APPENDIX C

2270 BROADWAY MIXED-USE RESIDENTIAL DEVELOPMENT TAC AND GHG EMISSIONS ASSESSMENT

2270 BROADWAY MIXED-USE RESIDENTIAL DEVELOPMENT TAC AND GHG EMISSIONS ASSESSMENT OAKLAND, CALIFORNIA

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Introduction

The purpose of this report is to address toxic air contaminant (TAC) and greenhouse gas (GHG) emission impacts associated with the proposed residential development project. The project would entail the construction of a 24-story mixed-use building with 223 residential units and ground floor retail on an approximately 0.46-acre site located on a vacant lot in Oakland, California. GHG impacts could occur due to temporary construction emissions and as a result of direct and indirect emissions from new occupants. Additionally, nearby sources of TAC emissions were assessed for operational impacts to proposed residences. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD) to satisfy the requirements of the SCA B (Exposure to Air Pollution – Toxic Air Contaminants) and SCA F (Greenhouse Gas Reduction Plan) standard conditions of approval.

Setting

The project is located in the northern portion of the Alameda County, which is in the San Francisco Bay Area Air Basin. 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 listed above. 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 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 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 diesel particulate matter (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.

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

[1] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: December 7, 2014.

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.

The Bay Area Air Quality Management District (BAAQMD) is the regional agency tasked with managing air quality in the region. At the State level, the California Air Resources Board (a part of the California Environmental Protection Agency) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has recently published CEQA Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.[2]

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 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. The project would include residences, which are considered sensitive receptors.

Greenhouse Gases

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO_2) and water vapor but there are also several others, most importantly methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities.
Sources of GHGs are generally as follows:

- CO_2 and N_2O are byproducts of fossil fuel combustion.
- N_2O is associated with agricultural operations such as fertilization of crops.
- CH_4 is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

[2] Bay Area Air Quality Management District. 2011. BAAQMD CEQA Air Quality Guidelines. May.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO_2 being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO_2 equivalents (CO_2e).

An expanding body of scientific research supports the theory that global warming is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California could be adversely affected by the global warming trend. Increased precipitation and sea level rise could increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

Significance Thresholds

The BAAQMD identified significance thresholds for exposure to TACs and fine particulate matter ($PM_{2.5}$) as part of its May 2011 CEQA Air Quality Guidelines[3] that were called into question by an order issued March 5, 2012, in *California Building Industry Association v. BAAQMD* (Alameda Superior Court Case No. RGI0548693). The order requires BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds. However, this litigation remains pending as the California Supreme Court recently accepted a portion of CBIA's petition to review the appellate court's decision to uphold BAAQMD's adoption of the thresholds. The specific portion of the argument to be considered is in regard to whether CEQA requires consideration of the effects of the environment on a project (as contrasted to the effects of a proposed project on the environment). Those issues are not relevant to the scientific basis of BAAQMD's analysis of what levels of pollutants should be deemed significant. Therefore, the significance thresholds contained in the 2011 CEQA Air Quality Guidelines are applied to this project.

The BAAQMD proposed thresholds of significance for local community risk and hazard impacts that apply to both the siting of a new source and to the siting of a new receptor. Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ since emissions of these pollutants may cause significant health impacts at the local level. BAAQMD guidelines recommend:

The proposed project would result in a significant impact if emissions of TACs or $PM_{2.5}$ exceed any of the following Thresholds of Significance:

Single Source Impacts

- Non-compliance with a qualified risk reduction plan;

[3] BAAQMD, 2011. *BAAQMD CEQA Air Quality Guidelines*. May.

- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 would be significant; or
- An incremental increase greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ would be significant.

Cumulative Source Impacts

A project would have a cumulatively considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000 foot radius of the fence line of a source or from the location of a receptor, plus the contribution from the project, exceeds the following thresholds:

- An excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- 0.8 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$.

Greenhouse Gas Emissions

The significance thresholds identified in the City of Oakland CEQA Thresholds of Significance Guidelines (October 28, 2013) for GHGs are used in this analysis. The thresholds are as follows:

- For a project involving a stationary source, produce total emissions of more than 10,000 metric tons (MT) of CO_2e annually.

- For a project involving a land use development, produce total emissions of more than 1,100 MT of CO_2e annually AND more than 4.6 metric tons of CO_2e per service population annually.[4]

- Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions.

The City's thresholds of significance pertaining to greenhouse gas / global climate change are generally based on the thresholds adopted by BAAQMD in June 2010. Pursuant to CEQA, lead agencies must apply appropriate thresholds based on substantial evidence in the record. The City's thresholds rely upon the technical and scientific basis for BAAQMD's 2010 thresholds. Use of the City's thresholds is consistent with and authorized by CEQA Guidelines section 15064. The City's thresholds have not been challenged and remain in effect.

[4] Note: The project's expected GHG emissions during construction should be annualized over a period of 40 years and then added to the expected emissions during operation for comparison to the threshold. A 40-year period is used because 40 years is considered the average life expectancy of a building before it is remodeled with considerations for increased energy efficiency. The thresholds are based on the BAAQMD thresholds. The BAAQMD thresholds were originally developed for project operation impacts only. Therefore, combining both the construction emissions and operation emissions for comparison to the threshold represents a conservative analysis of potential GHG impacts.

Impacts and Mitigation Measures

> **Impact:** Expose sensitive receptors to substantial pollutant concentrations? ***Less than significant with Mitigation***

Operation of this residential project is not considered a source of TAC emissions. As a result, the project operation would not cause emissions that expose sensitive receptors to unhealthy air pollutant levels. Because the project would not be a source of TACs, it would not contribute cumulatively to unhealthy exposure to TACs.

The project would include new sensitive receptors. Substantial sources of air pollution can adversely affect sensitive receptors proposed as part of new projects. A review of the area indicates that there are roadways and stationary sources (i.e., emergency diesel generators and boilers) within 1,000 feet of the site that could adversely affect new residences. There are thresholds that address both the impact of single and cumulative TAC sources upon projects that include new sensitive receptors. The analysis of the local surface streets used screening data provided by BAAQMD to identify the potential cancer risk from roadways. The analysis of stationary sources used screening data provided by BAAQMD. One source (Caltrans building) exceeded screening levels and, therefore, refined modeling techniques were utilized, as discussed below. Data received from BAAQMD for the nearby stationary sources is included in *Attachment 1*.

Impacts from Local Surface Streets

Traffic on high volume roadways is a source of TAC emissions that may adversely affect sensitive receptors in close proximity to the roadway. For roadways, BAAQMD has published screening tables and data to determine if roadways with traffic volumes of over 10,000 vehicles per day may have a significant effect on a proposed project. Based on the cumulative plus project intersection volumes,[5] Broadway and Grand Avenue daily traffic volumes were estimated assuming that average daily traffic (ADT) is ten times p.m. peak hour volumes. Broadway has ADT volume of 23,700 in the vicinity of the project and Grand Avenue 26,400. Using the BAAQMD *Roadway Screening Analysis Table* for Alameda County for north-south directional roadways and at a distance of 10 feet and traffic volumes of up to 30,000 ADT, estimated cancer risk from Broadway at the project site would be 6.7 per million and $PM_{2.5}$ concentration would be 0.28 $\mu g/m^3$. For an east-west directional roadway and at a distance of 100 feet and traffic volume of up to 30,000 ADT, estimated cancer risk from Grand Avenue at the project site would be 5.4 in one million and $PM_{2.5}$ concentration would be 0.22 $\mu g/m^3$. Chronic or acute hazard index (HI) for both roadways would be below 0.03. Potential risk from both roadways would be below the BAAQMD significance thresholds for community risk from single sources.

Impacts from Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth to identify

[5] City of Oakland, 2013. *Broadway Valdez District Specific Plan DEIR*. September.

the location of stationary sources and their estimated risk and hazard impacts. This tool identified four sources that could affect the project site:

- Plant 19971, which is an emergency back-up generator located at 100 Grand Avenue operated by The Grand Apartments (Essex Portfolio LLC) about 75 feet east 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*. According to BAAQMD, this facility would result in an excess cancer risk of 1.8 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 19999, which is an emergency back-up generator located at 2150 Webster Street operated by Pacific Bell about 400 feet southeast 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*. According to BAAQMD, this facility would result in an excess cancer risk of 1.8 per million, $PM_{2.5}$ concentration of 0.02 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 20095, which is a facility located at One Kaiser Plaza operated by CIM Group/Ordway about 650 feet southeast of the project site. The facility includes two diesel engines and two boilers. 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*. According to BAAQMD, this facility would result in an excess cancer risk of 0.9 per million, $PM_{2.5}$ concentration of 0.02 $\mu g/m^3$ and HI of 0.02, all of which would be below BAAQMD thresholds of significance.
- Plant 14195, which are two emergency back-up generators located at 111 Grand Avenue operated by Caltrans about 260 feet southeast 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 exceeds BAAQMD significance thresholds. Therefore, refined modeling of this source was conducted, as described below.

