this assessment indicate that the maximum excess residential cancer risks would be 36.5 in one million for an infant exposure and 0.7 in one million for an adult exposure, occurring at the second floor level of the residential MEI. The maximum residential excess cancer risk would be greater than the BAAQMD significance threshold of 10 in one million. *Implementation of Mitigation Measures 1 and 3 would reduce this impact to a level of less than significant.*

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

Predicted Annual $PM_{2.5}$ Concentration

The maximum-modeled annual $PM_{2.5}$ concentration, which is based on combined exhaust and fugitive dust emissions, was 0.396μg/m^3, occurring at the first floor level of the residential MEI. The maximum annual $PM_{2.5}$ concentration at the MEI receptor location would exceed the BAAQMD significance threshold of 0.3 μg/m^3.

Non-Cancer Hazards

The maximum modeled annual residential DPM concentration (i.e., from construction exhaust) was 0.1338 μg/m^3. The maximum computed HI based on this DPM concentration is 0.03, which is much lower than the BAAQMD significance criterion of a HI greater than 1.0.

Cumulative Impact on Construction MEI

The cumulative impacts of TAC emissions from construction of the project, the stationary sources and traffic on W. Santa Clara Street on the construction MEI have been summarized in Table 8. As shown in Table 8, the sum of impacts from combined sources at the construction MEI would be below the thresholds of significance and this impact would be considered *less-than-significant*.

Table 8. Impacts from Combined Sources at Construction MEI

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration (μg/m^3)
Project Construction	36.5	0.03	0.40
Plants 12969, 13528, 15169, and 16647 combined	5.0	<0.01	<0.01
Plant 19758, SMS/VEF Winthrop Management	<4.7	<0.01	<0.01
Plant 14985, Wells Fargo Bank	<1.2	<0.01	<0.01
Plant 8556, Fairmont Hotel	<0.5	<0.01	<0.01
Plant 16778, Owl Energy Resources	<1.2	0.13	<0.01
Plant 14713, Verizon Business	1.5	<0.01	<0.01
Plant 14687, Qwest Communication Corporation	0.7	<0.01	<0.01
Plant 14177, Pacific Gas & Electric	1.9	<0.01	<0.01
Plant 16706 (Now 22398), Harvest Properties LLC	<1.2	<0.01	<0.01
Plant 19420 (Now 21548), ECI	<7.5	<0.01	<0.01
Plant 13588 (Now 20903), CoreSite	<3.8	<0.01	<0.01
W. Santa Clara Street at 375 feet	<2.8	<0.03	0.1
Combined Sources	<68.5	<0.29	<0.61
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

Mitigation Measure 3: **Selection of equipment during construction to minimize emissions. Such equipment selection would include the following.**

The project shall develop a plan demonstrating that the off-road equipment used on-site to construct the project would achieve a fleet-wide average 75 percent reduction in $PM_{2.5}$ exhaust emissions or more. One feasible plan to achieve this reduction would include the following:

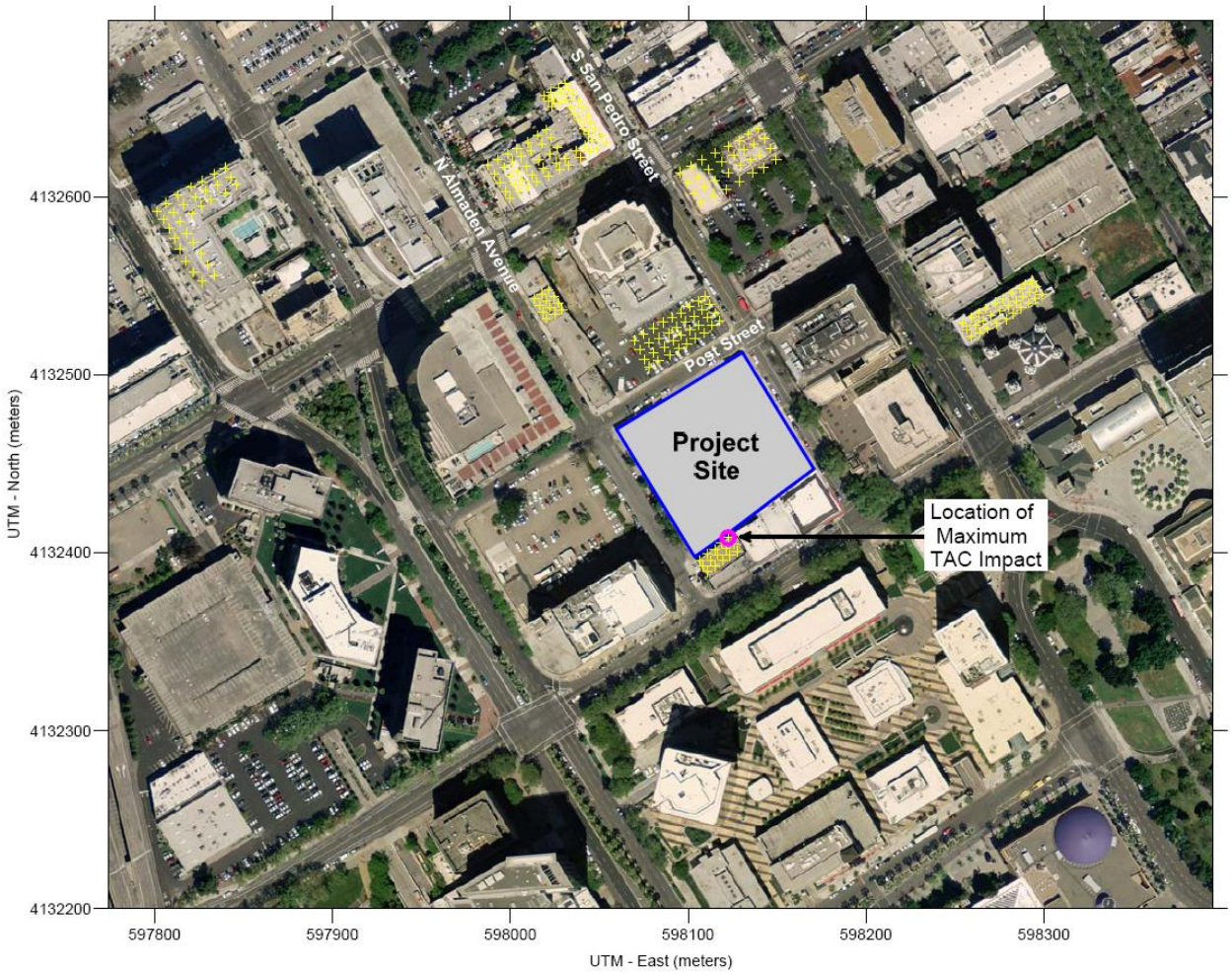
All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the site for more than two days shall meet, at a minimum, U.S. EPA particulate matter emissions standards for Tier 4 engines or equivalent. Note that the construction contractor could use other measures to minimize construction period DPM emission to reduce the predicted cancer risk below the thresholds. The use of equipment that includes CARB-certified Level 3 Diesel Particulate Filters[14] would meet this requirement. Other measures may be the use of added exhaust devices, alternatively-fueled equipment (i.e., non-diesel), or a combination of measures, provided that these measures are approved by the City and demonstrated to reduce community risk impacts to less than significant.

Effectiveness of Mitigation Measures 1 and 3

Implementation of Mitigation Measure 1 is considered to reduce exhaust emissions by 5 percent. Implementation of Mitigation Measure 3 would further reduce on-site diesel exhaust emissions. This would reduce the cancer risk proportionally, such that the mitigated risk would be less than 6.0 in one million and the maximum annual $PM_{2.5}$ concentration would be reduced to 0.14 $\mu g/m^3$, which is less than the BAAQMD significance threshold . After implementation of these mitigation measures, the project would have a *less-than-significant* impact with respect to community risk caused by construction activities.

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

Figure 2. Project Construction Site and Locations of Off-Site Sensitive Receptors and Maximum TAC and $PM_{2.5}$ Impacts



Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to 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 CARB develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[15] 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.[16] This health risk assessment used the recent 2015 OEHHA risk assessment guidelines and CARB guidance. While the OEHHA guidelines use substantially more conservative assumptions than the current BAAQMD guidelines, BAAQMD has not formally adopted recommended procedures for applying the newest OEHHA guidelines. BAAQMD is in the process of developing new guidance and has developed proposed HRA Guidelines as part of the proposed amendments to Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[17] Exposure parameters from the OEHHA guidelines and newly proposed 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 residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways).

[15] OEHHA, 2015. . Office of Environmental Health Hazard Assessment. February.
[16] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[17] BAAQMD, 2016. *Workshop Report. Proposed Amendments to Air District Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants. Appendix C. Proposed Air District 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. BAAQMD recommends using these FAH factors for residential exposures.

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* / *Age Range*	Infant		Child	Adult
		3rd Trimester	0<2	2 < 16	16 - 30
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day)*		361	1,090	572	261
Inhalation Absorption Factor		1	1	1	1
Averaging Time (years)		70	70	70	70
Exposure Duration (years)		0.25	2	14	14
Exposure Frequency (days/year)		350	350	350	350
Age Sensitivity Factor		10	10	3	1
Fraction of Time at Home		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 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, $PM_{2.5}$ 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 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: Operational Stationary TAC Modeling Data

BAAQMD Stationary Source and Emission Data

Table A: Requestor Contact Information	
Contact Name:	Tanushree Ganguly
Affiliation:	Illingworth & Rodkin, Inc.
Phone:	707-794-0400
Email:	tganguly@illingworthrodkin.com
Date of Request	7/26/2016
Project Name:	Post &San Predro Mixed Use
Address:	70 S Almaden Avenue
City:	San Jose
County:	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.):	Mixed Use Development
Project size (# of units, or building square feet):	70.6 ksf
Comments:	

For Air District assistance, the following steps must be completed:
Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please include a project site map.
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.
Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
Using the Google Earth ruler function, measure the distance in feet between the project's fenceline and the stationary source's fenceline for all the sources that are within 1,000 feet of the project's fenceline. 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 that the source is within 1,000 feet of the project. Please report any mapping errors to the District (District contact information in Step 9).
If the stationary source is within 1,000 feet of the project's fenceline and the stationary source's information table does not list the cancer risk, hazard index, and PM2.5 concentration, and instead says to "Contact District Staff", list the stationary source information in Table B Section 1 below.
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.
Email this completed form to District staff (Step 9). 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 Alison Kirk at 415-749-5169, or akirk@baaqmd.gov .

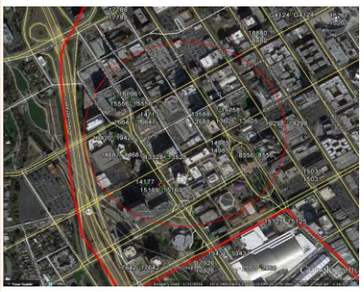


Table B: Stationary Sources within 1,000 feet of Receptor that say "Contact District Staff"

Table B Section 1: Requestor fills out these columns based on Google Earth data				Table B Section 2: BAAQMD returns form with additional information in these columns as needed									
Distance from Receptor (feet)	**Plant # or Gas Dispensary #**	**Facility Name**	**Street Address**	**2011 Screening Level Cancer Risk (1)**	**2011 Screening Level Hazard Index (1)**	**2011 Screening Level PM2.5 (1)**	**2014 Screening Level Cancer Risk (1)**	**2014 Screening Level Hazard Index (1)**	**2014 Screening Level PM2.5 (1)**	**Distance to Threshold Cancer Risk**	**Multiplier**	**Distance Adjusted PM2.5 Level**	
75	13588	Carlyle Market Post Tower MMR	55 South Market St, STE 230	30.67	0.011	0.054	82	0.07	0.1				new no. 20903 CoreSite
350	19758	SMS/VEF Winthrop Management	60 South Mrket Street	No Data	No Data	No Data	20	0.01	0.026				generator
225	14985	Wells Fargo Bank	121 Park Central Plaza	71.25	0.025	0.016							No 2014 data. Use 2011 data.
75	12969	Verizon Business	55 South Market Street	64.95	0.023	0.115	154.9	0.08	0.2				generator
780	8556	Fairmont Hotel	170 South Market Street	62.81	0.147	0.002	6.49	0.01	0.0082				generator
780	16778	Owl Energy resources	170 South Market Street	0	0	1.17	17.5	1.19E-01	3.09				
238	13528	Pacific Bell	95 South Alamaden Avenue	116.89	0.089	0.250	253.54	0.019	0.330				generator
700	14713	Verizon Business	55 South Almaden	13.82	0.005	0.025	15.40	0.007	0.020				
720	19420	Legacy Aprtners II SJ Almaden LLC	1 Almaden Boulevard	21.46	0.008	0.038	57.85	0.030	0.075				new plant no. 21548 generator
700	14687	Qwest Communications Corporation	55 Almaden Boulevard	37.14	0.013	0.009	6.07	0.008	0.008				generator
800	14177	Pacific Gas and Electric	111 Almaden Boulevard	78.34	0.028	0.029	17.16	0.009	0.026				generator
785	15169	Adobe Systems, Inc	151 Almaden Boulevard	2.04	0.038	0.004	367.20	0.190	0.478				generator
780	16706	Equity Office Properties	225 W Santa Clara Street	22.42	0.008	0.040	12.67	0.100	0.016				new no. 22398 "Harvest Properties"
435	16647	Equity Office Properties	10 Almaden	171.15	0.061	0.303	38.14	0.019	0.049				
960	18907	Rosendin Electric	38 N Almaden Blvd	No Data	No Data	No Data	no data	no data	no data				generator, appears to be closed.
780	15556	Jeppesen	225 W Santa Clara Street	0	0.000	0.001	0.00	0.000	0.001				generator

