

**APPENDIX A**  
**AIR QUALITY AND GREENHOUSE GAS**  
**EMISSIONS ASSESSMENT**

# ***JEFFERSON UNION HIGH SCHOOL DISTRICT FACULTY & STAFF HOUSING PROJECT AIR QUALITY & GREENHOUSE GAS ASSESSMENT***

***Daly City, California***

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## **Introduction**

The purpose of this report is to address air quality impacts and compute greenhouse gas (GHG) emissions associated with the residential project located at 699 Serramonte Boulevard in Daly City, California. The air quality impacts and GHG emissions would be associated with the demolition of the existing uses at the site, construction of the new building and infrastructure, and operation of the project. Air pollutant and GHG emissions associated with the construction and operation of the project were predicted using models. 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. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).<sup>1</sup>

## **Project Description**

The 6.5-acre site project site is adjacent to the north border of the Jefferson Union High School District (JUHSD) in Daly City. The site is currently occupied by a 7,500 square-foot (sf) school building as well as parking lots to service the school. The project proposes to demolish the building and pavement and construct, on the western portion of the site, a four-story multi-family building for faculty and staff housing with 122 residential units, 72 parking spaces with a lift system, and 49 parking lot spaces. The eastern portion of the site would redesign and repave 197 parking spaces for the JUHSD.

## **Setting**

The project is located in San Mateo County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM<sub>10</sub>), and fine particulate matter (PM<sub>2.5</sub>).

### Air Pollutants of Concern

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>). 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<sub>10</sub>) and fine particulate matter where particles have a diameter of 2.5 micrometers or less (PM<sub>2.5</sub>). Elevated concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels

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

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

TACs 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. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015.<sup>2</sup> See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

### Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. 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 project would introduce new sensitive receptors in the form of residences. In addition, the closest sensitive receptors to the project site are the infants/children at the adjacent IHSD, Inc., Serramonte Head Start daycare and the high school students at the adjacent JUHSD building to the south of the project site. There are also single-family residences to the west and multi-family residences to the north and further south.

### Regulatory Agencies

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

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<sup>2</sup> OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

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.

## Regulatory Setting

### *Federal Regulations*

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

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO<sub>x</sub> and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and because the EPA has identified DPM as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO<sub>x</sub> emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.<sup>3</sup>

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

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

### *State Regulations*

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.<sup>4</sup> In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant

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

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

component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or replaced to meet 2010 or later engine standards that have much lower DPM and PM<sub>2.5</sub> emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, this measure is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road or is retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

CARB has also adopted and implemented regulations to reduce DPM and NO<sub>x</sub> emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.). The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce particulate matter and NO<sub>x</sub> exhaust emissions by requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-averaged emission rates. Implementation of this regulation, in conjunction with stringent federal off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO<sub>x</sub>.

#### *Bay Area Air Quality Management District (BAAQMD)*

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

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

The BAAQMD California Environmental Quality Act (CEQA) *Air Quality Guidelines*<sup>5</sup> were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds

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<sup>5</sup> Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions.

### *Daly City 2030 General Plan*

The following air resources policies and implementing tasks contained in the Resource Management Element of the Daly City 2030 General Plan<sup>6</sup> are applicable to the proposed project:

*Policy RME-5:* Assess projected air emissions from new development and associated construction and demolition activities in conformance with the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines, and relative to state and federal standards.

- Task RME-5.1: Amend the Planning Division’s development review procedures to include a formal step that would help identify how a development project can incorporate design or functional changes that will minimize air quality impacts.
- Task RME-5.2: Incorporate air quality significance thresholds into the Local Thresholds of Significance document identified in Program RME-1.
- Task RME-5.3: Consider cumulative air quality impacts consistent with the region's Clean Air Plan and State law.
- Task RME-5.4: Require the preparation of a Transportation Systems Management plan for new development that has been determined to contribute to a reduction in location air quality. Daly City 2030 General Plan | Resource Management Element 193
- Task RME-5.5: Consult with BAAQMD to identify stationary and mobile TAC sources and determine the need for and requirements of a health risk assessment for proposed developments. type, size and operations of the facility.

*Policy RME-6:* Assess projected air emissions from new development and associated construction and demolition activities in conformance with the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines, and relative to state and federal standards.

- Task RME-6.1: For new, expanded, or modified development proposals (including tenant improvements) that are potential sources of objectionable smoke and odor, require an analysis of possible smoke and odor impacts and the provision of smoke and odor minimization and control measures as mitigation. The requirements for such shall be codified within the Daly City Municipal Code.
- Task RME-6.2: Require new residential development projects and projects categorized as sensitive receptors to be located an adequate distance from facilities that are existing and

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<sup>6</sup> Daly City, 2013. *Daly City 2030 General Plan*. Adopted March 25, 2013.

potential sources of odor. An adequate separate distance will be determined based upon the type, size and operations of the facility.

### *Daly City Climate Action Plan*

The Daly City Climate Action Plan (CAP)<sup>7</sup> seeks to reduce the City operation's overall carbon footprint through a series of ten goals by the year 2020. The goals cover topics such as reducing solid waste, recycling and reuse of wastewater, preservation of urban forests, adoption of a master pedestrian and bicycle plan, reuse of biosolids, the use of green building standards, and community education.