Modeling of the Caltrans emergency back-up generators (Plant 14195) was conducted to assess cancer risks and annual $PM_{2.5}$ concentrations at residential receptor locations in the proposed project building. Based on the BAAQMD emission inventory data the daily $PM_{2.5}$ and DPM emissions from this generator are 0.416 pounds per day (151.8 pounds per year).[6] To obtain an estimate of potential excess cancer risks to future project residents from this source, the ISCST3 dispersion model was used. This modeling included the use of three years (1998 – 2000) meteorological data from the Port of Oakland that were prepared for use with the ISCST3 model by the BAAQMD. The model computed DPM concentrations at locations of future residential

[6] Correspondence between Joshua Carman, I&R, and Alison Kirk, BAAQMD, November 19, 2014.

units. The emergency generators are located on the roof of the Caltrans building at a height of about 220 feet. Due to the height of generators above ground level, potential impacts at the proposed building were evaluated for the three upper residential levels on the 22nd through 24th floors (about 214 feet through 235 feet above ground level). Concentrations at residential units below these would be lower. Receptors for modeling were placed at the proposed locations of the residential units at the different floor levels. Default BAAQMD stack parameters for generator screening (6 feet high stack, 3 inch diameter, 50 meter/sec exit velocity, and exit temperature of 656 degrees F) were used for the Caltrans generators in the modeling. The generators were assumed to be operated for testing and maintenance purposes during the daytime hours between 8 a.m. and 5 p.m.

The maximum modeled annual average DPM concentrations in the new residential areas were 0.01939 µg/m^3, 0.01868 µg/m^3, and 0.01939 µg/m^3, respectively for the 24th, 23rd and 22nd floor levels. Using BAAQMD cancer risk calculation methods the maximum estimated increased residential cancer risks would be 10.5, 10.1, and 9.4 in one million, at the 24th, 23rd, and 22nd floor levels, respectively. Cancer risks at lower floor levels would be less than those for the 22nd floor. The cancer risks for the 23rd and 24th floor levels would be greater than the BAAQMD cancer risk significance threshold of 10 in one million and would be considered a *significant impact*.

The maximum modeled annual $PM_{2.5}$ concentration was 0.019 µg/m^3, occurring on the 24th floor level and the maximum Hazard Index would be 0.004. $PM_{2.5}$ concentrations and Hazard Indexes at other floor levels would be lower than those of the 24th floor level. 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 1*.

Mitigation Measure AQ-1 (exposure of sensitive receptors to substantial pollutant concentrations). The project shall include the following measures to minimize long-term TAC exposure for new residences at the 23rd and 24th floors:

1. Install air filtration for residential units on the 23rd and 24th floors. Air filtration devices shall be rated MERV13 or higher. To ensure adequate health protection to sensitive receptors, a ventilation system shall meet the following minimal design standards (Department of Public Health, City and County of San Francisco, 2008):
   - A MERV13 or higher rating;
   - At least one air exchange(s) per hour of fresh outside filtered air;
   - At least four air exchange(s) per hour recirculation; and

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

2. 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 or annual $PM_{2.5}$ 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.

3. Require cleaning, maintenance, and monitoring of the affected units for air flow leaks; include assurance that new residents are provided information on the ventilation system; and require replacements of the filters, as needed through maintenance and monitoring.

4. Require that, prior to building occupancy, an authorized air pollutant consultant or HVAC engineer verify the installation of all necessary measures to reduce TAC exposure.

The projected residential cancer risks associated with use of a MERV13 filtrations for the 23rd and 24th floors would be reduced to less than 10 in one million in all potential residential areas, or below the BAAQMD significance criterion and, thus, to a level of less than significant.

Operational Impacts from Project Back-Up Generator

The only source of air pollution identified with build-out of the project is one emergency back-up generator. Project plans indicate that one standby generator would be located on the south side of the 24th floor. As the project is in the preliminary planning stages, the power requirements have not yet been identified. The maximum back-up power needs envisioned for this type of project would not be larger than 500 kW, provided by an approximate 670 horsepower engine, and likely less. It is assumed for this assessment that the generator would be driven by a diesel-fueled engine.

The emergency back-up generator would be used for backup power in emergency conditions. The generator will be operated for testing and maintenance purposes, with a maximum of 50 hours per year of non-emergency operation under normal conditions allowed by BAAQMD. During testing periods the engine would typically be run for less than one hour. The engine would be required to meet CARB and U.S. EPA emission standards. The engine will consume commercially available California low-sulfur diesel fuel.

The generator would require permits from the BAAQMD, since it will be equipped with an engine larger than 50 hp. As part of the BAAQMD permit requirements, an assessment that shows less-than-significant health risks from diesel particulate matter exposure would be required. The risk assessment, prepared by BAAQMD, would have to show that cancer risks are less than 10 per million and that the project includes Best Available Toxics Control Technology, which would set limits for diesel particulate matter emissions. Sources of air pollutant emissions complying with all applicable BAAQMD regulations generally will not be considered to have a significant air quality community risk impact.

Emissions from the testing and maintenance of the generator were calculated using CARB's OFFROAD emissions model for large compression-ignited engines above 25 hp. Results of generator modeling indicate average daily emissions of 0.0008 pounds of DPM per day. Risk and $PM_{2.5}$ concentrations from a diesel generator of this size and average daily emissions were then calculated based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)*. Results indicate that the project generator would result in an excess cancer risk of 0.8 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 both on-site affecting project residences and at nearby sensitive receptors. *Therefore, this impact would be considered less than significant*. *Attachment 2* includes emission factors and risk modeling calculations for the project emergency back-up generator.

Cumulative Community Risk Impacts

As discussed above, the project site is affected by two sources of TACs. Table 1 shows the cancer risk associated with each source affecting the project site. The sum of impacts from cumulative sources (i.e., sources within 1,000 feet of the project) would be below the threshold of 100 in one million used by the City. Therefore, the impact from operational community health risk would be considered *less than significant*.

Table 1. Impacts from Cumulative Sources

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration ($\mu g/m^3$)
Broadway at 10 feet	6.7	<0.03	0.28
Grand Avenue at 100 feet	5.4	<0.03	0.22
Project Back-up Generator (up to 500 kW)	0.8	<0.01	<0.01
Plant 14195, Caltrans	10.5	<0.01	0.02
Plant 19971, The Grand Apartments	1.8	<0.01	<0.01
Plant 19999, Pacific Bell	1.8	<0.01	0.02
Plant 20095, CIM Group/Ordway	0.9	0.02	0.02
Cumulative Sources	27.9	<0.12	<0.6
BAAQMD Threshold – Cumulative Sources	***100***	***10.0***	***0.8***

Impact: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? ***Less than significant***

The proposed project does not meet the definition of a Very Large project. A "Very Large Project" is defined as any of the following:

1. Residential development of more than 500 dwelling units;

2. Shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space;

3. Commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space;

4. Hotel/motel development of more than 500 rooms;

5. Industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000

square feet of floor area; or

6. Any combination of smaller versions of the above that when combined result in equivalent annual GHG emissions as the above.

CalEEMod Modeling

The California Emissions Estimator Model version 2013.2.2 (CalEEMod) was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model. The use of this model for evaluating emissions from land use projects is recommended by BAAQMD. Unless otherwise noted below, the CalEEMod model defaults for Alameda County were used. CalEEMod provides emissions for transportation, areas sources, electricity consumption, natural gas combustion, electricity usage associated with water usage and wastewater discharge, and solid waste land filling and transport. CalEEMod output worksheets are included in *Attachment 3*.

Land Use Descriptions

The proposed project land uses were input into CalEEMod, which included 223 dwelling units of "Apartments High Rise," 7,800 square feet of "Strip Mall," and 261 parking spaces entered as "Enclosed Parking with Elevator," on a 0.46-acre site.

Trip Generation Rates

The trip generation rates from the project traffic report were input to the model, which included the 43 percent non-auto reduction accounted for in the traffic report.[7] Pass-by and diverted trips were set to zero in the model since an overall 43 percent trip reduction was already taken. The model default lengths and trip types specified by CalEEMod for Alameda County were used.

Model Year

The model uses mobile emission factors from the California Air Resources Board's EMFAC2011 model. This model is sensitive to the year selected, since vehicle emissions have and continue to be reduced due to fuel efficiency standards and low carbon fuels. The year 2017 was analyzed since it is the first full year that the project could conceivably be occupied.