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: AUG 3, 2016
DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2015)

Pacific Bell (P# 13528)

S#	SOURCE NAME / MATERIAL	SOURCE CODE / THROUGHPUT	DATE	POLLUTANT	CODE	LBS/DAY
3	Emergency Standby Diesel Generator Set	C2240098				
				Benzene	41	1.41E-03
				Formaldehyde	124	1.17E-04
				Organics (other, including	990	6.80E-02
				Arsenic (all)	1030	1.23E-06
				Beryllium (all) pollutant	1040	7.19E-07
				Cadmium	1070	3.07E-06
				Chromium (hexavalent)	1095	6.35E-08
				Lead (all) pollutant	1140	2.60E-06
				Manganese	1160	4.08E-06
				Nickel pollutant	1180	4.96E-05
				Mercury (all) pollutant	1190	8.67E-07
				Diesel Engine Exhaust Part	1350	7.08E-02
				PAH's (non-speciated)	1840	6.47E-06
				Nitrous Oxide (N2O)	2030	3.77E-04
				Nitrogen Oxides (part not	2990	9.92E-01
				Sulfur Dioxide (SO2)	3990	4.60E-04
				Carbon Monoxide (CO) pollu	4990	2.16E-01
				Carbon Dioxide, non-biogen	6960	4.72E+01
				Methane (CH4)	6970	1.89E-03
4	Emergency Standby Diesel Fire Pump Engine	C24AH098				
				Benzene	41	1.11E-04
				Formaldehyde	124	9.05E-06
				Organics (other, including	990	5.01E-03
				Arsenic (all)	1030	9.53E-08
				Beryllium (all) pollutant	1040	5.59E-08
				Cadmium	1070	2.38E-07
				Chromium (hexavalent)	1095	4.93E-09
				Lead (all) pollutant	1140	2.02E-07
				Manganese	1160	3.17E-07
				Nickel pollutant	1180	3.86E-06
				Mercury (all) pollutant	1190	6.74E-08
				Diesel Engine Exhaust Part	1350	3.69E-03
				PAH's (non-speciated)	1840	5.03E-07
				Nitrous Oxide (N2O)	2030	2.93E-05

Nitrogen Oxides (part not 2990 9.56E-02
Sulfur Dioxide (SO2) 3990 3.58E-05
Carbon Monoxide (CO) pollu 4990 3.12E-02
Carbon Dioxide, non-biogen 6960 3.67E+00
Methane (CH4) 6970 1.47E-04

6 Emergency Standby Diesel Generator Set

C22BG098

Benzene 41 3.68E-03
Formaldehyde 124 3.04E-04
Organics (other, including 990 5.45E-02
Arsenic (all) 1030 3.20E-06
Beryllium (all) pollutant 1040 1.88E-06
Cadmium 1070 8.01E-06
Chromium (hexavalent) 1095 1.66E-07
Lead (all) pollutant 1140 6.79E-06
Manganese 1160 1.07E-05
Nickel pollutant 1180 1.30E-04
Mercury (all) pollutant 1190 2.26E-06
Diesel Engine Exhaust Part 1350 3.02E-02
PAH's (non-speciated) 1840 1.69E-05
Nitrous Oxide (N2O) 2030 9.85E-04
Nitrogen Oxides (part not 2990 1.11E+00
Sulfur Dioxide (SO2) 3990 1.20E-03
Carbon Monoxide (CO) pollu 4990 3.58E-01
Carbon Dioxide, non-biogen 6960 1.23E+02
Methane (CH4) 6970 4.93E-03

PLANT TOTAL:

lbs/day Pollutant

4.53E-06 Arsenic (all) (1030)
5.20E-03 Benzene (41)
2.65E-06 Beryllium (all) pollutant (1040)
1.13E-05 Cadmium (1070)
1.74E+02 Carbon Dioxide, non-biogenic CO2 (6960)
6.05E-01 Carbon Monoxide (CO) pollutant (4990)
2.34E-07 Chromium (hexavalent) (1095)
1.05E-01 Diesel Engine Exhaust Particulate Matter (1350)
4.30E-04 Formaldehyde (124)
9.60E-06 Lead (all) pollutant (1140)
1.51E-05 Manganese (1160)
3.20E-06 Mercury (all) pollutant (1190)
6.96E-03 Methane (CH4) (6970)
1.83E-04 Nickel pollutant (1180)
2.20E+00 Nitrogen Oxides (part not spec elsewhere) (2990)
1.39E-03 Nitrous Oxide (N2O) (2030)
1.28E-01 Organics (other, including CH4) (990)

2.39E-05 PAH's (non-speciated) (1840)
1.70E-03 Sulfur Dioxide (SO2) (3990)

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: AUG 3, 2016
DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2015)

Adobe Systems, Inc (P# 15169)

S#	SOURCE NAME / MATERIAL	SOURCE CODE / THROUGHPUT	DATE	POLLUTANT	CODE	LBS/DAY
1	Emergency Standby Diesel Generator Set	C22BG098				
				Benzene	41	1.16E-03
				Formaldehyde	124	9.63E-05
				Organics (other, including	990	5.62E-02
				Arsenic (all)	1030	1.01E-06
				Beryllium (all) pollutant	1040	5.94E-07
				Cadmium	1070	2.53E-06
				Chromium (hexavalent)	1095	5.24E-08
				Lead (all) pollutant	1140	2.15E-06
				Manganese	1160	3.37E-06
				Nickel pollutant	1180	4.10E-05
				Mercury (all) pollutant	1190	7.17E-07
				Diesel Engine Exhaust Part	1350	5.86E-02
				PAH's (non-speciated)	1840	5.35E-06
				Nitrous Oxide (N2O)	2030	3.12E-04
				Nitrogen Oxides (part not	2990	8.20E-01
				Sulfur Dioxide (SO2)	3990	3.80E-04
				Carbon Monoxide (CO) pollu	4990	1.78E-01
				Carbon Dioxide, non-biogen	6960	3.90E+01
				Methane (CH4)	6970	1.56E-03
2	Emergency Standby Diesel Generator Set	C22BG098				
				Organics (other, including	990	1.20E-01
				Arsenic (all)	1030	1.26E-06
				Beryllium (all) pollutant	1040	7.41E-07
				Cadmium	1070	3.16E-06
				Chromium (hexavalent)	1095	6.54E-08
				Lead (all) pollutant	1140	2.68E-06
				Manganese	1160	4.21E-06
				Nickel pollutant	1180	5.12E-05
				Mercury (all) pollutant	1190	8.94E-07
				Diesel Engine Exhaust Part	1350	6.72E-02
				PAH's (non-speciated)	1840	6.67E-06
				Nitrous Oxide (N2O)	2030	3.89E-04
				Nitrogen Oxides (part not	2990	1.50E+00
				Sulfur Dioxide (SO2)	3990	4.74E-04

Carbon Monoxide (CO) pollu 4990 3.23E-01
Carbon Dioxide, non-biogen 6960 4.86E+01
Methane (CH4) 6970 1.95E-03

3 Emergency Standby Diesel Fire Pump Engine
C24AG098
Organics (other, including 990 5.52E-03
Arsenic (all) 1030 8.10E-08
Beryllium (all) pollutant 1040 4.75E-08
Cadmium 1070 2.03E-07
Chromium (hexavalent) 1095 4.19E-09
Lead (all) pollutant 1140 1.72E-07
Manganese 1160 2.70E-07
Nickel pollutant 1180 3.28E-06
Mercury (all) pollutant 1190 5.73E-08
Diesel Engine Exhaust Part 1350 3.10E-03
PAH's (non-speciated) 1840 4.28E-07
Nitrous Oxide (N2O) 2030 2.49E-05
Nitrogen Oxides (part not 2990 6.93E-02
Sulfur Dioxide (SO2) 3990 3.04E-05
Carbon Monoxide (CO) pollu 4990 1.49E-02
Carbon Dioxide, non-biogen 6960 3.12E+00
Methane (CH4) 6970 1.25E-04

4 Emergency Standby Diesel Generator Set
C22BG098
Organics (other, including 990 9.58E-02
Arsenic (all) 1030 1.01E-06
Beryllium (all) pollutant 1040 5.94E-07
Cadmium 1070 2.53E-06
Chromium (hexavalent) 1095 5.24E-08
Lead (all) pollutant 1140 2.15E-06
Manganese 1160 3.37E-06
Nickel pollutant 1180 4.10E-05
Mercury (all) pollutant 1190 7.17E-07
Diesel Engine Exhaust Part 1350 5.39E-02
PAH's (non-speciated) 1840 5.35E-06
Nitrous Oxide (N2O) 2030 3.12E-04
Nitrogen Oxides (part not 2990 1.20E+00
Sulfur Dioxide (SO2) 3990 3.80E-04
Carbon Monoxide (CO) pollu 4990 2.59E-01
Carbon Dioxide, non-biogen 6960 3.90E+01
Methane (CH4) 6970 1.56E-03

5 Emergency Standby Diesel Fire Pump Engine
C24AG098
Organics (other, including 990 2.50E-02
Arsenic (all) 1030 2.75E-07
Beryllium (all) pollutant 1040 1.61E-07
Cadmium 1070 6.87E-07

Chromium (hexavalent) 1095 1.42E-08
Lead (all) pollutant 1140 5.83E-07
Manganese 1160 9.15E-07
Nickel pollutant 1180 1.11E-05
Mercury (all) pollutant 1190 1.94E-07
Diesel Engine Exhaust Part 1350 1.41E-02
PAH's (non-speciated) 1840 1.45E-06
Nitrous Oxide (N2O) 2030 8.46E-05
Nitrogen Oxides (part not 2990 3.14E-01
Sulfur Dioxide (SO2) 3990 1.03E-04
Carbon Monoxide (CO) pollu 4990 6.76E-02
Carbon Dioxide, non-biogen 6960 1.06E+01
Methane (CH4) 6970 4.23E-04

6 Emergency Standby Diesel Fire Pump Engine
C24AG098
Organics (other, including 990 1.26E-03
Arsenic (all) 1030 1.38E-07
Beryllium (all) pollutant 1040 8.10E-08
Cadmium 1070 3.46E-07
Chromium (hexavalent) 1095 7.15E-09
Lead (all) pollutant 1140 2.93E-07
Manganese 1160 4.60E-07
Nickel pollutant 1180 5.59E-06
Mercury (all) pollutant 1190 9.77E-08
Diesel Engine Exhaust Part 1350 2.04E-03
PAH's (non-speciated) 1840 7.29E-07
Nitrous Oxide (N2O) 2030 4.25E-05
Nitrogen Oxides (part not 2990 4.55E-02
Sulfur Dioxide (SO2) 3990 5.18E-05
Carbon Monoxide (CO) pollu 4990 6.01E-03
Carbon Dioxide, non-biogen 6960 5.32E+00
Methane (CH4) 6970 2.13E-04

PLANT TOTAL:
lbs/day Pollutant

3.79E-06 Arsenic (all) (1030)
1.16E-03 Benzene (41)
2.22E-06 Beryllium (all) pollutant (1040)
9.47E-06 Cadmium (1070)
1.46E+02 Carbon Dioxide, non-biogenic CO2 (6960)
8.49E-01 Carbon Monoxide (CO) pollutant (4990)
1.96E-07 Chromium (hexavalent) (1095)
1.99E-01 Diesel Engine Exhaust Particulate Matter (1350)
9.63E-05 Formaldehyde (124)
8.03E-06 Lead (all) pollutant (1140)
1.26E-05 Manganese (1160)

2.68E-06 Mercury (all) pollutant (1190)
5.82E-03 Methane (CH4) (6970)
1.53E-04 Nickel pollutant (1180)
3.95E+00 Nitrogen Oxides (part not spec elsewhere) (2990)
1.16E-03 Nitrous Oxide (N2O) (2030)
3.03E-01 Organics (other, including CH4) (990)
2.00E-05 PAH's (non-speciated) (1840)
1.42E-03 Sulfur Dioxide (SO2) (3990)

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: AUG 3, 2016
DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2015)

Equity Office Properties (P# 16647)

S#	SOURCE NAME / MATERIAL / SOURCE CODE	THROUGHPUT	DATE	POLLUTANT	CODE	LBS/DAY
1	10 Almaden - Emergency Generator					
	C22AG098					
				Benzene	41	4.28E-04
				Formaldehyde	124	3.54E-05
				Organics (other, including	990	2.07E-02
				Arsenic (all)	1030	3.73E-07
				Beryllium (all) pollutant	1040	2.18E-07
				Cadmium	1070	9.32E-07
				Chromium (hexavalent)	1095	1.93E-08
				Lead (all) pollutant	1140	7.90E-07
				Manganese	1160	1.24E-06
				Nickel pollutant	1180	1.51E-05
				Mercury (all) pollutant	1190	2.63E-07
				Diesel Engine Exhaust Part	1350	2.15E-02
				PAH's (non-speciated)	1840	1.97E-06
				Nitrous Oxide (N2O)	2030	1.15E-04
				Nitrogen Oxides (part not	2990	3.01E-01
				Sulfur Dioxide (SO2)	3990	1.40E-04
				Carbon Monoxide (CO) pollu	4990	6.55E-02
				Carbon Dioxide, non-biogen	6960	1.43E+01
				Methane (CH4)	6970	5.73E-04
2	10 Almaden - Fire Pump					
	C24AG098					
				Benzene	41	1.09E-04
				Formaldehyde	124	8.87E-06
				Organics (other, including	990	5.92E-03
				Arsenic (all)	1030	9.34E-08
				Beryllium (all) pollutant	1040	5.48E-08
				Cadmium	1070	2.34E-07
				Chromium (hexavalent)	1095	4.83E-09
				Lead (all) pollutant	1140	1.98E-07
				Manganese	1160	3.11E-07
				Nickel pollutant	1180	3.78E-06
				Mercury (all) pollutant	1190	6.60E-08
				Diesel Engine Exhaust Part	1350	5.40E-03
				PAH's (non-speciated)	1840	4.93E-07
				Nitrous Oxide (N2O)	2030	2.87E-05

Nitrogen Oxides (part not 2990 7.56E-02
Sulfur Dioxide (SO2) 3990 3.50E-05
Carbon Monoxide (CO) pollu 4990 1.64E-02
Carbon Dioxide, non-biogen 6960 3.59E+00
Methane (CH4) 6970 1.44E-04

PLANT TOTAL:
lbs/day Pollutant

4.66E-07 Arsenic (all) (1030)
5.37E-04 Benzene (41)
2.73E-07 Beryllium (all) pollutant (1040)
1.17E-06 Cadmium (1070)
1.79E+01 Carbon Dioxide, non-biogenic CO2 (6960)
8.20E-02 Carbon Monoxide (CO) pollutant (4990)
2.41E-08 Chromium (hexavalent) (1095)
2.69E-02 Diesel Engine Exhaust Particulate Matter (1350)
4.43E-05 Formaldehyde (124)
9.88E-07 Lead (all) pollutant (1140)
1.55E-06 Manganese (1160)
3.29E-07 Mercury (all) pollutant (1190)
7.17E-04 Methane (CH4) (6970)
1.89E-05 Nickel pollutant (1180)
3.77E-01 Nitrogen Oxides (part not spec elsewhere) (2990)
1.43E-04 Nitrous Oxide (N2O) (2030)
2.66E-02 Organics (other, including CH4) (990)
2.46E-06 PAH's (non-speciated) (1840)
1.75E-04 Sulfur Dioxide (SO2) (3990)

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: AUG 3, 2016
DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2015)

Verizon Business (P# 12969)

S#	SOURCE NAME / MATERIAL	SOURCE CODE / THROUGHPUT	DATE	POLLUTANT	CODE	LBS/DAY
1	Standby Generator Set Diesel	C22BG098				
				Benzene	41	2.17E-03
				Formaldehyde	124	1.80E-04
				Organics (other, including	990	1.05E-01
				Arsenic (all)	1030	1.89E-06
				Beryllium (all) pollutant	1040	1.11E-06
				Cadmium	1070	4.73E-06
				Chromium (hexavalent)	1095	9.79E-08
				Lead (all) pollutant	1140	4.01E-06
				Manganese	1160	6.30E-06
				Nickel pollutant	1180	7.66E-05
				Mercury (all) pollutant	1190	1.34E-06
				Diesel Engine Exhaust Part	1350	1.09E-01
				PAH's (non-speciated)	1840	9.99E-06
				Nitrous Oxide (N2O)	2030	5.82E-04
				Nitrogen Oxides (part not	2990	1.53E+00
				Sulfur Dioxide (SO2)	3990	7.10E-04
				Carbon Monoxide (CO) pollu	4990	3.33E-01
				Carbon Dioxide, non-biogen	6960	7.28E+01
				Methane (CH4)	6970	2.91E-03

site number: 20903

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: AUG 3, 2016
DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2015)

CoreSite (P# 20903)

S#	SOURCE NAME / MATERIAL	SOURCE CODE / THROUGHPUT	DATE	POLLUTANT	CODE	LBS/DAY
1	Emergency Standby Generator	C22BG098				
				Benzene	41	5.29E-04
				Formaldehyde	124	4.38E-05
				Organics (other, including	990	3.55E-02
				Arsenic (all)	1030	4.61E-07
				Beryllium (all) pollutant	1040	2.70E-07
				Cadmium	1070	1.15E-06
				Chromium (hexavalent)	1095	2.38E-08
				Lead (all) pollutant	1140	9.77E-07
				Manganese	1160	1.53E-06
				Nickel pollutant	1180	1.86E-05
				Mercury (all) pollutant	1190	3.26E-07
				Diesel Engine Exhaust Part	1350	2.88E-03
				PAH's (non-speciated)	1840	2.43E-06
				Nitrous Oxide (N2O)	2030	1.42E-04
				Nitrogen Oxides (part not	2990	2.05E-01
				Sulfur Dioxide (SO2)	3990	1.73E-04
				Carbon Monoxide (CO) pollu	4990	1.44E-02
				Carbon Dioxide, non-biogen	6960	1.77E+01
				Methane (CH4)	6970	7.09E-04
2	Diesel Engine, Caterpillar model 3508 SR4B, emergency standb	C22BG098				
				Benzene	41	7.12E-04
				Formaldehyde	124	5.89E-05
				Organics (other, including	990	3.44E-02
				Arsenic (all)	1030	6.20E-07
				Beryllium (all) pollutant	1040	3.63E-07
				Cadmium	1070	1.55E-06
				Chromium (hexavalent)	1095	3.21E-08
				Lead (all) pollutant	1140	1.31E-06
				Manganese	1160	2.06E-06
				Nickel pollutant	1180	2.51E-05
				Mercury (all) pollutant	1190	4.38E-07
				Diesel Engine Exhaust Part	1350	3.58E-02

PAH's (non-speciated) 1840 3.27E-06
Nitrous Oxide (N2O) 2030 1.91E-04
Nitrogen Oxides (part not 2990 5.01E-01
Sulfur Dioxide (SO2) 3990 2.32E-04
Carbon Monoxide (CO) pollu 4990 1.09E-01
Carbon Dioxide, non-biogen 6960 2.38E+01
Methane (CH4) 6970 9.53E-04

3 Diesel Engine, Onan model 150DGFA, emergency standby
C22AG098
Benzene 41 9.49E-05
Formaldehyde 124 7.85E-06
Organics (other, including 990 4.58E-03
Arsenic (all) 1030 8.26E-08
Beryllium (all) pollutant 1040 4.84E-08
Cadmium 1070 2.07E-07
Chromium (hexavalent) 1095 4.27E-09
Lead (all) pollutant 1140 1.75E-07
Manganese 1160 2.75E-07
Nickel pollutant 1180 3.34E-06
Mercury (all) pollutant 1190 5.84E-08
Diesel Engine Exhaust Part 1350 4.77E-03
PAH's (non-speciated) 1840 4.36E-07
Nitrous Oxide (N2O) 2030 2.54E-05
Nitrogen Oxides (part not 2990 6.68E-02
Sulfur Dioxide (SO2) 3990 3.10E-05
Carbon Monoxide (CO) pollu 4990 1.45E-02
Carbon Dioxide, non-biogen 6960 3.18E+00
Methane (CH4) 6970 1.27E-04

4 Diesel Engine, Caterpillar model 3412 SR4, emergency standby
C22AG098
Benzene 41 3.65E-05
Formaldehyde 124 3.02E-06
Organics (other, including 990 1.27E-04
Arsenic (all) 1030 3.18E-08
Beryllium (all) pollutant 1040 1.86E-08
Cadmium 1070 7.95E-08
Chromium (hexavalent) 1095 1.64E-09
Lead (all) pollutant 1140 6.74E-08
Manganese 1160 1.06E-07
Nickel pollutant 1180 1.29E-06
Mercury (all) pollutant 1190 2.25E-08
Diesel Engine Exhaust Part 1350 1.33E-04
PAH's (non-speciated) 1840 1.68E-07
Nitrous Oxide (N2O) 2030 9.78E-06
Nitrogen Oxides (part not 2990 8.80E-03
Sulfur Dioxide (SO2) 3990 1.19E-05
Carbon Monoxide (CO) pollu 4990 1.83E-03

Carbon Dioxide, non-biogen 6960 1.22E+00
Methane (CH4) 6970 4.89E-05

5 Diesel Powered Standby Generator 2122KW
C22BG098
Benzene 41 1.42E-03
Formaldehyde 124 1.18E-04
Organics (other, including 990 1.20E-02
Arsenic (all) 1030 1.24E-06
Beryllium (all) pollutant 1040 7.27E-07
Cadmium 1070 3.10E-06
Chromium (hexavalent) 1095 6.41E-08
Lead (all) pollutant 1140 2.63E-06
Manganese 1160 4.12E-06
Nickel pollutant 1180 5.01E-05
Mercury (all) pollutant 1190 8.76E-07
Diesel Engine Exhaust Part 1350 8.87E-03
PAH's (non-speciated) 1840 6.54E-06
Nitrous Oxide (N2O) 2030 3.81E-04
Nitrogen Oxides (part not 2990 6.08E-01
Sulfur Dioxide (SO2) 3990 4.65E-04
Carbon Monoxide (CO) pollu 4990 4.34E-02
Carbon Dioxide, non-biogen 6960 4.77E+01
Methane (CH4) 6970 1.91E-03

6 Standby Generator #1
C22BG098
0 0.00E+00

PLANT TOTAL:
lbs/day Pollutant

2.43E-06 Arsenic (all) (1030)
2.80E-03 Benzene (41)
1.43E-06 Beryllium (all) pollutant (1040)
6.09E-06 Cadmium (1070)
9.36E+01 Carbon Dioxide, non-biogenic CO2 (6960)
1.83E-01 Carbon Monoxide (CO) pollutant (4990)
1.26E-07 Chromium (hexavalent) (1095)
5.24E-02 Diesel Engine Exhaust Particulate Matter (1350)
2.31E-04 Formaldehyde (124)
5.16E-06 Lead (all) pollutant (1140)
8.10E-06 Manganese (1160)
1.72E-06 Mercury (all) pollutant (1190)
3.74E-03 Methane (CH4) (6970)
9.85E-05 Nickel pollutant (1180)
1.39E+00 Nitrogen Oxides (part not spec elsewhere) (2990)
7.49E-04 Nitrous Oxide (N2O) (2030)
8.66E-02 Organics (other, including CH4) (990)

1.28E-05 PAH's (non-speciated) (1840)
9.13E-04 Sulfur Dioxide (SO2) (3990)

Greyhound Site, San Jose, CA
Summary of Point Source Emissions for Modeling and Health Risk Impacts

BAAQMD Plant Number	Facility Name	Facility Address	Emission Sources	Emission Rates[a] (lb/day)	Emission Rates[a] (lb/hr)	Health Risk Modeling Results: Max PM2.5 (µg/m3)	Health Risk Modeling Results: Cancer Risk (per million)
12969	Verizon Business	55 SO MARKET STREET	1 Gen	0.109	0.004542	0.015	8.0
13588	Carlyle Market Post Tower MMI	55 SO MARKET STREET	5 Gens	0.052	0.002183	0.007	3.8
13528	Pacific Bell	95 SO ALMADEN AVENUE	2 Gens, 1 Fire Pump	0.105	0.004375	0.034	18.7
15169	Adobe Systems, Inc	151 ALMADEN BOULEVARD	3 Gens, 3 Fire Pumps	0.199	0.008292	0.003	1.6
16647	Equity Office Properties	TEN ALMADEN	1 Gen, 1 Fire Pump	0.027	0.001121	0.002	1.2
Cumulative All Sources				***-***	***-***	***0.041***	***22.3***

[a] Daily emissions provided by BAAQMD. Hourly emissions used for modeling.