Energy

Default rates for energy consumption were assumed in the model. Emissions rates associated with electricity consumption were adjusted to account for Pacific Gas & Electric utility's (PG&E) projected 2017 CO_2 intensity rate. This 2017 rate is based, in part, on the requirement of a renewable energy portfolio standard of 33 percent by the year 2020. CalEEMod uses a default rate of 641.35 pounds of CO_2 per megawatt of electricity produced. The derived 2017 rate for

[7] Fehr & Peers, 2015

PG&E was estimated at 348.86 pounds of CO_2 per megawatt of electricity delivered and is based on the California Public Utilities Commission (CPUC) GHG Calculator.[8] The 2013 Title 24 Building Standards recently became effective July 1, 2014 and are predicted to use 25 percent less energy for lighting, heating, cooling, ventilation, and water heating than the 2008 standards that CalEEMod is based on.[9] Therefore, the CalEEMod run was adjusted to account for the greater energy efficiency.

Other Inputs

Default model assumptions for GHG emissions associated with area sources and solid waste generation were applied to the project. No new wood-burning fireplaces are allowed in the Bay Area, but it was assumed that new residences could include gas-powered fireplaces. The following project design features were also accounted for in modeling:

- Use of high-efficiency irrigation system
- Submetering water for tenants and landscaping
- Use of EnergyStar™ appliances

By the nature of the model, these reductions must be included in the "mitigated" output.

Service Population

Project service population is the sum of future residences and full-time employees. The future number of residences was estimated at 417 and the number of future employees was estimated to be 13, for a total service population of 430.

Construction Emissions

Construction GHG emissions were calculated using the same CalEEMod run. The construction schedule generated by CalEEMod was adjusted based on the anticipated 24-month construction period. The estimated 14,100 cubic yards of soil export was input to the model to calculate hauling emissions. GHG emissions associated with construction were computed to be 950 MT of CO_2e, anticipated to occur over the entire construction period. These are the emissions from on-site operation of construction equipment, vendor and haul truck trips, and worker trips. BAAQMD nor the City have an adopted threshold of significance for construction-related GHG emissions, though the District recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable. Best management practices assumed to be incorporated into construction of the proposed project include, but are not limited to: using local building materials of at least 10 percent and recycling or reusing at least 65 percent of construction waste or demolition materials (BAAQMD recommends 50 percent, but the project proposed 65 percent).

[8] California Public Utilities Comissions GHG Calculator version 3c, October 7, 2010. Available on-line at: http://ethree.com/public_projects/cpuc2.php. Accessed: November 20, 2014.
[9] California Energy Commission, 2012. *2013 Building Energy Efficiency Standards FAQ*. May.

Operational Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to predict daily emissions associated with operation of the fully-developed site under the proposed project. In 2017, annual emissions resulting from operation of the proposed project are predicted to be 1,597 MT of CO_2e. These emissions would exceed the BAAQMD threshold of 1,100 MT of CO_2e/yr and, therefore, the GHG efficiency threshold was used to assess project impacts. As shown in Table 2, project service population emissions from operational and construction emissions would be 3.8 MT of CO_2e/year/service population, which is below the BAAQMD significance threshold. Therefore, *this would be a less than significant impact*.

Table 2. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	2017 Project Emissions
Area	14
Energy Consumption	316
Mobile	1,180
Solid Waste Generation	50
Water Usage	37
Project Construction[2]	24
Project Total	1,621
Service Population Emissions[1]	3.8
BAAQMD Threshold	4.6 MT CO_2e/year/S.P.

Notes: [1]Based on a project service population of 430 future residents and employees. S.P. = service population.
[2] Annualized construction emissions over a 40-year period per City of Oakland requirements.

Project Back-up Generator

As discussed above, the project would include one emergency diesel generator, assumed to be up to 500 kW/670 hp. The generator would be tested routinely, up to 50 hours per year. Emissions from the testing and maintenance of the generator was calculated using CARB's OFFROAD emissions model for large compression-ignited engines above 25 hp and included the CARB Low Carbon Fuel Standard (LCFS) rules. Results of generator modeling indicate annual CO_2e emissions of 9 MT. The BAAQMD threshold for stationary sources requiring permits is 10,000 annual MT. Therefore, project stationary GHG emissions would be well below this threshold. Details of the generator modeling are included in *Attachment 2*.

> **Impact:** Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ***No Impact.***

The project would be subject to new requirements under rule making developed at the State and local level regarding greenhouse gas emissions and be subject to local policies that may regulate emissions of greenhouse gases.

Attachment 1: Stationary TAC Source Data and Caltrans' Generator Risk Modeling

DPM Cancer Risk From Diesel Emergency Generators
Caltrans - 111 Grand Avenue, Oakland, CA - BAAQMD Source #14195

DPM Emission Rates			
	Annual	DPM Emissions	
	Operation	Daily*	Annual
Source Type	(hr)	(lb/day)	(lb/yr)
Generator	-	0.41600	151.84

* From BAAQMD permit inventory

Modeling Information		
Model:	ISCST3	
Source	Generator	
Source Type	Point	
Distance to Residences (ft)	various - Receptors at proposed residences	
Number of Receptors	13	
Receptor Height (m)	varies depending on floor level	
Meteorological Data	BAAQMD 1998 - 2000 Pacific Port of Oakland	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height** (ft)	6	
Stack Diameter** (ft)	0.25	
Stack Exit Velocity** (ft/sec)	164	
Exhaust Temperature** (F)	656	
Annual Emission Rate (lb/year)	151.84	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)***	4.62E-02	

** BAAQMD default generator parameters

*** Hourly emission rate based on annual emissions and 3,285 hours per year (daytime operation between 8 am - 5 pm).

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x HD x EF x ED x 10^{-6} / AT

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)
HD = daily exposure (hours/day/24)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

	Value[1]							
Exposure Type	DBR (L/kg BW-day)	A (-)	Exposure (hr/day)	Exposure (days/week)	Exposure (week/year)	EF (days/yr)	ED (Years)	AT (days)
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x CPF x 10^6
= URF x Cair

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
CRAF = Cancer Risk Adjustment Factor
URF =Unit risk factor (cancer risk per $\mu g/m^3$)

Unit Risk Factor for DPM

Exposure Type	CPF $(mg/kg\text{-}day)^{-1}$	CRAF (-)	URF *DPM*
Residential (70-Yr Exposure)	1.10E+00	1.7	**541.5**

Model Results and Maximum Cancer Risks				
Location	Distance		DPM/PM2.5 Annual Ave ($\mu g/m^3$)	Cancer Risk (per million)
24 th Floor level	306 feet	93 meters	0.01939	10.50
23rd Floor Level	306 feet	93 meters	0.01868	10.12
22nd Floor Level	306 feet	93 meters	0.01741	9.43

Attachment 2: Project Generator Emission Factors and Risk Modeling Calculations

2270 Broadway - Emergency Generator Criteria Pollutant and GHG Emissions

Analysis Year = 2017 **50 = Annual Days of Project Operation**

Off-Road Equipment Equipment Type	No. Units	Engine Age (years)	Engine Model Year	Daily Hours In Use	Days Per Year	Unit Annual Hours Use	Use Factor	Load Factor	Cumulative Hours Operation Per Unit	Engine (hp)	Fuel Type	Level of VDECS Used	Emission Factor (g/hp-hr) NOx	CO	ROG	PM10	PM2.5	SO2	CO2	Average Daily Emissions (lb/day) NOx	CO	ROG	PM10	PM2.5	SO2	CO2	Annual Emissions (ton/yr) NOx	CO	ROG	PM10		PM2.5		SO2	CO2
Project Operation																																		
Generator Sets	1	2	2015	1.0	50	50	1.00	0.49	100	671	ULSD	0	0.26	0.92	0.05	0.01	0.01	0.006	539.9	0.03	0.1	0.005	0.001	0.0008	0.001	54	0.005	0.017	0.001	0.0002	0.0002	0.0001	0.0001	0.0001	9.8
TOTAL	**-**			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**-**				**0.03**	**0.1**	**0.005**	**0.001**	**0.0008**	**0.00**	**54**	**0.005**	**0.0**	**0.0**	**0.0002**	**0.0002**	**0.0001**	**0.0001**	**0.0001**	**9.8**

Emission Factors - Off-Road Compression Ignited Engines EF ID	NOx ZH EF (g/hp-hr)	NOx DR (g/hp-hr^2)	NOx Fuel CF	CO ZH EF (g/hp-hr)	CO DR (g/hp-hr^2)	CO Fuel CF	ROG ZH EF (g/hp-hr)	ROG DR (g/hp-hr^2)	ROG Fuel CF	PM10 ZH EF (g/hp-hr)	PM10 DR (g/hp-hr^2)	PM10 Fuel CF	PM2.5 ZH EF (g/hp-hr)	PM2.5 DR (g/hp-hr^2)	PM2.5 Fuel CF	CO2 ZH EF (g/hp-hr)	CO2 DR (g/hp-hr^2)	CO2 Fuel CF	SO2 (g/hp-hr)
ULSD7502015	0.27	3.75E-06	0.95	0.92	1.82E-05	1.00	0.05	1.17E-05	1.00	0.01	3.75E-07	0.85	0.01	3.75E-07	0.85	568.30	0.00E+00	0.95	0.01

Notes: ZH EF = Zero hour emission factor
DR = Deterioration rate
ULSD = Ultra low sulfur diesel (15 ppmw sulfur, 0.0015% sulfur)

Refs: CARB OFFFROAD2007 model (http://www.arb.ca.gov/msei/offroad/offroad.htm), December, 2006.
Stationary/Off-road engines ARB, "California's Emissions Inventory for Off-Road Large Compression-Ignited (CI) Engines (> 25 HP)" MAC#99-32

HP Class		BSFC
1	15	0.65
16	25	0.53
26	50	0.54
51	120	0.49
121	175	0.47
176	250	0.47
251	500	0.41
501	750	0.42
751	1000	0.42
1001	9999	0.42

Year	LCFS CF
2010	1.000
2011	0.998
2012	0.995
2013	0.990
2014	0.985
2015	0.975
2016	0.965
2017	0.950
2018	0.935
2019	0.920
2020	0.900

Plant #: NA
Plant Name: 2270 Broadway
Number of Sources: Generator

Pollutant Name	Emissions/lbs per day	Cancer Risk (in millions)
ACETALDEHYDE		0.00E+00
ACETAMIDE		0.00E+00
ACRYLAMIDE		0.00E+00
ACRYLONITRILE		0.00E+00
ALLYL CHLORIDE		0.00E+00
2-AMINOANTHRAQUINONE		0.00E+00
ANILINE		0.00E+00
ARSENIC AND COMPOUNDS (INORGANIC)[1,2]		0.00E+00
ASBESTOS [3]		0.00E+00
BENZENE[1]		0.00E+00
BENZIDINE (AND ITS SALTS) values also apply to:		0.00E+00
Benzidine based dyes		0.00E+00
Direct Black 38		0.00E+00
Direct Blue 6		0.00E+00
Direct Brown 95 (technical grade)		0.00E+00
BENZYL CHLORIDE		0.00E+00
BERYLLIUM AND COMPOUNDS[2]		0.00E+00
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)		0.00E+00
BIS(CHLOROMETHYL)ETHER		0.00E+00
POTASSIUM BROMATE		0.00E+00
1,3-BUTADIENE		0.00E+00
CADMIUM AND COMPOUNDS[2]		0.00E+00
CARBON TETRACHLORIDE[1] (Tetrachloromethane)		0.00E+00
CHLORINATED PARAFFINS		0.00E+00
4-CHLORO-O-PHENYLENEDIAMINE		0.00E+00
CHLOROFORM[1]		0.00E+00
PENTACHLOROPHENOL		0.00E+00
2,4,6-TRICHLOROPHENOL		0.00E+00
p-CHLORO-o-TOLUIDINE		0.00E+00
CHROMIUM 6+2		0.00E+00
Barium chromate2		0.00E+00
Calcium chromate2		0.00E+00
Lead chromate2		0.00E+00
Sodium dichromate2		0.00E+00
Strontium chromate2		0.00E+00
CHROMIC TRIOXIDE (as chromic acid mist)		0.00E+00
p-CRESIDINE		0.00E+00
CUPFERRON		0.00E+00
2,4-DIAMINOANISOLE		0.00E+00
2,4-DIAMINOTOLUENE		0.00E+00
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)		0.00E+00
1,4-DICHLOROBENZENE		0.00E+00
3,3-DICHLOROBENZIDINE		0.00E+00
1,1,-DICHLOROETHANE (Ethylidene dichloride)		0.00E+00
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)		0.00E+00
p-DIMETHYLAMINOAZOBENZENE		0.00E+00
2,4-DINITROTOLUENE		0.00E+00
1,4-DIOXANE (1,4-Diethylene dioxide)		0.00E+00
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0.00E+00
ETHYL BENZENE		0.00E+00
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0.00E+00
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0.00E+00
ETHYLENE OXIDE (1,2-Epoxyethane)		0.00E+00
ETHYLENE THIOUREA		0.00E+00
FORMALDEHYDE		0.00E+00
HEXACHLOROBENZENE		0.00E+00
HEXACHLOROCYCLOHEXANES (mixed or technical grade)		0.00E+00
alpha-HEXACHLOROCYCLOHEXANE		0.00E+00
beta- HEXACHLOROCYCLOHEXANE		0.00E+00
gamma-HEXACHLOROCYCLOHEXANE (Lindane)		0.00E+00
HYDRAZINE		0.00E+00
LEAD AND COMPOUNDS 2,4 (inorganic) values also apply to:		0.00E+00
Lead acetate2		0.00E+00
Lead phosphate2		0.00E+00
Lead subacetate2		0.00E+00
METHYL tertiary-BUTYL ETHER		0.00E+00
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)		0.00E+00
METHYLENE CHLORIDE (Dichloromethane)		0.00E+00
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0.00E+00
MICHLER'S KETONE (4,4'-Bis(dimethylamino)benzophenone)		0.00E+00
N-NITROSODI-n-BUTYLAMINE		0.00E+00
N-NITROSODI-n-PROPYLAMINE		0.00E+00
N-NITROSODIETHYLAMINE		0.00E+00
N-NITROSODIMETHYLAMINE		0.00E+00
N-NITROSODIPHENYLAMINE		0.00E+00
N-NITROSO-N-METHYLETHYLAMINE		0.00E+00
N-NITROSOMORPHOLINE		0.00E+00
N-NITROSOPIPERIDINE		0.00E+00
N-NITROSOPYRROLIDINE		0.00E+00
NICKEL AND COMPOUNDS2 (values also apply to:)		0.00E+00
Nickel acetate2		0.00E+00
Nickel carbonate2		0.00E+00
Nickel carbonyl2		0.00E+00
Nickel hydroxide2		0.00E+00
Nickelocene2		0.00E+00
NICKEL OXIDE2		0.00E+00
Nickel refinery dust from the pyrometallurgical process2		0.00E+00
Nickel subsulfide2		0.00E+00
p-NITROSODIPHENYLAMINE		0.00E+00
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	8.00E-04	8.49E-07
PERCHLOROETHYLENE (Tetrachloroethylene)		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [low risk] 2,6		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [high risk] 2,6		0.00E+00
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0.00E+00
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0.00E+00
POLYCYCLIC AROMATIC HYDROCARBON2 (PAH) (AS B(a)P-EQUIV)5		0.00E+00
BENZO(A)PYRENE2,5		0.00E+00
NAPHTHALENE		0.00E+00
1,3-PROPANE SULTONE		0.00E+00
PROPYLENE OXIDE		0.00E+00
1,1,2,2-TETRACHLOROETHANE		0.00E+00
THIOACETAMIDE		0.00E+00
Toluene diisocyantates		0.00E+00
TOLUENE-2,4-DIISOCYANATE		0.00E+00
TOLUENE-2,6-DIISOCYANATE		0.00E+00
1,1,2-TRICHLOROETHANE (Vinyl trichloride)		0.00E+00
TRICHLOROETHYLENE		0.00E+00
URETHANE (Ethyl carbamate)		0.00E+00
VINYL CHLORIDE (Chloroethylene)		0.00E+00
	TOTAL:	8.49E-07

Plant #:
Plant Name:
Number of Sources:

Pollutant Name	Emission/lbs per day	Chronic Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLONITRILE		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2		0
ARSINE		0
BENZENE1		0
BERYLLIUM AND COMPOUNDS2		0
1,3-BUTADIENE		0
CADMIUM AND COMPOUNDS2		0
CARBON DISULFIDE1		0
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLORINE DIOXIDE		0
CHLOROBENZENE		0
CHLOROFORM1		0
2,3,4,6-Tetrachlorophenol		0
CHLOROPICRIN		0
CHROMIUM 6+2		0
Barium chromate2		0
Calcium chromate2		0
Lead chromate2		0
Sodium dichromate2		0
Strontium chromate2		0
CHROMIC TRIOXIDE (as chromic acid mist)		0
CRESOLS		0
M-CRESOL		0
O-CRESOL		0
P-CRESOL		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DICHLOROBENZENE		0
DIETHANOLAMINE		0
DIMETHYLAMINE		0
N,N-DIMETHYL FORMAMIDE		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
1,2-EPOXYBUTANE		0
ETHYL BENZENE		0
ETHYL CHLORIDE (Chloroethane)		0
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0
ETHYLENE GLYCOL		0
ETHYLENE OXIDE (1,2-Epoxyethane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE		0
GASOLINE VAPORS		0
GLUTARALDEHYDE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
ETHYLENE GLYCOL METHYL ETHER ACETATE – EGMEA		0
n-HEXANE		0
HYDRAZINE		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPHORONE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MALEIC ANHYDRIDE		0
MANGANESE AND COMPOUNDS		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:		0
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL tertiary-BUTYL ETHER		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ISOCYANATE		0
METHYLENE CHLORIDE (Dichloromethane)		0
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0
METHYLENE DIPHENYL ISOCYANATE		0
NICKEL AND COMPOUNDS2 (values also apply to:)		0
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0
Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITROGEN DIOXIDE		0
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	0.0008	0.000302045
PERCHLOROETHYLENE (Tetrachloroethylene)		0
PHENOL		0
PHOSPHINE		0
PHOSPHORIC ACID		0
PHOSPHORUS (WHITE)		0
PHTHALIC ANHYDRIDE		0
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN2,7		0
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0
1,2,3,7,8-PENTACHLORODIBENZOFURAN2,7		0
2,3,4,7,8-PENTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN2,7		0
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN2,7		0
NAPHTHALENE		0
PROPYLENE (PROPENE)		0
PROPYLENE GLYCOL MONOMETHYL ETHER		0
PROPYLENE OXIDE		0
SELENIUM AND COMPOUNDS		0
Selenium sulfide		0
SILICA (Crystalline, Respirable)		0
STYRENE		0
SULFUR DIOXIDE		0
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
Toluene diisocyantates		0
TOLUENE-2,4-DIISOCYANATE		0
TOLUENE-2,6-DIISOCYANATE		0
TRICHLOROETHYLENE		0
TRIETHYLAMINE		0
VINYL ACETATE		0
VINYLIDENE CHLORIDE (1,1-Dichloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	3.02E-04

Plant #:
Plant Name:
Number of Sources:

Diesel PM Concentrations	Emissions (lbs/day)	M2.5 Concentration (ug/m3)
	8.00E-04	0.00154468
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
TOTAL:		0.00154468

Attachment 3: CalEEMod Input and Output Data and Worksheets

2270 Broadway, Oakland

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	261.00	Space	0.00	126,975.00	0
Apartments High Rise	223.00	Dwelling Unit	0.46	259,045.00	638
Strip Mall	7.80	1000sqft	0.00	7,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	348.86	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor (348.86 lb/MWh) for 2017 obtained from CPUC GHG Calculator version 3c.

Land Use - 259,045 s.f. + 7,800 s.f. retail = 266,845 total building s.f. 126,975 garage s.f. Lot acreage (0.46) from PD.

Construction Phase - Schedule based on 24 month construction period.

Grading - 14,100 CY soil export.

Vehicle Trips - Trip rates from project traffic report. No pass-by/diverted trips.

Woodstoves - No woodstoves or wood fireplaces, possible gas-powered fireplaces.

Energy Use - 25% more energy-efficiency with 2013 Title 24 CalGreen than with 2008 Title 24.

Energy Mitigation - EnergyStar appliances.

Water Mitigation - Water-efficient irrigation.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	21.00
tblConstructionPhase	NumDays	100.00	429.00
tblConstructionPhase	NumDays	10.00	43.00
tblConstructionPhase	NumDays	2.00	9.00
tblConstructionPhase	NumDays	5.00	21.00
tblConstructionPhase	NumDays	1.00	4.00
tblEnergyUse	LightingElect	741.44	556.08
tblEnergyUse	LightingElect	2.63	1.97
tblEnergyUse	LightingElect	5.51	4.13
tblEnergyUse	T24E	312.05	234.04
tblEnergyUse	T24E	3.92	2.94
tblEnergyUse	T24E	2.74	2.06
tblEnergyUse	T24NG	7,191.67	5,393.80
tblEnergyUse	T24NG	4.10	3.10
tblFireplaces	FireplaceWoodMass	92.40	0.00
tblFireplaces	NumberGas	122.65	223.00
tblFireplaces	NumberNoFireplace	69.13	0.00
tblFireplaces	NumberWood	31.22	0.00
tblGrading	AcresOfGrading	2.00	0.50
tblGrading	MaterialExported	0.00	14,100.00
tblLandUse	LandUseSquareFeet	104,400.00	126,975.00
tblLandUse	LandUseSquareFeet	223,000.00	259,045.00
tblLandUse	LotAcreage	2.35	0.00
tblLandUse	LotAcreage	3.60	0.46
tblLandUse	LotAcreage	0.18	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	348.86
tblProjectCharacteristics	OperationalYear	2014	2017
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00

tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	7.16	3.77
tblVehicleTrips	ST_TR	42.04	24.40
tblVehicleTrips	SU_TR	6.07	3.77
tblVehicleTrips	SU_TR	20.43	24.40
tblVehicleTrips	WD_TR	6.59	3.77
tblVehicleTrips	WD_TR	44.32	24.40
tblWoodstoves	NumberCatalytic	1.12	0.00
tblWoodstoves	NumberNoncatalytic	1.12	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.3718	2.8102	3.4299	5.7300e-003	0.2532	0.1424	0.3956	0.0690	0.1318	0.2007	0.0000	498.0706	498.0706	0.0524	0.0000	499.1703
2016	2.2506	2.3265	3.0997	5.3300e-003	0.2577	0.1235	0.3813	0.0693	0.1138	0.1831	0.0000	448.5246	448.5246	0.0517	0.0000	449.6093
2017	0.6027	6.0100e-003	9.8900e-003	2.0000e-005	9.8000e-004	4.4000e-004	1.4200e-003	2.6000e-004	4.4000e-004	7.0000e-004	0.0000	1.4921	1.4921	1.1000e-004	0.0000	1.4944
Total	**3.2251**	**5.1427**	**6.5395**	**0.0111**	**0.5119**	**0.2663**	**0.7783**	**0.1385**	**0.2460**	**0.3845**	**0.0000**	**948.0872**	**948.0872**	**0.1041**	**0.0000**	**950.2740**

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					
2015	0.3718	2.8102	3.4299	5.7300e-003	0.2532	0.1424	0.3956	0.0690	0.1318	0.2007	0.0000	498.0704	498.0704	0.0524	0.0000	499.1701
2016	2.2506	2.3265	3.0997	5.3300e-003	0.2577	0.1235	0.3813	0.0693	0.1138	0.1831	0.0000	448.5244	448.5244	0.0517	0.0000	449.6091
2017	0.6027	6.0100e-003	9.8900e-003	2.0000e-005	9.8000e-004	4.4000e-004	1.4200e-003	2.6000e-004	4.4000e-004	7.0000e-004	0.0000	1.4921	1.4921	1.1000e-004	0.0000	1.4944
Total	**3.2251**	**5.1427**	**6.5395**	**0.0111**	**0.5119**	**0.2663**	**0.7783**	**0.1385**	**0.2460**	**0.3845**	**0.0000**	**948.0869**	**948.0869**	**0.1041**	**0.0000**	**950.2737**

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

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	1.8441	0.0195	1.6751	9.0000e-005		9.8400e-003	9.8400e-003		9.8300e-003	9.8300e-003	0.0000	13.4304	13.4304	2.9300e-003	2.0000e-004	13.5529
Energy	8.6400e-003	0.0740	0.0321	4.7000e-004		5.9700e-003	5.9700e-003		5.9700e-003	5.9700e-003	0.0000	318.0892	318.0892	0.0210	5.5700e-003	320.2556
Mobile	0.6955	2.1212	7.6454	0.0151	0.9891	0.0275	1.0166	0.2658	0.0253	0.2911	0.0000	1,178.6685	1,178.6685	0.0453	0.0000	1,179.6202
Waste						0.0000	0.0000		0.0000	0.0000	22.4853	0.0000	22.4853	1.3288	0.0000	50.3910
Water						0.0000	0.0000		0.0000	0.0000	4.7928	18.2045	22.9973	0.4938	0.0119	37.0670