Greyhound Site, San Jose, CA - AERMOD Modeling Parameters
BAAQMD Plant # 12969

DPM Emission Rates			
	Annual Operation	DPM Emissions	
		Daily*	Annual
Source Type	(hr)	(lb/day)	(lb/yr)
Generator	-	0.1090	39.79

* From BAAQMD permit inventory

Modeling Information		
Model:	AERMOD	
Source	Diesel Engine	
Source Type	Point	
Distance to Residences (ft)	various - minimum distance to generator = 60 feet	
Receptor Spacing	8 meters spacing in residential areas	
Meteorological Data	2006-2010 BAAQMD San Jose Airport data	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height (ft)	12	
Stack Diameter** (ft)	0.60	
Stack Exit Velocity** (ft/sec)	149	
Exhaust Temperature** (F)	872	
Annual Emission Rate (lb/year)	39.79	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)	4.54E-03	

** BAAQMD default generator parameters

Refined Modeling – Calculations and Results

Greyhound Site, San Jose, CA - DPM Cancer Risks at Project Site
BAAQMD Plant # 12969
1st Through 9th Floor Levels

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 =	0.85	0.72	0.72	0.73

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

MEI Cancer Risk From: BAAQMD Plant # 12969
5th Floor Receptors

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.0146	0.17
2	1 - 2	10	0.0146	3.44
14	3 - 16	3	0.0146	3.79
14	17 - 30	1	0.0146	0.59
Total Increased Cancer Risk				**8.0**

* Third trimester of pregnancy

Maximum Cancer Risk by Floor Level
BAAQMD Plant # 12969

Floor Level	Receptor Height (m)	DPM Annual Conc (ug/m3)	Maximum DPM Cancer Risk (per million)
3rd	10.6	0.01341	7.4
4th	13.7	0.01431	7.9
5th	**16.7**	**0.01457**	**8.0**
6th	19.8	0.01450	8.0
7th	22.8	0.01407	7.7
8th	25.9	0.01306	7.2
9th	28.9	0.01162	6.4

Greyhound Site, San Jose, CA - AERMOD Modeling Parameters
BAAQMD Plant # 13528

DPM Emission Rates			
	Annual Operation	DPM Emissions	
		Daily*	Annual
Source Type	(hr)	(lb/day)	(lb/yr)
2 Generators and 1 Fire Pump	-	0.1050	38.33

* From BAAQMD permit inventory

Modeling Information		
Model:	AERMOD	
Source	Diesel Engine	
Source Type	Point	
Distance to Residences (ft)	various - minimum distance to generator = 100 feet	
Receptor Spacing	8 meters spacing in residential areas	
Meteorological Data	2006-2010 BAAQMD San Jose Airport data	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height (ft)	12	
Stack Diameter** (ft)	0.60	
Stack Exit Velocity** (ft/sec)	149	
Exhaust Temperature** (F)	872	
Annual Emission Rate (lb/year)	38.33	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)	4.38E-03	

** BAAQMD default generator parameters

Greyhound Site, San Jose, CA - DPM Cancer Risks at Project Site
BAAQMD Plant # 13528
1st Through 9th Floor Levels

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 =	0.85	0.72	0.72	0.73

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

MEI Cancer Risk From: BAAQMD Plant # 13528
7th Floor Receptors

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.0340	0.39
2	1 - 2	10	0.0340	8.05
14	3 - 16	3	0.0340	8.87
14	17 - 30	1	0.0340	1.37
Total Increased Cancer Risk				**18.7**

* Third trimester of pregnancy

Maximum Cancer Risk by Floor Level
BAAQMD Plant # 13528

Floor Level	Receptor Height (m)	DPM Annual Conc (ug/m3)	Maximum DPM Cancer Risk (per million)
3rd	10.6	0.01726	9.5
4th	13.7	0.02288	12.6
5th	16.7	0.02854	15.7
6th	19.8	0.03350	18.4
7th	**22.8**	**0.03403**	**18.7**
8th	25.9	0.02984	16.4
9th	28.9	0.02490	13.7

Greyhound Site, San Jose, CA - AERMOD Modeling Parameters
BAAQMD Plant # 13588

DPM Emission Rates			
	Annual Operation	DPM Emissions	
		Daily*	Annual
Source Type	(hr)	(lb/day)	(lb/yr)
Generator	-	0.0520	18.98

* From BAAQMD permit inventory

Modeling Information		
Model:	AERMOD	
Source	Diesel Engine	
Source Type	Point	
Distance to Residences (ft)	various - minimum distance to generator = 60 feet	
Receptor Spacing	8 meters spacing in residential areas	
Meteorological Data	2006-2010 BAAQMD San Jose Airport data	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height (ft)	12	
Stack Diameter** (ft)	0.60	
Stack Exit Velocity** (ft/sec)	149	
Exhaust Temperature** (F)	872	
Annual Emission Rate (lb/year)	18.98	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)	2.17E-03	

** BAAQMD default generator parameters

Greyhound Site, San Jose, CA - DPM Cancer Risks at Project Site
BAAQMD Plant # 13588
1st Through 9th Floor Levels

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 =	0.85	0.72	0.72	0.73

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

MEI Cancer Risk From: BAAQMD Plant # 13588
5th Floor Receptors

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.0070	0.08
2	1 - 2	10	0.0070	1.66
14	3 - 16	3	0.0070	1.82
14	17 - 30	1	0.0070	0.28
Total Increased Cancer Risk				**3.8**

* Third trimester of pregnancy

Maximum Cancer Risk by Floor Level
BAAQMD Plant # 13588

Floor Level	Receptor Height (m)	DPM Annual Conc (ug/m3)	Maximum DPM Cancer Risk (per million)
3rd	10.6	0.00645	3.5
4th	13.7	0.00688	3.8
5th	**16.7**	**0.00700**	**3.8**
6th	19.8	0.00697	3.8
7th	22.8	0.00676	3.7
8th	25.9	0.00628	3.4
9th	28.9	0.00559	3.1

Greyhound Site, San Jose, CA - AERMOD Modeling Parameters
BAAQMD Plant # 15169

DPM Emission Rates			
	Annual Operation	DPM Emissions	
		Daily*	Annual
Source Type	(hr)	(lb/day)	(lb/yr)
3 Generators and 3 Fire Pumps	-	0.199	72.64

* From BAAQMD permit inventory

Modeling Information		
Model:	AERMOD	
Source	Diesel Engine	
Source Type	Point	
Distance to Residences (ft)	various - minimum distance to generator = 700 feet	
Receptor Spacing	8 meters spacing in residential areas	
Meteorological Data	2006-2010 BAAQMD San Jose Airport data	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height (ft)	12	
Stack Diameter** (ft)	0.60	
Stack Exit Velocity** (ft/sec)	149	
Exhaust Temperature** (F)	872	
Annual Emission Rate (lb/year)	72.64	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)	8.29E-03	

** BAAQMD default generator parameters

Greyhound Site, San Jose, CA - DPM Cancer Risks at Project Site
BAAQMD Plant # 15169
1st Through 9th Floor Levels

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 =	0.85	0.72	0.72	0.73

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

MEI Cancer Risk From: BAAQMD Plant # 15169
7th Floor Receptors

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.0030	0.03
2	1 - 2	10	0.0030	0.71
14	3 - 16	3	0.0030	0.78
14	17 - 30	1	0.0030	0.12
Total Increased Cancer Risk				**1.6**

* Third trimester of pregnancy

Maximum Cancer Risk by Floor Level
BAAQMD Plant # 15169

Floor Level	Receptor Height (m)	DPM Annual Conc (ug/m3)	Maximum DPM Cancer Risk (per million)
3rd	10.6	0.00293	1.6
4th	13.7	0.00296	1.6
5th	16.7	0.00298	1.6
6th	19.8	0.00299	1.6
7th	**22.8**	**0.00299**	**1.6**
8th	25.9	0.00297	1.6
9th	28.9	0.00294	1.6

Greyhound Site, San Jose, CA - AERMOD Modeling Parameters
BAAQMD Plant # 16647

DPM Emission Rates			
	Annual Operation	DPM Emissions	
		Daily*	Annual
Source Type	(hr)	(lb/day)	(lb/yr)
3 Generators and 3 Fire Pumps	-	0.027	9.82

* From BAAQMD permit inventory

Modeling Information		
Model:	AERMOD	
Source	Diesel Engine	
Source Type	Point	
Distance to Residences (ft)	various - minimum distance to generator = 200 feet	
Receptor Spacing	8 meters spacing in residential areas	
Meteorological Data	2006-2010 BAAQMD San Jose Airport data	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height (ft)	12	
Stack Diameter** (ft)	0.60	
Stack Exit Velocity** (ft/sec)	149	
Exhaust Temperature** (F)	872	
Annual Emission Rate (lb/year)	9.82	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)	1.12E-03	

** BAAQMD default generator parameters

Greyhound Site, San Jose, CA - DPM Cancer Risks at Project Site
BAAQMD Plant # 16647
1st Through 9th Floor Levels

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 =	0.85	0.72	0.72	0.73

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

MEI Cancer Risk From: BAAQMD Plant # 16647
7th Floor Receptors

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.0021	0.02
2	1 - 2	10	0.0021	0.50
14	3 - 16	3	0.0021	0.55
14	17 - 30	1	0.0021	0.09
Total Increased Cancer Risk				**1.2**

* Third trimester of pregnancy

Maximum Cancer Risk by Floor Level
BAAQMD Plant # 16647

Floor Level	Receptor Height (m)	DPM Annual Conc (ug/m3)	Maximum DPM Cancer Risk (per million)
3rd	10.6	0.00202	1.1
4th	13.7	0.00207	1.1
5th	16.7	0.00210	1.2
6th	19.8	0.00211	1.2
7th	**22.8**	**0.00212**	**1.2**
8th	25.9	0.00212	1.2
9th	28.9	0.00211	1.2

Greyhound Site, San Jose, CA - DPM Cancer Risks at Project Site
Cumulative Nearby Diesel Engines
1st Through 9th Floor Levels

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 =	0.85	0.72	0.72	0.73

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

MEI Cancer Risk From: Cumulative Nearby Diesel Engines
7th Floor Receptors

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.0406	0.47
2	1 - 2	10	0.0406	9.59
14	3 - 16	3	0.0406	10.57
14	17 - 30	1	0.0406	1.63
Total Increased Cancer Risk				**22.3**

* Third trimester of pregnancy

Maximum Cancer Risk by Floor Level
Cumulative Nearby Diesel Engines

Floor Level	Receptor Height (m)	DPM Annual Conc (ug/m3)	Maximum DPM Cancer Risk (per million)
3rd	10.6	0.02428	13.3
4th	13.7	0.02923	16.0
5th	16.7	0.03498	19.2
6th	19.8	0.03999	22.0
7th	**22.8**	**0.04055**	**22.3**
8th	25.9	0.03641	20.0
9th	28.9	0.03152	17.3

Greyhound Site, San Jose, CA - DPM Cancer Risks at Project Site
Cumulative Nearby Diesel Engines
Risk at location of Construstcion MEI

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 =	0.85	0.72	0.72	0.73

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

MEI Cancer Risk From: Cumulative Nearby Diesel Engines
Constaruction MEI Receptor Location (4.5 meters height)

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.0091	0.10
2	1 - 2	10	0.0091	2.15
14	3 - 16	3	0.0091	2.37
14	17 - 30	1	0.0091	0.36
Total Increased Cancer Risk				**5.0**

* Third trimester of pregnancy

Attachment 3: CalEEMod Output and Health Risk Calculations

Construction Schedule

Project Name: Greyhound Residential					
Construction Phase	**Equipment (*See next page for example of commonly used equipment*)**	**Quantity**	**Average Hours Used Per Day**	**How Many Work Days**	**Fuel Type - if other than Diesel**
Demolition **Start Date:** 4/1/17 **End Date**: 5/1/17	• Excavator	2	8	5	
	• Dump Truck	2	8	5	
	• Rubber Tire Dozer	1	8	5	
	• Backhoe	1	8	5	
	•				
Site Preparation **Start Date:** 5/1/17 **End Date**: 5/15/17	• Rubber Tire Dozer	2	8	5	
	• Backhoe	1	8	5	
	• Water Truck	1	8	5	
	•				
	•				
Grading/Excavation **Start Date:** 5/15/17 **End Date**: 12/1/17	• Excavator	3	8	5	
	• Grader/Scraper	2	8	5	
	• Dump Truck	6	8	5	
	• Loader	2	8	5	
	• Water Truck	1	8	5	
Trenching **Start Date:** 12/1/17 **End Date**: _2/1/17	• Backhoe	1	8	5	
	• Dump Truck	1	8	5	
	•				
	•				
	•				
Building – Exterior **Start Date:** 12/1/17 **End Date**: 12/1/18	• Crane	2	12	5	
	• Forklift	2	8	5	Propane
	• Grader all	1	8	5	
	• Generators	4	24	6	Bio
	• Concrete Pumps	2	8	5	
Building – Interior/ Architectural Coating **Start Date:** 6/1/17 **End Date**: 4/1/19	• Crane	1	8	5	
	• Forklift	2	8	5	Propane
	• Grader all	1	8	5	
	• Generators	2	8	5	Bio
	•				
Paving **Start Date:** 3/1/19_ **End Date**: 4/1/19	• Cement and Mortar Mixers	1	8	5	
	• Pavers	1	8	5	
	• Paving Equipment	1	8	5	
	• Rollers	1	8	5	
	• Concrete Saw	1	8	5	
OTHER – Provide as Applicable					
Soil Hauling Volume	Export volume = ___118,331 cubic yards? Import volume = _____0_____ cubic yards?				
Demolition Volume	Square footage of buildings to be demolished, or total tons to be hauled. =20,800 square feet or =___ hauling volume (tons) Pavement demolished and hauled				