Total	**2.5482**	**2.2147**	**9.3525**	**0.0156**	**0.9891**	**0.0433**	**1.0324**	**0.2658**	**0.0411**	**0.3069**	**27.2781**	**1,528.3926**	**1,555.6707**	**1.8918**	**0.0177**	**1,600.8867**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8441	0.0195	1.6751	9.0000e-005		9.8400e-003	9.8400e-003		9.8300e-003	9.8300e-003	0.0000	13.4304	13.4304	2.9300e-003	2.0000e-004	13.5529
Energy	8.6400e-003	0.0740	0.0321	4.7000e-004		5.9700e-003	5.9700e-003		5.9700e-003	5.9700e-003	0.0000	314.1751	314.1751	0.0207	5.5000e-003	316.3138
Mobile	0.6955	2.1212	7.6454	0.0151	0.9891	0.0275	1.0166	0.2658	0.0253	0.2911	0.0000	1,178.6685	1,178.6685	0.0453	0.0000	1,179.6202
Waste						0.0000	0.0000		0.0000	0.0000	22.4853	0.0000	22.4853	1.3288	0.0000	50.3910
Water						0.0000	0.0000		0.0000	0.0000	4.7928	17.8831	22.6759	0.4937	0.0119	36.7356
Total	**2.5482**	**2.2147**	**9.3525**	**0.0156**	**0.9891**	**0.0433**	**1.0324**	**0.2658**	**0.0411**	**0.3069**	**27.2781**	**1,524.1570**	**1,551.4351**	**1.8914**	**0.0176**	**1,596.6136**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.28**	**0.27**	**0.02**	**0.56**	**0.27**

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	1/1/2015	3/2/2015	5	43	
2	Site Preparation	Site Preparation	3/3/2015	3/6/2015	5	4	
3	Grading	Grading	3/7/2015	3/19/2015	5	9	
4	Building Construction	Building Construction	3/20/2015	11/9/2016	5	429	

5	Paving	Paving	11/10/2016	12/8/2016	5	21	
6	Architectural Coating	Architectural Coating	12/9/2016	1/6/2017	5	21	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 524,566; Residential Outdoor: 174,855; Non-Residential Indoor: 202,163; Non-Residential Outdoor: 67,388

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class

Demolition	4	10.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	1,763.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	216.00	46.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	43.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2015

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	0.0304	0.2567	0.1895	2.6000e-004		0.0188	0.0188		0.0180	0.0180	0.0000	23.4178	23.4178	4.7800e-003	0.0000	23.5182
Total	**0.0304**	**0.2567**	**0.1895**	**2.6000e-004**		**0.0188**	**0.0188**		**0.0180**	**0.0180**	**0.0000**	**23.4178**	**23.4178**	**4.7800e-003**	**0.0000**	**23.5182**

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	9.2000e-004	1.3600e-003	0.0132	2.0000e-005	1.9500e-003	2.0000e-005	1.9700e-003	5.2000e-004	2.0000e-005	5.4000e-004	0.0000	1.8383	1.8383	1.1000e-004	0.0000	1.8406
Total	**9.2000e-004**	**1.3600e-003**	**0.0132**	**2.0000e-005**	**1.9500e-003**	**2.0000e-005**	**1.9700e-003**	**5.2000e-004**	**2.0000e-005**	**5.4000e-004**	**0.0000**	**1.8383**	**1.8383**	**1.1000e-004**	**0.0000**	**1.8406**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0304	0.2567	0.1895	2.6000e-004		0.0188	0.0188		0.0180	0.0180	0.0000	23.4178	23.4178	4.7800e-003	0.0000	23.5182
Total	**0.0304**	**0.2567**	**0.1895**	**2.6000e-004**		**0.0188**	**0.0188**		**0.0180**	**0.0180**	**0.0000**	**23.4178**	**23.4178**	**4.7800e-003**	**0.0000**	**23.5182**

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	9.2000e-004	1.3600e-003	0.0132	2.0000e-005	1.9500e-003	2.0000e-005	1.9700e-003	5.2000e-004	2.0000e-005	5.4000e-004	0.0000	1.8383	1.8383	1.1000e-004	0.0000	1.8406
Total	**9.2000e-004**	**1.3600e-003**	**0.0132**	**2.0000e-005**	**1.9500e-003**	**2.0000e-005**	**1.9700e-003**	**5.2000e-004**	**2.0000e-005**	**5.4000e-004**	**0.0000**	**1.8383**	**1.8383**	**1.1000e-004**	**0.0000**	**1.8406**

3.3 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8400e-003	0.0286	0.0148	2.0000e-005		1.7600e-003	1.7600e-003		1.6200e-003	1.6200e-003	0.0000	1.7864	1.7864	5.3000e-004	0.0000	1.7975
Total	**2.8400e-003**	**0.0286**	**0.0148**	**2.0000e-005**	**2.7000e-004**	**1.7600e-003**	**2.0300e-003**	**3.0000e-005**	**1.6200e-003**	**1.6500e-003**	**0.0000**	**1.7864**	**1.7864**	**5.3000e-004**	**0.0000**	**1.7975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0855	0.0855	1.0000e-005	0.0000	0.0856
Total	**4.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0855**	**0.0855**	**1.0000e-005**	**0.0000**	**0.0856**

Mitigated Construction On-Site

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

Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8400e-003	0.0286	0.0148	2.0000e-005		1.7600e-003	1.7600e-003		1.6200e-003	1.6200e-003	0.0000	1.7863	1.7863	5.3000e-004	0.0000	1.7975
Total	**2.8400e-003**	**0.0286**	**0.0148**	**2.0000e-005**	**2.7000e-004**	**1.7600e-003**	**2.0300e-003**	**3.0000e-005**	**1.6200e-003**	**1.6500e-003**	**0.0000**	**1.7863**	**1.7863**	**5.3000e-004**	**0.0000**	**1.7975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0855	0.0855	1.0000e-005	0.0000	0.0856
Total	**4.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0855**	**0.0855**	**1.0000e-005**	**0.0000**	**0.0856**

3.4 Grading - 2015

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					4.1800e-003	0.0000	4.1800e-003	1.9800e-003	0.0000	1.9800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.3500e-003	0.0537	0.0397	5.0000e-005		3.9400e-003	3.9400e-003		3.7600e-003	3.7600e-003	0.0000	4.9014	4.9014	1.0000e-003	0.0000	4.9224
Total	**6.3500e-003**	**0.0537**	**0.0397**	**5.0000e-005**	**4.1800e-003**	**3.9400e-003**	**8.1200e-003**	**1.9800e-003**	**3.7600e-003**	**5.7400e-003**	**0.0000**	**4.9014**	**4.9014**	**1.0000e-003**	**0.0000**	**4.9224**

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	0.0227	0.3073	0.2341	6.7000e-004	0.0149	4.6000e-003	0.0195	4.0900e-003	4.2300e-003	8.3200e-003	0.0000	61.5675	61.5675	5.2000e-004	0.0000	61.5784
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	1.9000e-004	2.8000e-004	2.7600e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3848	0.3848	2.0000e-005	0.0000	0.3852
Total	**0.0229**	**0.3076**	**0.2369**	**6.7000e-004**	**0.0153**	**4.6000e-003**	**0.0199**	**4.2000e-003**	**4.2300e-003**	**8.4300e-003**	**0.0000**	**61.9522**	**61.9522**	**5.4000e-004**	**0.0000**	**61.9637**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.1800e-003	0.0000	4.1800e-003	1.9800e-003	0.0000	1.9800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.3500e-003	0.0537	0.0397	5.0000e-005		3.9400e-003	3.9400e-003		3.7600e-003	3.7600e-003	0.0000	4.9014	4.9014	1.0000e-003	0.0000	4.9224
Total	**6.3500e-003**	**0.0537**	**0.0397**	**5.0000e-005**	**4.1800e-003**	**3.9400e-003**	**8.1200e-003**	**1.9800e-003**	**3.7600e-003**	**5.7400e-003**	**0.0000**	**4.9014**	**4.9014**	**1.0000e-003**	**0.0000**	**4.9224**

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	0.0227	0.3073	0.2341	6.7000e-004	0.0149	4.6000e-003	0.0195	4.0900e-003	4.2300e-003	8.3200e-003	0.0000	61.5675	61.5675	5.2000e-004	0.0000	61.5784
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	1.9000e-004	2.8000e-004	2.7600e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3848	0.3848	2.0000e-005	0.0000	0.3852
Total	**0.0229**	**0.3076**	**0.2369**	**6.7000e-004**	**0.0153**	**4.6000e-003**	**0.0199**	**4.2000e-003**	**4.2300e-003**	**8.4300e-003**	**0.0000**	**61.9522**	**61.9522**	**5.4000e-004**	**0.0000**	**61.9637**

3.5 Building Construction - 2015

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	0.1490	1.4737	0.8506	1.1600e-003		0.1025	0.1025		0.0943	0.0943	0.0000	110.8121	110.8121	0.0331	0.0000	111.5069
Total	**0.1490**	**1.4737**	**0.8506**	**1.1600e-003**		**0.1025**	**0.1025**		**0.0943**	**0.0943**	**0.0000**	**110.8121**	**110.8121**	**0.0331**	**0.0000**	**111.5069**

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	0.0643	0.5484	0.7274	1.1300e-003	0.0305	8.9700e-003	0.0395	8.7600e-003	8.2400e-003	0.0170	0.0000	103.9787	103.9787	9.4000e-004	0.0000	103.9984
Worker	0.0951	0.1401	1.3573	2.4000e-003	0.2010	1.8300e-003	0.2028	0.0535	1.6700e-003	0.0551	0.0000	189.2982	189.2982	0.0114	0.0000	189.5370

Total	**0.1594**	**0.6885**	**2.0847**	**3.5300e-003**	**0.2314**	**0.0108**	**0.2422**	**0.0622**	**9.9100e-003**	**0.0721**	**0.0000**	**293.2769**	**293.2769**	**0.0123**	**0.0000**	**293.5354**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1490	1.4737	0.8506	1.1600e-003		0.1025	0.1025		0.0943	0.0943	0.0000	110.8120	110.8120	0.0331	0.0000	111.5067
Total	**0.1490**	**1.4737**	**0.8506**	**1.1600e-003**		**0.1025**	**0.1025**		**0.0943**	**0.0943**	**0.0000**	**110.8120**	**110.8120**	**0.0331**	**0.0000**	**111.5067**

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	0.0643	0.5484	0.7274	1.1300e-003	0.0305	8.9700e-003	0.0395	8.7600e-003	8.2400e-003	0.0170	0.0000	103.9787	103.9787	9.4000e-004	0.0000	103.9984
Worker	0.0951	0.1401	1.3573	2.4000e-003	0.2010	1.8300e-003	0.2028	0.0535	1.6700e-003	0.0551	0.0000	189.2982	189.2982	0.0114	0.0000	189.5370
Total	**0.1594**	**0.6885**	**2.0847**	**3.5300e-003**	**0.2314**	**0.0108**	**0.2422**	**0.0622**	**9.9100e-003**	**0.0721**	**0.0000**	**293.2769**	**293.2769**	**0.0123**	**0.0000**	**293.5354**

3.5 Building Construction - 2016

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	0.1547	1.5351	0.9198	1.2700e-003		0.1053	0.1053		0.0968	0.0968	0.0000	119.7467	119.7467	0.0361	0.0000	120.5052
Total	**0.1547**	**1.5351**	**0.9198**	**1.2700e-003**		**0.1053**	**0.1053**		**0.0968**	**0.0968**	**0.0000**	**119.7467**	**119.7467**	**0.0361**	**0.0000**	**120.5052**

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	0.0617	0.5210	0.7378	1.2400e-003	0.0333	7.8400e-003	0.0412	9.5700e-003	7.2100e-003	0.0168	0.0000	112.2752	112.2752	9.1000e-004	0.0000	112.2942
Worker	0.0926	0.1369	1.3214	2.6200e-003	0.2196	1.8800e-003	0.2215	0.0584	1.7200e-003	0.0601	0.0000	199.7379	199.7379	0.0113	0.0000	199.9753
Total	**0.1543**	**0.6578**	**2.0591**	**3.8600e-003**	**0.2529**	**9.7200e-003**	**0.2626**	**0.0680**	**8.9300e-003**	**0.0769**	**0.0000**	**312.0130**	**312.0130**	**0.0122**	**0.0000**	**312.2695**

Mitigated Construction On-Site

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

Off-Road	0.1547	1.5351	0.9198	1.2700e-003		0.1053	0.1053		0.0968	0.0968	0.0000	119.7466	119.7466	0.0361	0.0000	120.5051
Total	**0.1547**	**1.5351**	**0.9198**	**1.2700e-003**		**0.1053**	**0.1053**		**0.0968**	**0.0968**	**0.0000**	**119.7466**	**119.7466**	**0.0361**	**0.0000**	**120.5051**

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	0.0617	0.5210	0.7378	1.2400e-003	0.0333	7.8400e-003	0.0412	9.5700e-003	7.2100e-003	0.0168	0.0000	112.2752	112.2752	9.1000e-004	0.0000	112.2942
Worker	0.0926	0.1369	1.3214	2.6200e-003	0.2196	1.8800e-003	0.2215	0.0584	1.7200e-003	0.0601	0.0000	199.7379	199.7379	0.0113	0.0000	199.9753
Total	**0.1543**	**0.6578**	**2.0591**	**3.8600e-003**	**0.2529**	**9.7200e-003**	**0.2626**	**0.0680**	**8.9300e-003**	**0.0769**	**0.0000**	**312.0130**	**312.0130**	**0.0122**	**0.0000**	**312.2695**

3.6 Paving - 2016

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	0.0118	0.1116	0.0766	1.2000e-004		6.9400e-003	6.9400e-003		6.4200e-003	6.4200e-003	0.0000	10.3216	10.3216	2.8300e-003	0.0000	10.3810
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0118**	**0.1116**	**0.0766**	**1.2000e-004**		**6.9400e-003**	**6.9400e-003**		**6.4200e-003**	**6.4200e-003**	**0.0000**	**10.3216**	**10.3216**	**2.8300e-003**	**0.0000**	**10.3810**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	1.0700e-003	0.0103	2.0000e-005	1.7200e-003	1.0000e-005	1.7300e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5605	1.5605	9.0000e-005	0.0000	1.5623
Total	**7.2000e-004**	**1.0700e-003**	**0.0103**	**2.0000e-005**	**1.7200e-003**	**1.0000e-005**	**1.7300e-003**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**0.0000**	**1.5605**	**1.5605**	**9.0000e-005**	**0.0000**	**1.5623**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0118	0.1116	0.0766	1.2000e-004		6.9400e-003	6.9400e-003		6.4200e-003	6.4200e-003	0.0000	10.3216	10.3216	2.8300e-003	0.0000	10.3810
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0118**	**0.1116**	**0.0766**	**1.2000e-004**		**6.9400e-003**	**6.9400e-003**		**6.4200e-003**	**6.4200e-003**	**0.0000**	**10.3216**	**10.3216**	**2.8300e-003**	**0.0000**	**10.3810**

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	7.2000e-004	1.0700e-003	0.0103	2.0000e-005	1.7200e-003	1.0000e-005	1.7300e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5605	1.5605	9.0000e-005	0.0000	1.5623
Total	**7.2000e-004**	**1.0700e-003**	**0.0103**	**2.0000e-005**	**1.7200e-003**	**1.0000e-005**	**1.7300e-003**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**0.0000**	**1.5605**	**1.5605**	**9.0000e-005**	**0.0000**	**1.5623**

3.7 Architectural Coating - 2016

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	1.9248					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9500e-003	0.0190	0.0151	2.0000e-005		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	2.0426	2.0426	2.4000e-004	0.0000	2.0477
Total	**1.9277**	**0.0190**	**0.0151**	**2.0000e-005**		**1.5700e-003**	**1.5700e-003**		**1.5700e-003**	**1.5700e-003**	**0.0000**	**2.0426**	**2.0426**	**2.4000e-004**	**0.0000**	**2.0477**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	1.9500e-003	0.0188	4.0000e-005	3.1200e-003	3.0000e-005	3.1500e-003	8.3000e-004	2.0000e-005	8.6000e-004	0.0000	2.8402	2.8402	1.6000e-004	0.0000	2.8436

Total	**1.3200e-003**	**1.9500e-003**	**0.0188**	**4.0000e-005**	**3.1200e-003**	**3.0000e-005**	**3.1500e-003**	**8.3000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.8402**	**2.8402**	**1.6000e-004**	**0.0000**	**2.8436**

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	1.9248					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9500e-003	0.0190	0.0151	2.0000e-005		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	2.0426	2.0426	2.4000e-004	0.0000	2.0477
Total	**1.9277**	**0.0190**	**0.0151**	**2.0000e-005**		**1.5700e-003**	**1.5700e-003**		**1.5700e-003**	**1.5700e-003**	**0.0000**	**2.0426**	**2.0426**	**2.4000e-004**	**0.0000**	**2.0477**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	1.9500e-003	0.0188	4.0000e-005	3.1200e-003	3.0000e-005	3.1500e-003	8.3000e-004	2.0000e-005	8.6000e-004	0.0000	2.8402	2.8402	1.6000e-004	0.0000	2.8436
Total	**1.3200e-003**	**1.9500e-003**	**0.0188**	**4.0000e-005**	**3.1200e-003**	**3.0000e-005**	**3.1500e-003**	**8.3000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.8402**	**2.8402**	**1.6000e-004**	**0.0000**	**2.8436**