Project Name: Greyhound Residential					
Construction Phase	**Equipment (*See next page for example of commonly used equipment*)**	**Quantity**	**Average Hours Used Per Day**	**How Many Work Days**	**Fuel Type - if other than Diesel**
	= _47,800_ square feet				
Power	Line Power (Y/N) __N or Generator use (Y/N) _Y_? If generator use, then fuel type (diesel/gasoline/propane) _Diesel/BioDiesel				
Cement	Cement Trucks = _10,620_ Total Round-Trips OR Cement =__ cubic yards				
Asphalt	____ cy or ____ round trips				

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

Emissions Summary

DPM Construction Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2017	Construction	0.0144	1_DPM	28.8	0.00877	1.10E-03	6,683	1.65E-07
2018	Construction	0.0223	1_DPM	44.6	0.01358	1.71E-03	6,683	2.56E-07
2019	Construction	0.0026	1_DPM	5.2	0.00159	2.00E-04	6,683	3.00E-08
Total		***0.0393***		***79***	***0***	***0***		

PM2.5 Fugitive Dust Construction 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 $g/s/m^2$
2017	Construction	1_FUG	0.0271	54.2	0.01650	2.08E-03	6,683	3.11E-07
2018	Construction	1_FUG	0.0130	26.0	0.00791	9.97E-04	6,683	1.49E-07
2019	Construction	1_FUG	0.0005	0.9	0.00029	3.61E-05	6,683	5.40E-09
Total			***0.0406***	***81.1400***	***0.0247***	***0.0031***		

Results Summary

Construction Year	Unmitigated					
	Maximum Concentrations		Cancer Risk (per million)		Hazard Index	Maximum Annual PM2.5 Concentration
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child	Adult	(-)	($\mu g/m^3$)
2017	0.0862	0.1421	14.16	0.25	0.017	0.396
2018	0.1338	0.0681	21.97	0.38	0.027	0.248
2019	0.0157	0.0025	0.41	0.05	0.003	0.016
Total	-	-	**36.5**	**0.7**	-	-
Maximum Annual	0.1338	0.1421	-	-	**0.027**	**0.396**

Health Risk Calculations

Geyhound Site Mixed Use, San Jose, CA - Construction Impacts - Unmitigated Emissions
Maximum DPM Cancer Risk Calculations From Construction
Off-Site Residential Receptor Locations - 1.5 meters

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 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information					
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled DPM Conc (ug/m3)		Age	Adult		
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*	-	0.0000	10	-	-	-	-	-		
1	1	0 - 1	2017	0.0549	10	9.01	2017	0.0549	1	0.16	0.3407	0.396
2	1	1 - 2	2018	0.0859	10	14.12	2018	0.0859	1	0.25	0.1619	0.248
3	1	2 - 3	2019	0.0100	3	0.26	2019	0.0100	1	0.03	0.0058	0.016
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						**23.4**				**0.43**		

* Third trimester of pregnancy

Off-Site Residential Receptor Locations - 4.5 meters

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 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information		Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information		Age Sensitivity Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
			Modeled DPM Conc (ug/m3)				Modeled DPM Conc (ug/m3)					
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2017	0.0862	10	14.16	2017	0.0862	1	0.25	0.1421	0.228
2	1	1 - 2	2018	0.1338	10	21.97	2018	0.1338	1	0.38	0.0681	0.202
3	1	2 - 3	2019	0.0157	3	0.41	2019	0.0157	1	0.05	0.0025	0.018
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		
52	1			0.0000	1	0.00		0.0000	1	0.00		
53	1			0.0000	1	0.00		0.0000	1	0.00		
54	1			0.0000	1	0.00		0.0000	1	0.00		
.*	.*		.*	.*	.*	.*	.*	.*	.*	.*		
.*	.*		.*	.*	.*	.*	.*	.*	.*	.*		
.*	.*		.*	.*	.*	.*	.*	.*	.*	.*		
60	1			0.0000	1	0.00		0.0000	1	0.00		
61	1			0.0000	1	0.00		0.0000	1	0.00		
62	1			0.0000	1	0.00		0.0000	1	0.00		
63	1			0.0000	1	0.00		0.0000	1	0.00		
64	1			0.0000	1	0.00		0.0000	1	0.00		
65	1			0.0000	-	-		0.0000	1	0.00		
66	1			0.0000	-	-		0.0000	1	0.00		
67	1			0.0000	-	-		0.0000	1	0.00		
68	1			0.0000	-	-		0.0000	1	0.00		
69	1			0.0000	-	-		0.0000	1	0.00		
70	1			0.0000	-	-		0.0000	1	0.00		
Total Increased Cancer Risk						**36.5**				**0.7**		

* Third trimester of pregnancy

CalEEMod Output

TAC Emissions

Greyhound Residential Apartments

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	736.00	Space	0.00	294,400.00	0
Apartments High Rise	785.00	Dwelling Unit	1.74	785,000.00	2245
Strip Mall	20.00	1000sqft	0.00	20,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	429.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Revised Carbon Dioxide Emission Intensity

Land Use - Consistent with Traffic Report

Construction Phase - From the construction schedule

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Trips and VMT - 10, 620 cement truck roundtrips
Demolition - 20, 800 sf of building and 47,800 sf of pavement demolished

Grading - 118,331 cubic yards of soil exported

Architectural Coating -
Construction Off-road Equipment Mitigation - Best Management Practices

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	FuelType	Diesel	CNG
tblConstEquipMitigation	FuelType	Diesel	Bio-diesel
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	217.00
tblConstructionPhase	NumDays	200.00	261.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	4.00	145.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	2.00	11.00
tblConstructionPhase	PhaseEndDate	10/1/2019	4/1/2019
tblConstructionPhase	PhaseEndDate	12/7/2018	12/1/2018
tblConstructionPhase	PhaseEndDate	12/4/2017	12/1/2017
tblConstructionPhase	PhaseEndDate	5/1/2019	4/1/2019
tblConstructionPhase	PhaseEndDate	5/16/2017	5/15/2017
tblConstructionPhase	PhaseEndDate	12/8/2017	12/7/2017
tblConstructionPhase	PhaseStartDate	12/2/2018	6/1/2018
tblConstructionPhase	PhaseStartDate	12/8/2017	12/1/2017
tblConstructionPhase	PhaseStartDate	5/16/2017	5/15/2017
tblConstructionPhase	PhaseStartDate	4/2/2019	3/1/2019
tblConstructionPhase	PhaseStartDate	5/2/2017	5/1/2017
tblConstructionPhase	PhaseStartDate	12/2/2017	12/1/2017
tblGrading	AcresOfGrading	0.00	11.00
tblGrading	MaterialExported	0.00	118,331.00
tblLandUse	LotAcreage	6.62	0.00
tblLandUse	LotAcreage	12.66	1.74
tblLandUse	LotAcreage	0.46	0.00

tblOffRoadEquipment	HorsePower	361.00	174.00
tblOffRoadEquipment	LoadFactor	0.48	0.41
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	1.80
tblOffRoadEquipment	UsageHours	6.00	0.30
tblOffRoadEquipment	UsageHours	6.00	0.20
tblOffRoadEquipment	UsageHours	8.00	0.60
tblOffRoadEquipment	UsageHours	6.00	1.80
tblOffRoadEquipment	UsageHours	8.00	1.80
tblOffRoadEquipment	UsageHours	7.00	1.80
tblOffRoadEquipment	UsageHours	8.00	1.90
tblOffRoadEquipment	UsageHours	7.00	3.70
tblOffRoadEquipment	UsageHours	8.00	1.90
tblOffRoadEquipment	UsageHours	8.00	1.80
tblOffRoadEquipment	UsageHours	8.00	3.70
tblProjectCharacteristics	CO2IntensityFactor	641.35	429.6
tblProjectCharacteristics	OperationalYear	2014	2020

tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripNumber	0.00	21,240.00
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50

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					
2017	0.1320	0.5456	1.7129	6.9000e-004	0.0935	0.0156	0.1090	0.0271	0.0144	0.0415	0.0000	59.3074	59.3074	7.7900e-003	0.0000	59.4709
2018	5.4447	0.9877	4.0062	1.9700e-003	0.0475	0.0232	0.0707	0.0130	0.0223	0.0353	0.0000	157.7906	157.7906	9.9100e-003	0.0000	157.9987
2019	2.1612	0.0501	0.0744	1.0000e-004	1.7600e-003	2.7500e-003	4.5000e-003	4.7000e-004	2.6100e-003	3.0800e-003	0.0000	8.0996	8.0996	1.4600e-003	0.0000	8.1302
Total	**7.7379**	**1.5833**	**5.7935**	**2.7600e-003**	**0.1428**	**0.0415**	**0.1842**	**0.0406**	**0.0393**	**0.0799**	**0.0000**	**225.1976**	**225.1976**	**0.0192**	**0.0000**	**225.5999**

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					
2017	0.1090	0.2791	1.6837	6.9000e-004	0.0480	1.8400e-003	0.0498	8.3300e-003	1.7100e-003	0.0100	0.3561	58.9741	59.3302	7.7900e-003	0.0000	59.4939
2018	5.4131	0.6906	4.0764	1.9700e-003	0.0475	4.9300e-003	0.0524	0.0130	4.5700e-003	0.0176	4.4991	153.7116	158.2106	0.0100	0.0000	158.4215
2019	2.1569	5.7000e-003	0.0895	1.0000e-004	1.7600e-003	1.5000e-004	1.9000e-003	4.7000e-004	1.4000e-004	6.1000e-004	0.1837	7.9844	8.1681	1.4800e-003	0.0000	8.1992
Total	**7.6790**	**0.9755**	**5.8496**	**2.7600e-003**	**0.0973**	**6.9200e-003**	**0.1042**	**0.0218**	**6.4200e-003**	**0.0282**	**5.0388**	**220.6701**	**225.7089**	**0.0193**	**0.0000**	**226.1146**

	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	**0.76**	**38.39**	**-0.97**	**0.00**	**31.86**	**83.32**	**43.45**	**46.27**	**83.66**	**64.66**	**0.00**	**2.01**	**-0.23**	**-0.78**	**0.00**	**-0.23**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2017	5/1/2017	5	21	
2	Site Preparation	Site Preparation	5/1/2017	5/15/2017	5	11	

3	Grading	Grading	5/15/2017	12/1/2017	5	145	
4	Trenching	Trenching	12/1/2017	12/7/2017	5	5	
5	Building Construction	Building Construction	12/1/2017	12/1/2018	5	261	
6	Architectural Coating	Architectural Coating	6/1/2018	4/1/2019	5	217	
7	Paving	Paving	3/1/2019	4/1/2019	5	22	

Acres of Grading (Site Preparation Phase): 11

Acres of Grading (Grading Phase): 10.88

Acres of Paving: 0

Residential Indoor: 1,589,625; Residential Outdoor: 529,875; Non-Residential Indoor: 471,600; Non-Residential Outdoor: 157,200

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	2	1.90	162	0.38
Demolition	Rubber Tired Dozers	1	1.90	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	1.90	97	0.37
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	2	3.70	255	0.40
Site Preparation	Scrapers	0	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	3.70	97	0.37
Grading	Excavators	3	0.30	162	0.38
Grading	Graders	0	6.00	174	0.41
Grading	Rubber Tired Dozers	0	6.00	255	0.40
Grading	Rubber Tired Loaders	2	0.30	199	0.36
Grading	Scrapers	2	0.30	174	0.41
Grading	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	2	0.30	226	0.29
Building Construction	Forklifts	2	0.20	89	0.20

Building Construction	Generator Sets	4	0.60	84	0.74
Building Construction	Graders	1	0.20	174	0.41
Building Construction	Pumps	2	0.20	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	0	6.00	78	0.48
Architectural Coating	Cranes	1	0.20	226	0.29
Architectural Coating	Forklifts	2	0.20	89	0.20
Architectural Coating	Generator Sets	2	0.20	84	0.74
Architectural Coating	Graders	1	0.20	174	0.41
Paving	Cement and Mortar Mixers	1	1.80	9	0.56
Paving	Concrete/Industrial Saws	1	1.80	81	0.73
Paving	Pavers	1	1.80	125	0.42
Paving	Paving Equipment	1	1.80	130	0.36
Paving	Rollers	1	1.80	80	0.38
Paving	Tractors/Loaders/Backhoes	0	1.80	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	312.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	14,791.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Building Construction	11	695.00	135.00	21,240.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	139.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2017

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					0.0338	0.0000	0.0338	5.1100e-003	0.0000	5.1100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5600e-003	0.0605	0.0478	6.0000e-005		3.0800e-003	3.0800e-003		2.8400e-003	2.8400e-003	0.0000	5.2277	5.2277	1.6000e-003	0.0000	5.2613
Total	**5.5600e-003**	**0.0605**	**0.0478**	**6.0000e-005**	**0.0338**	**3.0800e-003**	**0.0368**	**5.1100e-003**	**2.8400e-003**	**7.9500e-003**	**0.0000**	**5.2277**	**5.2277**	**1.6000e-003**	**0.0000**	**5.2613**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3800e-003	4.1800e-003	0.0241	1.0000e-005	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.5008	0.5008	1.0000e-005	0.0000	0.5010
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	7.0000e-005	9.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0526	0.0526	0.0000	0.0000	0.0527
Total	**1.6400e-003**	**4.2500e-003**	**0.0250**	**1.0000e-005**	**1.1000e-004**	**2.0000e-005**	**1.3000e-004**	**3.0000e-005**	**2.0000e-005**	**5.0000e-005**	**0.0000**	**0.5534**	**0.5534**	**1.0000e-005**	**0.0000**	**0.5537**