3.7 Architectural Coating - 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					
Archit. Coating	0.6015					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.3000e-004	5.4600e-003	4.6700e-003	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	0.6383	0.6383	7.0000e-005	0.0000	0.6397
Total	**0.6023**	**5.4600e-003**	**4.6700e-003**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**	**0.0000**	**0.6383**	**0.6383**	**7.0000e-005**	**0.0000**	**0.6397**

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	3.6000e-004	5.4000e-004	5.2200e-003	1.0000e-005	9.8000e-004	1.0000e-005	9.8000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8538	0.8538	5.0000e-005	0.0000	0.8547
Total	**3.6000e-004**	**5.4000e-004**	**5.2200e-003**	**1.0000e-005**	**9.8000e-004**	**1.0000e-005**	**9.8000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8538**	**0.8538**	**5.0000e-005**	**0.0000**	**0.8547**

Mitigated Construction On-Site

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

Archit. Coating	0.6015					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.3000e-004	5.4600e-003	4.6700e-003	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	0.6383	0.6383	7.0000e-005	0.0000	0.6397
Total	**0.6023**	**5.4600e-003**	**4.6700e-003**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**	**0.0000**	**0.6383**	**0.6383**	**7.0000e-005**	**0.0000**	**0.6397**

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	3.6000e-004	5.4000e-004	5.2200e-003	1.0000e-005	9.8000e-004	1.0000e-005	9.8000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8538	0.8538	5.0000e-005	0.0000	0.8547
Total	**3.6000e-004**	**5.4000e-004**	**5.2200e-003**	**1.0000e-005**	**9.8000e-004**	**1.0000e-005**	**9.8000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8538**	**0.8538**	**5.0000e-005**	**0.0000**	**0.8547**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6955	2.1212	7.6454	0.0151	0.9891	0.0275	1.0166	0.2658	0.0253	0.2911	0.0000	1,178.6685	1,178.6685	0.0453	0.0000	1,179.6202
Unmitigated	0.6955	2.1212	7.6454	0.0151	0.9891	0.0275	1.0166	0.2658	0.0253	0.2911	0.0000	1,178.6685	1,178.6685	0.0453	0.0000	1,179.6202

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	840.71	840.71	840.71	2,113,639	2,113,639
Enclosed Parking with Elevator	0.00	0.00	0.00		
Strip Mall	190.32	190.32	190.32	531,018	531,018
Total	1,031.03	1,031.03	1,031.03	2,644,657	2,644,657

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-W	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	100	0	0
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	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.541334	0.061893	0.168156	0.111955	0.031019	0.004607	0.019268	0.049011	0.001782	0.003693	0.005649	0.000207	0.001427

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	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	228.6285	228.6285	0.0190	3.9300e-003	230.2465
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	232.5426	232.5426	0.0193	4.0000e-003	234.1884
NaturalGas Mitigated	8.6400e-003	0.0740	0.0321	4.7000e-004		5.9700e-003	5.9700e-003		5.9700e-003	5.9700e-003	0.0000	85.5466	85.5466	1.6400e-003	1.5700e-003	86.0673
NaturalGas Unmitigated	8.6400e-003	0.0740	0.0321	4.7000e-004		5.9700e-003	5.9700e-003		5.9700e-003	5.9700e-003	0.0000	85.5466	85.5466	1.6400e-003	1.5700e-003	86.0673

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					
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	29640	1.6000e-004	1.4500e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5817	1.5817	3.0000e-005	3.0000e-005	1.5913
Apartments High Rise	1.57344e+006	8.4800e-003	0.0725	0.0309	4.6000e-004		5.8600e-003	5.8600e-003		5.8600e-003	5.8600e-003	0.0000	83.9649	83.9649	1.6100e-003	1.5400e-003	84.4759
Total		**8.6400e-003**	**0.0740**	**0.0321**	**4.7000e-004**		**5.9700e-003**	**5.9700e-003**		**5.9700e-003**	**5.9700e-003**	**0.0000**	**85.5466**	**85.5466**	**1.6400e-003**	**1.5700e-003**	**86.0673**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
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	29640	1.6000e-004	1.4500e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5817	1.5817	3.0000e-005	3.0000e-005	1.5913

Apartments High Rise	1.57344e+006	8.4800e-003	0.0725	0.0309	4.6000e-004		5.8600e-003	5.8600e-003		5.8600e-003	5.8600e-003	0.0000	83.9649	83.9649	1.6100e-003	1.5400e-003	84.4759
Total		**8.6400e-003**	**0.0740**	**0.0321**	**4.7000e-004**		**5.9700e-003**	**5.9700e-003**		**5.9700e-003**	**5.9700e-003**	**0.0000**	**85.5466**	**85.5466**	**1.6400e-003**	**1.5700e-003**	**86.0673**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	747492	118.2832	9.8300e-003	2.0300e-003	119.1204
Enclosed Parking with Elevator	647573	102.4720	8.5200e-003	1.7600e-003	103.1973
Strip Mall	74490	11.7873	9.8000e-004	2.0000e-004	11.8707
Total		**232.5426**	**0.0193**	**3.9900e-003**	**234.1884**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	722756	114.3691	9.5100e-003	1.9700e-003	115.1786
Enclosed Parking with Elevator	647573	102.4720	8.5200e-003	1.7600e-003	103.1973
Strip Mall	74490	11.7873	9.8000e-004	2.0000e-004	11.8707
Total		**228.6285**	**0.0190**	**3.9300e-003**	**230.2465**

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	1.8441	0.0195	1.6751	9.0000e-005		9.8400e-003	9.8400e-003		9.8300e-003	9.8300e-003	0.0000	13.4304	13.4304	2.9300e-003	2.0000e-004	13.5529
Unmitigated	1.8441	0.0195	1.6751	9.0000e-005		9.8400e-003	9.8400e-003		9.8300e-003	9.8300e-003	0.0000	13.4304	13.4304	2.9300e-003	2.0000e-004	13.5529

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	0.2526					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5381					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.0800e-003	0.0000	6.0000e-005	0.0000		7.5000e-004	7.5000e-004		7.4000e-004	7.4000e-004	0.0000	10.7208	10.7208	2.1000e-004	2.0000e-004	10.7861
Landscaping	0.0523	0.0195	1.6750	9.0000e-005		9.0900e-003	9.0900e-003		9.0900e-003	9.0900e-003	0.0000	2.7095	2.7095	2.7300e-003	0.0000	2.7668
Total	**1.8441**	**0.0195**	**1.6751**	**9.0000e-005**		**9.8400e-003**	**9.8400e-003**		**9.8300e-003**	**9.8300e-003**	**0.0000**	**13.4304**	**13.4304**	**2.9400e-003**	**2.0000e-004**	**13.5529**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2526					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5381					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.0800e-003	0.0000	6.0000e-005	0.0000		7.5000e-004	7.5000e-004		7.4000e-004	7.4000e-004	0.0000	10.7208	10.7208	2.1000e-004	2.0000e-004	10.7861
Landscaping	0.0523	0.0195	1.6750	9.0000e-005		9.0900e-003	9.0900e-003		9.0900e-003	9.0900e-003	0.0000	2.7095	2.7095	2.7300e-003	0.0000	2.7668
Total	**1.8441**	**0.0195**	**1.6751**	**9.0000e-005**		**9.8400e-003**	**9.8400e-003**		**9.8300e-003**	**9.8300e-003**	**0.0000**	**13.4304**	**13.4304**	**2.9400e-003**	**2.0000e-004**	**13.5529**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	22.6759	0.4937	0.0119	36.7356
Unmitigated	22.9973	0.4938	0.0119	37.0670

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	14.5293 / 9.15981	22.1231	0.4749	0.0115	35.6548
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.577766 / 0.354114	0.8741	0.0189	4.6000e-004	1.4122
Total		**22.9973**	**0.4938**	**0.0119**	**37.0670**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	14.5293 / 8.60106	21.8137	0.4748	0.0115	35.3358
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.577766 / 0.332513	0.8622	0.0189	4.6000e-004	1.3998
Total		**22.6759**	**0.4937**	**0.0119**	**36.7356**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e

	MT/yr			
Mitigated	22.4853	1.3288	0.0000	50.3910
Unmitigated	22.4853	1.3288	0.0000	50.3910

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	102.58	20.8228	1.2306	0.0000	46.6653
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	8.19	1.6625	0.0983	0.0000	3.7258
Total		**22.4853**	**1.3288**	**0.0000**	**50.3910**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	102.58	20.8228	1.2306	0.0000	46.6653
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	8.19	1.6625	0.0983	0.0000	3.7258

Total		**22.4853**	**1.3288**	**0.0000**	**50.3910**

9.0 Operational Offroad

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

10.0 Vegetation