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					0.0152	0.0000	0.0152	1.1500e-003	0.0000	1.1500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9000e-004	2.9800e-003	0.0358	6.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	5.2277	5.2277	1.6000e-003	0.0000	5.2613
Total	**6.9000e-004**	**2.9800e-003**	**0.0358**	**6.0000e-005**	**0.0152**	**9.0000e-005**	**0.0153**	**1.1500e-003**	**9.0000e-005**	**1.2400e-003**	**0.0000**	**5.2277**	**5.2277**	**1.6000e-003**	**0.0000**	**5.2613**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3800e-003	4.1800e-003	0.0241	1.0000e-005	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.5008	0.5008	1.0000e-005	0.0000	0.5010
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	7.0000e-005	9.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0526	0.0526	0.0000	0.0000	0.0527
Total	**1.6400e-003**	**4.2500e-003**	**0.0250**	**1.0000e-005**	**1.1000e-004**	**2.0000e-005**	**1.3000e-004**	**3.0000e-005**	**2.0000e-005**	**5.0000e-005**	**0.0000**	**0.5534**	**0.5534**	**1.0000e-005**	**0.0000**	**0.5537**

3.3 Site Preparation - 2017

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					0.0432	0.0000	0.0432	0.0185	0.0000	0.0185	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8600e-003	0.0749	0.0567	5.0000e-005		3.7000e-003	3.7000e-003		3.4000e-003	3.4000e-003	0.0000	4.9344	4.9344	1.5100e-003	0.0000	4.9662
Total	**6.8600e-003**	**0.0749**	**0.0567**	**5.0000e-005**	**0.0432**	**3.7000e-003**	**0.0469**	**0.0185**	**3.4000e-003**	**0.0219**	**0.0000**	**4.9344**	**4.9344**	**1.5100e-003**	**0.0000**	**4.9662**

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	0.0654	0.1983	1.1402	2.8000e-004	3.2700e-003	9.9000e-004	4.2700e-003	9.1000e-004	9.1000e-004	1.8200e-003	0.0000	23.7397	23.7397	4.5000e-004	0.0000	23.7491
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	3.0000e-005	3.8000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0221	0.0221	0.0000	0.0000	0.0221
Total	**0.0655**	**0.1984**	**1.1406**	**2.8000e-004**	**3.2900e-003**	**9.9000e-004**	**4.2900e-003**	**9.1000e-004**	**9.1000e-004**	**1.8200e-003**	**0.0000**	**23.7617**	**23.7617**	**4.5000e-004**	**0.0000**	**23.7712**

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					0.0194	0.0000	0.0194	4.1600e-003	0.0000	4.1600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	6.5000e-004	2.8000e-003	0.0261	5.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	4.9344	4.9344	1.5100e-003	0.0000	4.9662
Total	**6.5000e-004**	**2.8000e-003**	**0.0261**	**5.0000e-005**	**0.0194**	**9.0000e-005**	**0.0195**	**4.1600e-003**	**9.0000e-005**	**4.2500e-003**	**0.0000**	**4.9344**	**4.9344**	**1.5100e-003**	**0.0000**	**4.9662**

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	0.0654	0.1983	1.1402	2.8000e-004	3.2700e-003	9.9000e-004	4.2700e-003	9.1000e-004	9.1000e-004	1.8200e-003	0.0000	23.7397	23.7397	4.5000e-004	0.0000	23.7491
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	3.0000e-005	3.8000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0221	0.0221	0.0000	0.0000	0.0221
Total	**0.0655**	**0.1984**	**1.1406**	**2.8000e-004**	**3.2900e-003**	**9.9000e-004**	**4.2900e-003**	**9.1000e-004**	**9.1000e-004**	**1.8200e-003**	**0.0000**	**23.7617**	**23.7617**	**4.5000e-004**	**0.0000**	**23.7712**

3.4 Grading - 2017

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					5.7700e-003	0.0000	5.7700e-003	6.2000e-004	0.0000	6.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.8200e-003	0.1111	0.0630	1.1000e-004		5.1800e-003	5.1800e-003		4.7700e-003	4.7700e-003	0.0000	10.2324	10.2324	3.1400e-003	0.0000	10.2982
Total	**9.8200e-003**	**0.1111**	**0.0630**	**1.1000e-004**	**5.7700e-003**	**5.1800e-003**	**0.0110**	**6.2000e-004**	**4.7700e-003**	**5.3900e-003**	**0.0000**	**10.2324**	**10.2324**	**3.1400e-003**	**0.0000**	**10.2982**

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	3.1900e-003	8.4000e-004	0.0114	1.0000e-005	4.9000e-004	1.0000e-005	5.1000e-004	1.3000e-004	1.0000e-005	1.5000e-004	0.0000	0.6541	0.6541	6.0000e-005	0.0000	0.6553
Total	**3.1900e-003**	**8.4000e-004**	**0.0114**	**1.0000e-005**	**4.9000e-004**	**1.0000e-005**	**5.1000e-004**	**1.3000e-004**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**0.6541**	**0.6541**	**6.0000e-005**	**0.0000**	**0.6553**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6000e-003	0.0000	2.6000e-003	1.4000e-004	0.0000	1.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3500e-003	5.8700e-003	0.0732	1.1000e-004		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	10.2324	10.2324	3.1400e-003	0.0000	10.2982
Total	**1.3500e-003**	**5.8700e-003**	**0.0732**	**1.1000e-004**	**2.6000e-003**	**1.8000e-004**	**2.7800e-003**	**1.4000e-004**	**1.8000e-004**	**3.2000e-004**	**0.0000**	**10.2324**	**10.2324**	**3.1400e-003**	**0.0000**	**10.2982**

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	3.1900e-003	8.4000e-004	0.0114	1.0000e-005	4.9000e-004	1.0000e-005	5.1000e-004	1.3000e-004	1.0000e-005	1.5000e-004	0.0000	0.6541	0.6541	6.0000e-005	0.0000	0.6553
Total	**3.1900e-003**	**8.4000e-004**	**0.0114**	**1.0000e-005**	**4.9000e-004**	**1.0000e-005**	**5.1000e-004**	**1.3000e-004**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**0.6541**	**0.6541**	**6.0000e-005**	**0.0000**	**0.6553**

3.5 Trenching - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.9000e-004	7.6100e-003	5.9800e-003	1.0000e-005		5.7000e-004	5.7000e-004		5.3000e-004	5.3000e-004	0.0000	0.7218	0.7218	2.2000e-004	0.0000	0.7265
Total	**7.9000e-004**	**7.6100e-003**	**5.9800e-003**	**1.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**0.7218**	**0.7218**	**2.2000e-004**	**0.0000**	**0.7265**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.7600e-003	3.7600e-003	0.0000	0.0000	3.7700e-003
Total	**2.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.7600e-003**	**3.7600e-003**	**0.0000**	**0.0000**	**3.7700e-003**

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	9.0000e-005	4.1000e-004	5.8600e-003	1.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.7218	0.7218	2.2000e-004	0.0000	0.7265
Total	**9.0000e-005**	**4.1000e-004**	**5.8600e-003**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.7218**	**0.7218**	**2.2000e-004**	**0.0000**	**0.7265**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.7600e-003	3.7600e-003	0.0000	0.0000	3.7700e-003
Total	**2.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.7600e-003**	**3.7600e-003**	**0.0000**	**0.0000**	**3.7700e-003**

3.6 Building Construction - 2017

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	2.9800e-003	0.0260	0.0180	3.0000e-005		1.6000e-003	1.6000e-003		1.5600e-003	1.5600e-003	0.0000	2.7158	2.7158	3.7000e-004	0.0000	2.7235
Total	**2.9800e-003**	**0.0260**	**0.0180**	**3.0000e-005**		**1.6000e-003**	**1.6000e-003**		**1.5600e-003**	**1.5600e-003**	**0.0000**	**2.7158**	**2.7158**	**3.7000e-004**	**0.0000**	**2.7235**

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	7.5600e-003	0.0229	0.1317	3.0000e-005	3.4800e-003	1.1000e-004	3.5900e-003	8.7000e-004	1.0000e-004	9.7000e-004	0.0000	2.7429	2.7429	5.0000e-005	0.0000	2.7440
Vendor	0.0102	0.0344	0.1493	5.0000e-005	6.6000e-004	2.0000e-004	8.6000e-004	1.9000e-004	1.9000e-004	3.8000e-004	0.0000	4.1015	4.1015	6.0000e-005	0.0000	4.1028
Worker	0.0179	4.7200e-003	0.0635	5.0000e-005	2.7500e-003	8.0000e-005	2.8300e-003	7.4000e-004	7.0000e-005	8.1000e-004	0.0000	3.6579	3.6579	3.2000e-004	0.0000	3.6646
Total	**0.0356**	**0.0620**	**0.3445**	**1.3000e-004**	**6.8900e-003**	**3.9000e-004**	**7.2800e-003**	**1.8000e-003**	**3.6000e-004**	**2.1600e-003**	**0.0000**	**10.5023**	**10.5023**	**4.3000e-004**	**0.0000**	**10.5113**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.7000e-004	1.5700e-003	0.0213	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.3561	2.3826	2.7386	3.7000e-004	0.0000	2.7465

Total	**2.7000e-004**	**1.5700e-003**	**0.0213**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.3561**	**2.3826**	**2.7386**	**3.7000e-004**	**0.0000**	**2.7465**

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	7.5600e-003	0.0229	0.1317	3.0000e-005	3.4800e-003	1.1000e-004	3.5900e-003	8.7000e-004	1.0000e-004	9.7000e-004	0.0000	2.7429	2.7429	5.0000e-005	0.0000	2.7440
Vendor	0.0102	0.0344	0.1493	5.0000e-005	6.6000e-004	2.0000e-004	8.6000e-004	1.9000e-004	1.9000e-004	3.8000e-004	0.0000	4.1015	4.1015	6.0000e-005	0.0000	4.1028
Worker	0.0179	4.7200e-003	0.0635	5.0000e-005	2.7500e-003	8.0000e-005	2.8300e-003	7.4000e-004	7.0000e-005	8.1000e-004	0.0000	3.6579	3.6579	3.2000e-004	0.0000	3.6646
Total	**0.0356**	**0.0620**	**0.3445**	**1.3000e-004**	**6.8900e-003**	**3.9000e-004**	**7.2800e-003**	**1.8000e-003**	**3.6000e-004**	**2.1600e-003**	**0.0000**	**10.5023**	**10.5023**	**4.3000e-004**	**0.0000**	**10.5113**

3.6 Building Construction - 2018

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	0.0300	0.2676	0.2012	3.5000e-004		0.0159	0.0159		0.0155	0.0155	0.0000	30.9168	30.9168	3.9600e-003	0.0000	30.9999
Total	**0.0300**	**0.2676**	**0.2012**	**3.5000e-004**		**0.0159**	**0.0159**		**0.0155**	**0.0155**	**0.0000**	**30.9168**	**30.9168**	**3.9600e-003**	**0.0000**	**30.9999**

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	0.0753	0.2474	1.4291	3.7000e-004	4.5900e-003	1.2700e-003	5.8600e-003	1.2700e-003	1.1600e-003	2.4300e-003	0.0000	30.7543	30.7543	6.1000e-004	0.0000	30.7670
Vendor	0.1024	0.3683	1.6069	5.4000e-004	7.5400e-003	2.1300e-003	9.6700e-003	2.2000e-003	1.9600e-003	4.1600e-003	0.0000	46.0297	46.0297	6.9000e-004	0.0000	46.0442
Worker	0.1889	0.0483	0.6537	5.8000e-004	0.0314	8.9000e-004	0.0323	8.4600e-003	8.2000e-004	9.2800e-003	0.0000	40.2552	40.2552	3.2800e-003	0.0000	40.3240
Total	**0.3666**	**0.6639**	**3.6897**	**1.4900e-003**	**0.0435**	**4.2900e-003**	**0.0478**	**0.0119**	**3.9400e-003**	**0.0159**	**0.0000**	**117.0392**	**117.0392**	**4.5800e-003**	**0.0000**	**117.1352**

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	3.1200e-003	0.0180	0.2434	3.5000e-004		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	4.0695	27.1044	31.1739	4.0400e-003	0.0000	31.2587
Total	**3.1200e-003**	**0.0180**	**0.2434**	**3.5000e-004**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**4.0695**	**27.1044**	**31.1739**	**4.0400e-003**	**0.0000**	**31.2587**

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	0.0753	0.2474	1.4291	3.7000e-004	4.5900e-003	1.2700e-003	5.8600e-003	1.2700e-003	1.1600e-003	2.4300e-003	0.0000	30.7543	30.7543	6.1000e-004	0.0000	30.7670
Vendor	0.1024	0.3683	1.6069	5.4000e-004	7.5400e-003	2.1300e-003	9.6700e-003	2.2000e-003	1.9600e-003	4.1600e-003	0.0000	46.0297	46.0297	6.9000e-004	0.0000	46.0442
Worker	0.1889	0.0483	0.6537	5.8000e-004	0.0314	8.9000e-004	0.0323	8.4600e-003	8.2000e-004	9.2800e-003	0.0000	40.2552	40.2552	3.2800e-003	0.0000	40.3240
Total	**0.3666**	**0.6639**	**3.6897**	**1.4900e-003**	**0.0435**	**4.2900e-003**	**0.0478**	**0.0119**	**3.9400e-003**	**0.0159**	**0.0000**	**117.0392**	**117.0392**	**4.5800e-003**	**0.0000**	**117.1352**

3.7 Architectural Coating - 2018

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	5.0190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2400e-003	0.0501	0.0324	5.0000e-005		2.9100e-003	2.9100e-003		2.7600e-003	2.7600e-003	0.0000	4.7357	4.7357	9.6000e-004	0.0000	4.7559
Total	**5.0243**	**0.0501**	**0.0324**	**5.0000e-005**		**2.9100e-003**	**2.9100e-003**		**2.7600e-003**	**2.7600e-003**	**0.0000**	**4.7357**	**4.7357**	**9.6000e-004**	**0.0000**	**4.7559**

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	0.0239	6.1100e-003	0.0828	7.0000e-005	3.9800e-003	1.1000e-004	4.0900e-003	1.0700e-003	1.0000e-004	1.1800e-003	0.0000	5.0990	5.0990	4.1000e-004	0.0000	5.1077
Total	**0.0239**	**6.1100e-003**	**0.0828**	**7.0000e-005**	**3.9800e-003**	**1.1000e-004**	**4.0900e-003**	**1.0700e-003**	**1.0000e-004**	**1.1800e-003**	**0.0000**	**5.0990**	**5.0990**	**4.1000e-004**	**0.0000**	**5.1077**

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	5.0190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	2.6400e-003	0.0605	5.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.4296	4.4690	4.8986	1.0100e-003	0.0000	4.9198
Total	**5.0195**	**2.6400e-003**	**0.0605**	**5.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.4296**	**4.4690**	**4.8986**	**1.0100e-003**	**0.0000**	**4.9198**

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	0.0239	6.1100e-003	0.0828	7.0000e-005	3.9800e-003	1.1000e-004	4.0900e-003	1.0700e-003	1.0000e-004	1.1800e-003	0.0000	5.0990	5.0990	4.1000e-004	0.0000	5.1077
Total	**0.0239**	**6.1100e-003**	**0.0828**	**7.0000e-005**	**3.9800e-003**	**1.1000e-004**	**4.0900e-003**	**1.0700e-003**	**1.0000e-004**	**1.1800e-003**	**0.0000**	**5.0990**	**5.0990**	**4.1000e-004**	**0.0000**	**5.1077**

3.7 Architectural Coating - 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					
Archit. Coating	2.1463					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0000e-003	0.0194	0.0136	2.0000e-005		1.0900e-003	1.0900e-003		1.0400e-003	1.0400e-003	0.0000	2.0070	2.0070	4.0000e-004	0.0000	2.0155
Total	**2.1483**	**0.0194**	**0.0136**	**2.0000e-005**		**1.0900e-003**	**1.0900e-003**		**1.0400e-003**	**1.0400e-003**	**0.0000**	**2.0070**	**2.0070**	**4.0000e-004**	**0.0000**	**2.0155**

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	9.5700e-003	2.3500e-003	0.0322	3.0000e-005	1.7000e-003	5.0000e-005	1.7500e-003	4.6000e-004	5.0000e-005	5.0000e-004	0.0000	2.1021	2.1021	1.6000e-004	0.0000	2.1054
Total	**9.5700e-003**	**2.3500e-003**	**0.0322**	**3.0000e-005**	**1.7000e-003**	**5.0000e-005**	**1.7500e-003**	**4.6000e-004**	**5.0000e-005**	**5.0000e-004**	**0.0000**	**2.1021**	**2.1021**	**1.6000e-004**	**0.0000**	**2.1054**

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	2.1463					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	2.0000e-004	1.1300e-003	0.0259	2.0000e-005		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.1837	1.8918	2.0755	4.2000e-004	0.0000	2.0844
Total	**2.1465**	**1.1300e-003**	**0.0259**	**2.0000e-005**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.1837**	**1.8918**	**2.0755**	**4.2000e-004**	**0.0000**	**2.0844**

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	9.5700e-003	2.3500e-003	0.0322	3.0000e-005	1.7000e-003	5.0000e-005	1.7500e-003	4.6000e-004	5.0000e-005	5.0000e-004	0.0000	2.1021	2.1021	1.6000e-004	0.0000	2.1054
Total	**9.5700e-003**	**2.3500e-003**	**0.0322**	**3.0000e-005**	**1.7000e-003**	**5.0000e-005**	**1.7500e-003**	**4.6000e-004**	**5.0000e-005**	**5.0000e-004**	**0.0000**	**2.1021**	**2.1021**	**1.6000e-004**	**0.0000**	**2.1054**

3.8 Paving - 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	3.0500e-003	0.0283	0.0277	4.0000e-005		1.6100e-003	1.6100e-003		1.5300e-003	1.5300e-003	0.0000	3.9240	3.9240	8.9000e-004	0.0000	3.9427
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0500e-003**	**0.0283**	**0.0277**	**4.0000e-005**		**1.6100e-003**	**1.6100e-003**		**1.5300e-003**	**1.5300e-003**	**0.0000**	**3.9240**	**3.9240**	**8.9000e-004**	**0.0000**	**3.9427**

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-004	7.0000e-005	1.0200e-003	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0665	0.0665	1.0000e-005	0.0000	0.0667
Total	**3.0000e-004**	**7.0000e-005**	**1.0200e-003**	**0.0000**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0665**	**0.0665**	**1.0000e-005**	**0.0000**	**0.0667**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9000e-004	2.1400e-003	0.0305	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.9240	3.9240	8.9000e-004	0.0000	3.9427
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.9000e-004**	**2.1400e-003**	**0.0305**	**4.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**3.9240**	**3.9240**	**8.9000e-004**	**0.0000**	**3.9427**

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-004	7.0000e-005	1.0200e-003	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0665	0.0665	1.0000e-005	0.0000	0.0667
Total	**3.0000e-004**	**7.0000e-005**	**1.0200e-003**	**0.0000**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0665**	**0.0665**	**1.0000e-005**	**0.0000**	**0.0667**

Criteria Pollutants and Operational Emissions

Greyhound Residential Apartments, Criteria Pollutants

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	736.00	Space	0.00	294,400.00	0
Apartments High Rise	785.00	Dwelling Unit	1.74	785,000.00	2245
Strip Mall	20.00	1000sqft	0.00	20,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	429.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Revised Carbon Dioxide Emission Intensity

Land Use - From site plan and traffic analysis report

Construction Phase - From the construction schedule

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Off-road Equipment - Construction Schedule and Equipment List

Trips and VMT - 10, 620 cement truck roundtrips
Demolition - 20, 800 sf of building and 47,800 sf of pavement demolished

Grading - 118,331 cubic yards of soil exported

Architectural Coating -

Vehicle Trips - modified trip generation rates from traffic report

Energy Use - 25% reduction in title 24 values for residential land uses
Construction Off-road Equipment Mitigation - Best Management Practices

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	217.00
tblConstructionPhase	NumDays	200.00	261.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	4.00	145.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	2.00	11.00
tblConstructionPhase	PhaseEndDate	10/1/2019	4/1/2019
tblConstructionPhase	PhaseEndDate	12/7/2018	12/1/2018
tblConstructionPhase	PhaseEndDate	12/4/2017	12/1/2017
tblConstructionPhase	PhaseEndDate	5/1/2019	4/1/2019
tblConstructionPhase	PhaseEndDate	5/16/2017	5/15/2017
tblConstructionPhase	PhaseEndDate	12/8/2017	12/7/2017
tblConstructionPhase	PhaseStartDate	12/2/2018	6/1/2018
tblConstructionPhase	PhaseStartDate	12/8/2017	12/1/2017
tblConstructionPhase	PhaseStartDate	5/16/2017	5/15/2017
tblConstructionPhase	PhaseStartDate	4/2/2019	3/1/2019
tblConstructionPhase	PhaseStartDate	5/2/2017	5/1/2017
tblConstructionPhase	PhaseStartDate	12/2/2017	12/1/2017
tblEnergyUse	LightingElect	741.44	556.08
tblEnergyUse	LightingElect	2.63	1.84
tblEnergyUse	LightingElect	5.64	3.95
tblEnergyUse	T24E	226.57	169.93
tblEnergyUse	T24E	3.92	2.74

tblEnergyUse	T24E	3.37	2.36
tblEnergyUse	T24NG	6,391.64	4,793.73
tblEnergyUse	T24NG	2.49	1.74
tblGrading	AcresOfGrading	0.00	11.00
tblGrading	MaterialExported	0.00	118,331.00
tblLandUse	LotAcreage	6.62	0.00
tblLandUse	LotAcreage	12.66	1.74
tblLandUse	LotAcreage	0.46	0.00
tblOffRoadEquipment	HorsePower	361.00	174.00
tblOffRoadEquipment	LoadFactor	0.48	0.41
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	1.80
tblOffRoadEquipment	UsageHours	6.00	0.30
tblOffRoadEquipment	UsageHours	6.00	0.20
tblOffRoadEquipment	UsageHours	8.00	0.60
tblOffRoadEquipment	UsageHours	6.00	1.80
tblOffRoadEquipment	UsageHours	8.00	1.80

tblOffRoadEquipment	UsageHours	7.00	1.80
tblOffRoadEquipment	UsageHours	8.00	1.90
tblOffRoadEquipment	UsageHours	7.00	3.70
tblOffRoadEquipment	UsageHours	8.00	1.90
tblOffRoadEquipment	UsageHours	8.00	1.80
tblOffRoadEquipment	UsageHours	8.00	3.70
tblProjectCharacteristics	CO2IntensityFactor	641.35	429.6
tblProjectCharacteristics	OperationalYear	2014	2020
tblTripsAndVMT	HaulingTripNumber	0.00	21,240.00
tblVehicleTrips	ST_TR	7.16	5.94
tblVehicleTrips	ST_TR	42.04	32.37
tblVehicleTrips	SU_TR	6.07	5.04
tblVehicleTrips	SU_TR	20.43	15.73
tblVehicleTrips	WD_TR	6.59	5.46
tblVehicleTrips	WD_TR	44.32	34.00

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					
2017	0.2337	2.6959	2.5963	7.8100e-003	0.4376	0.0454	0.4830	0.1175	0.0418	0.1593	0.0000	687.6318	687.6318	0.0146	0.0000	687.9387
2018	5.6669	4.3989	8.0071	0.0215	1.1360	0.0776	1.2135	0.3055	0.0724	0.3778	0.0000	1,718.3033	1,718.3033	0.0462	0.0000	1,719.2731
2019	2.1641	0.0656	0.2139	5.6000e-004	0.0424	3.0100e-003	0.0454	0.0113	2.8400e-003	0.0141	0.0000	39.3040	39.3040	2.8500e-003	0.0000	39.3639
Total	**8.0647**	**7.1604**	**10.8173**	**0.0298**	**1.6160**	**0.1260**	**1.7420**	**0.4343**	**0.1170**	**0.5513**	**0.0000**	**2,445.2391**	**2,445.2391**	**0.0637**	**0.0000**	**2,446.5757**

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	5.7977	0.0781	6.7259	1.0600e-003		0.1589	0.1589		0.1589	0.1589	12.8421	30.2912	43.1333	0.0332	1.0700e-003	44.1615
Energy	0.0278	0.2379	0.1019	1.5200e-003		0.0192	0.0192		0.0192	0.0192	0.0000	1,086.5026	1,086.5026	0.0600	0.0164	1,092.8402
Mobile	2.2402	4.3914	21.1700	0.0543	3.9128	0.0656	3.9785	1.0461	0.0606	1.1066	0.0000	3,769.3493	3,769.3493	0.1399	0.0000	3,772.2862
Waste						0.0000	0.0000		0.0000	0.0000	77.5629	0.0000	77.5629	4.5838	0.0000	173.8233
Water						0.0000	0.0000		0.0000	0.0000	16.6962	78.1010	94.7973	1.7201	0.0416	143.8107
Total	**8.0658**	**4.7074**	**27.9978**	**0.0569**	**3.9128**	**0.2438**	**4.1566**	**1.0461**	**0.2387**	**1.2848**	**107.1011**	**4,964.2441**	**5,071.3452**	**6.5370**	**0.0590**	**5,226.9218**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2017	5/1/2017	5	21	
2	Site Preparation	Site Preparation	5/1/2017	5/15/2017	5	11	
3	Grading	Grading	5/15/2017	12/1/2017	5	145	
4	Trenching	Trenching	12/1/2017	12/7/2017	5	5	
5	Building Construction	Building Construction	12/1/2017	12/1/2018	5	261	

6	Architectural Coating	Architectural Coating	6/1/2018	4/1/2019	5	217	
7	Paving	Paving	3/1/2019	4/1/2019	5	22	

Acres of Grading (Site Preparation Phase): 11

Acres of Grading (Grading Phase): 10.88

Acres of Paving: 0

Residential Indoor: 1,589,625; Residential Outdoor: 529,875; Non-Residential Indoor: 471,600; Non-Residential Outdoor: 157,200

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	2	1.90	162	0.38
Demolition	Rubber Tired Dozers	1	1.90	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	1.90	97	0.37
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	2	3.70	255	0.40
Site Preparation	Scrapers	0	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	3.70	97	0.37
Grading	Excavators	3	0.30	162	0.38
Grading	Graders	0	6.00	174	0.41
Grading	Rubber Tired Dozers	0	6.00	255	0.40
Grading	Rubber Tired Loaders	2	0.30	199	0.36
Grading	Scrapers	2	0.30	174	0.41
Grading	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	2	0.30	226	0.29
Building Construction	Forklifts	2	0.20	89	0.20
Building Construction	Generator Sets	4	0.60	84	0.74
Building Construction	Graders	1	0.20	174	0.41
Building Construction	Pumps	2	0.20	84	0.74

Building Construction	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	0	6.00	78	0.48
Architectural Coating	Cranes	1	0.20	226	0.29
Architectural Coating	Forklifts	2	0.20	89	0.20
Architectural Coating	Generator Sets	2	0.20	84	0.74
Architectural Coating	Graders	1	0.20	174	0.41
Paving	Cement and Mortar Mixers	1	1.80	9	0.56
Paving	Concrete/Industrial Saws	1	1.80	81	0.73
Paving	Pavers	1	1.80	125	0.42
Paving	Paving Equipment	1	1.80	130	0.36
Paving	Rollers	1	1.80	80	0.38
Paving	Tractors/Loaders/Backhoes	0	1.80	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	312.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	14,791.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	695.00	135.00	21,240.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	139.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2017

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					0.0338	0.0000	0.0338	5.1100e-003	0.0000	5.1100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5600e-003	0.0605	0.0478	6.0000e-005		3.0800e-003	3.0800e-003		2.8400e-003	2.8400e-003	0.0000	5.2277	5.2277	1.6000e-003	0.0000	5.2613
Total	**5.5600e-003**	**0.0605**	**0.0478**	**6.0000e-005**	**0.0338**	**3.0800e-003**	**0.0368**	**5.1100e-003**	**2.8400e-003**	**7.9500e-003**	**0.0000**	**5.2277**	**5.2277**	**1.6000e-003**	**0.0000**	**5.2613**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0400e-003	0.0417	0.0340	1.2000e-004	2.6400e-003	5.3000e-004	3.1700e-003	7.2000e-004	4.9000e-004	1.2200e-003	0.0000	10.5056	10.5056	8.0000e-005	0.0000	10.5072
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	3.5000e-004	4.9000e-004	4.7700e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8101	0.8101	4.0000e-005	0.0000	0.8110
Total	**3.3900e-003**	**0.0422**	**0.0387**	**1.3000e-004**	**3.6000e-003**	**5.4000e-004**	**4.1300e-003**	**9.7000e-004**	**5.0000e-004**	**1.4800e-003**	**0.0000**	**11.3158**	**11.3158**	**1.2000e-004**	**0.0000**	**11.3182**

3.3 Site Preparation - 2017

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					0.0432	0.0000	0.0432	0.0185	0.0000	0.0185	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8600e-003	0.0749	0.0567	5.0000e-005		3.7000e-003	3.7000e-003		3.4000e-003	3.4000e-003	0.0000	4.9344	4.9344	1.5100e-003	0.0000	4.9662
Total	**6.8600e-003**	**0.0749**	**0.0567**	**5.0000e-005**	**0.0432**	**3.7000e-003**	**0.0469**	**0.0185**	**3.4000e-003**	**0.0219**	**0.0000**	**4.9344**	**4.9344**	**1.5100e-003**	**0.0000**	**4.9662**

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	0.1441	1.9778	1.6102	5.5400e-003	0.1249	0.0253	0.1503	0.0343	0.0233	0.0576	0.0000	498.0403	498.0403	3.6200e-003	0.0000	498.1163
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	2.1000e-004	2.0000e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3395	0.3395	2.0000e-005	0.0000	0.3399
Total	**0.1443**	**1.9781**	**1.6122**	**5.5400e-003**	**0.1253**	**0.0253**	**0.1507**	**0.0344**	**0.0233**	**0.0577**	**0.0000**	**498.3798**	**498.3798**	**3.6400e-003**	**0.0000**	**498.4562**

3.5 Trenching - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.9000e-004	7.6100e-003	5.9800e-003	1.0000e-005		5.7000e-004	5.7000e-004		5.3000e-004	5.3000e-004	0.0000	0.7218	0.7218	2.2000e-004	0.0000	0.7265

Total	**7.9000e-004**	**7.6100e-003**	**5.9800e-003**	**1.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**0.7218**	**0.7218**	**2.2000e-004**	**0.0000**	**0.7265**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	4.0000e-005	3.4000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0579	0.0579	0.0000	0.0000	0.0579
Total	**2.0000e-005**	**4.0000e-005**	**3.4000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0579**	**0.0579**	**0.0000**	**0.0000**	**0.0579**

3.6 Building Construction - 2018

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	0.0300	0.2676	0.2012	3.5000e-004		0.0159	0.0159		0.0155	0.0155	0.0000	30.9168	30.9168	3.9600e-003	0.0000	30.9999
Total	**0.0300**	**0.2676**	**0.2012**	**3.5000e-004**		**0.0159**	**0.0159**		**0.0155**	**0.0155**	**0.0000**	**30.9168**	**30.9168**	**3.9600e-003**	**0.0000**	**30.9999**

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	0.1789	2.3734	2.0425	7.3000e-003	0.1758	0.0331	0.2089	0.0480	0.0305	0.0784	0.0000	646.3445	646.3445	4.8100e-003	0.0000	646.4455
Vendor	0.1525	1.3111	1.9009	3.8400e-003	0.1046	0.0194	0.1240	0.0300	0.0178	0.0478	0.0000	338.3061	338.3061	2.6200e-003	0.0000	338.3612
Worker	0.2496	0.3522	3.3995	8.7900e-003	0.7593	5.6100e-003	0.7649	0.2019	5.1900e-003	0.2071	0.0000	619.5268	619.5268	0.0300	0.0000	620.1574
Total	**0.5810**	**4.0366**	**7.3429**	**0.0199**	**1.0398**	**0.0581**	**1.0979**	**0.2799**	**0.0535**	**0.3334**	**0.0000**	**1,604.1775**	**1,604.1775**	**0.0375**	**0.0000**	**1,604.9640**

3.7 Architectural Coating - 2018

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	5.0190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2400e-003	0.0501	0.0324	5.0000e-005		2.9100e-003	2.9100e-003		2.7600e-003	2.7600e-003	0.0000	4.7357	4.7357	9.6000e-004	0.0000	4.7559
Total	**5.0243**	**0.0501**	**0.0324**	**5.0000e-005**		**2.9100e-003**	**2.9100e-003**		**2.7600e-003**	**2.7600e-003**	**0.0000**	**4.7357**	**4.7357**	**9.6000e-004**	**0.0000**	**4.7559**

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	0.0316	0.0446	0.4306	1.1100e-003	0.0962	7.1000e-004	0.0969	0.0256	6.6000e-004	0.0262	0.0000	78.4734	78.4734	3.8000e-003	0.0000	78.5533
Total	**0.0316**	**0.0446**	**0.4306**	**1.1100e-003**	**0.0962**	**7.1000e-004**	**0.0969**	**0.0256**	**6.6000e-004**	**0.0262**	**0.0000**	**78.4734**	**78.4734**	**3.8000e-003**	**0.0000**	**78.5533**

3.7 Architectural Coating - 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					
Archit. Coating	2.1463					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0000e-003	0.0194	0.0136	2.0000e-005		1.0900e-003	1.0900e-003		1.0400e-003	1.0400e-003	0.0000	2.0070	2.0070	4.0000e-004	0.0000	2.0155
Total	**2.1483**	**0.0194**	**0.0136**	**2.0000e-005**		**1.0900e-003**	**1.0900e-003**		**1.0400e-003**	**1.0400e-003**	**0.0000**	**2.0070**	**2.0070**	**4.0000e-004**	**0.0000**	**2.0155**

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	0.0124	0.0174	0.1674	4.8000e-004	0.0411	3.0000e-004	0.0414	0.0109	2.8000e-004	0.0112	0.0000	32.3490	32.3490	1.5100e-003	0.0000	32.3807
Total	**0.0124**	**0.0174**	**0.1674**	**4.8000e-004**	**0.0411**	**3.0000e-004**	**0.0414**	**0.0109**	**2.8000e-004**	**0.0112**	**0.0000**	**32.3490**	**32.3490**	**1.5100e-003**	**0.0000**	**32.3807**

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	2.2402	4.3914	21.1700	0.0543	3.9128	0.0656	3.9785	1.0461	0.0606	1.1066	0.0000	3,769.3493	3,769.3493	0.1399	0.0000	3,772.2862
Unmitigated	2.2402	4.3914	21.1700	0.0543	3.9128	0.0656	3.9785	1.0461	0.0606	1.1066	0.0000	3,769.3493	3,769.3493	0.1399	0.0000	3,772.2862

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	4,286.10	4,662.90	3956.40	9,583,165	9,583,165
Enclosed Parking with Elevator	0.00	0.00	0.00		
Strip Mall	680.00	647.40	314.60	959,661	959,661
Total	4,966.10	5,310.30	4,271.00	10,542,825	10,542,825

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551785	0.058740	0.185183	0.122735	0.029388	0.004432	0.012603	0.023662	0.001776	0.001268	0.006159	0.000502	0.001767

5.0 Energy Detail

4.4 Fleet Mix

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	811.1121	811.1121	0.0548	0.0113	815.7737
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	811.1121	811.1121	0.0548	0.0113	815.7737
NaturalGas Mitigated	0.0278	0.2379	0.1019	1.5200e-003		0.0192	0.0192		0.0192	0.0192	0.0000	275.3905	275.3905	5.2800e-003	5.0500e-003	277.0664
NaturalGas Unmitigated	0.0278	0.2379	0.1019	1.5200e-003		0.0192	0.0192		0.0192	0.0192	0.0000	275.3905	275.3905	5.2800e-003	5.0500e-003	277.0664

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Apartments High Rise	5.12582e+006	0.0276	0.2362	0.1005	1.5100e-003		0.0191	0.0191		0.0191	0.0191	0.0000	273.5334	273.5334	5.2400e-003	5.0100e-003	275.1981
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	34800	1.9000e-004	1.7100e-003	1.4300e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.8571	1.8571	4.0000e-005	3.0000e-005	1.8684
Total		**0.0278**	**0.2379**	**0.1019**	**1.5200e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**275.3905**	**275.3905**	**5.2800e-003**	**5.0400e-003**	**277.0664**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.57838e+006	502.4315	0.0339	7.0200e-003	505.3191
Enclosed Parking with Elevator	1.40429e+006	273.6442	0.0185	3.8200e-003	275.2169
Strip Mall	179800	35.0364	2.3700e-003	4.9000e-004	35.2378
Total		**811.1121**	**0.0548**	**0.0113**	**815.7737**

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	5.7977	0.0781	6.7259	1.0600e-003		0.1589	0.1589		0.1589	0.1589	12.8421	30.2912	43.1333	0.0332	1.0700e-003	44.1615

Unmitigated	5.7977	0.0781	6.7259	1.0600e-003		0.1589	0.1589		0.1589	0.1589	12.8421	30.2912	43.1333	0.0332	1.0700e-003	44.1615

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	0.7165					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2937					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.6087	0.0103	0.8708	7.5000e-004		0.1267	0.1267		0.1267	0.1267	12.8421	20.7566	33.5986	0.0238	1.0700e-003	34.4311
Landscaping	0.1787	0.0677	5.8551	3.1000e-004		0.0322	0.0322		0.0322	0.0322	0.0000	9.5346	9.5346	9.3200e-003	0.0000	9.7303
Total	**5.7977**	**0.0780**	**6.7259**	**1.0600e-003**		**0.1589**	**0.1589**		**0.1589**	**0.1589**	**12.8421**	**30.2912**	**43.1332**	**0.0332**	**1.0700e-003**	**44.1615**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	94.7973	1.7198	0.0415	143.7840
Unmitigated	94.7973	1.7201	0.0416	143.8107

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	51.1459 / 32.2442	92.1460	1.6717	0.0404	139.7797
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.48145 / 0.907986	2.6513	0.0484	1.1700e-003	4.0309
Total		**94.7973**	**1.7201**	**0.0416**	**143.8107**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	77.5629	4.5838	0.0000	173.8233
Unmitigated	77.5629	4.5838	0.0000	173.8233

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	361.1	73.3000	4.3319	0.0000	164.2701
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	21	4.2628	0.2519	0.0000	9.5532
Total		**77.5629**	**4.5838**	**0.0000**	**173.8233**