### Significance Thresholds

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

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<sup>7</sup> Daly City, "Daly City's Green Vision"  
[http://www.dalycity.org/Assets/Departments/City+Manager/Daly+City+Green+Vision+\(Final\).pdf](http://www.dalycity.org/Assets/Departments/City+Manager/Daly+City+Green+Vision+(Final).pdf)

**Table 1. Air Quality Significance Thresholds**

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO <sub>x</sub>	54	54	10
PM <sub>10</sub>	82 (Exhaust)	82	15
PM <sub>2.5</sub>	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	
<b>Health Risks and Hazards</b>	<b>Single Sources Within 1,000-foot Zone of Influence</b>	<b>Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)</b>	
Excess Cancer Risk	>10.0 per one million	>100 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual PM <sub>2.5</sub>	>0.3 µg/m <sup>3</sup>	>0.8 µg/m <sup>3</sup>	
<b>Greenhouse Gas Emissions</b>			
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020) 660 metric tons annually or 2.8 metric tons per capita (for 2030) *		
Note: ROG = reactive organic gases, NO <sub>x</sub> = nitrogen oxides, PM <sub>10</sub> = coarse particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, PM <sub>2.5</sub> = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases. *BAAQMD does not have a recommended post-2020 GHG threshold.			

## Air Quality Impacts and Mitigation Measures

**Impact 1: 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)?**

The Bay Area is considered a non-attainment area for ground-level ozone and PM<sub>2.5</sub> under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM<sub>10</sub> 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<sub>10</sub>, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds

are for ozone precursor pollutants (ROG and NO<sub>x</sub>), PM<sub>10</sub>, and PM<sub>2.5</sub> and apply to both construction period and operational period impacts.

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

### Construction Period Emissions

CalEEMod provided annual emissions for construction and estimates emissions 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 CalEEMod default information for a project of this type and size. The proposed project was divided into two modeling scenarios; the west portion of the project site where the majority of construction for the staff housing building and parking would occur and the east portion of the project site for the JUHSD parking. The construction and operation of both scenarios would occur at the same time. The proposed project land uses for each portion were input into CalEEMod in two modeling scenarios:

Staff Housing and West Parking: Inputs entered into the western portion model included 122 dwelling units entered as “Apartments Mid Rise”, 72 parking spaces entered as “Unenclosed Parking Structure”, and 49 parking spaces entered as “Parking Lot” on a 3.65-acre site. In addition, 280 one-way truck trips for pavement demolition and 6,580 cubic yards of soil export during the grading phase were entered into the western portion model.

East Parking: Inputs entered into the eastern portion model included 197 parking spaces entered as “Parking Lot” on a 2.85-acre site. In addition, 7,500-sf of existing building demolition and 280 one-way truck trips for pavement demolition was entered into the eastern portion model.

The CalEEMod default construction schedule assumed that the project would be built out over a period of approximately 14 months beginning in January 2020. Based on the CalEEMod default assumptions, there are an estimated 299 construction workdays. Average daily emissions were computed by dividing the total construction emissions by the number of construction days. Table 2 shows average daily construction emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub> exhaust, and PM<sub>2.5</sub> exhaust during construction of the project. As indicated in Table 2, predicted the construction period emissions would not exceed the BAAQMD significance thresholds.

**Table 2. Construction Period Emissions**

Scenario	ROG	NOx	PM <sub>10</sub> Exhaust	PM <sub>2.5</sub> Exhaust
Western portion staff housing construction emissions (tons)	1.2 tons	3.4 tons	0.2 tons	0.2 tons
Eastern portion parking construction emissions (tons)	<0.1 tons	0.4 tons	<0.1 tons	<0.1 tons
Total project construction emissions (tons)	1.3 tons	3.8 tons	0.2 tons	0.2 tons
Total Average daily emissions (pounds) <sup>1</sup>	8.5 lbs./day	25.2 lbs./day	1.2 lbs./day	1.2 lbs./day
<i>BAAQMD Thresholds (pounds per day)</i>	54 lbs./day	54 lbs./day	82 lbs./day	54 lbs./day
<b>Exceed Threshold?</b>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

Notes: <sup>1</sup>Assumes 299 workdays.

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

### Operational Period Emissions

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

### *Land Uses*

The project land uses were input to CalEEMod as described above for the construction period modeling.

### *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 the project could possibly be constructed and begin operating would be 2022. Emissions associated with build-out later than 2022 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 trip generation table. The

Saturday and Sunday trip rates were assumed to be the weekday rate adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips. The project traffic analysis<sup>8</sup> and correspondence with the traffic engineer<sup>9</sup> provided project trip generation values for the residential land use. The weekday trip rate for the residential land use is 7.32 trips per dwelling unit. The Saturday trip rate is 7.03 trips per unit and the Sunday trip rate is 6.45 trips per unit. The default trip lengths and trip types specified by CalEEMod were used.

### *Energy*

CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards. Indirect emissions from electricity were computed in CalEEMod. The model has a default rate of 641.3 pounds of CO<sub>2</sub> per megawatt of electricity produced, which is based on PG&E's 2008 emissions rate. The rate was adjusted to account for PG&E's projected 2020 CO<sub>2</sub> intensity rate. This 2020 rate is based, in part, on the requirement of a renewable energy portfolio standard of 33 percent by the year 2020. The derived 2020 rate for PG&E was estimated at 290 pounds of CO<sub>2</sub> per megawatt of electricity delivered.<sup>10</sup>

### *Other Inputs*

Default model assumptions for emissions associated with solid waste generation use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions. All hearths were assumed to use natural gas.

### *Existing Uses*

A CalEEMod model run was developed to compute emissions from use of the existing buildings as if it was operating in 2022. The input for this modeling scenario included 7,500-sf entered as "High School" and 6.33 acres entered as "Parking Lot". This input was applied to the model in the same manner described for the proposed project.

As shown in Table 3, operational emissions would not exceed the BAAQMD significance thresholds. This would be considered a *less-than-significant* impact.

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<sup>8</sup> Hexagon Transportation Consultants, Inc., "699 Serramonte Faculty Housing Transportation Impact Analysis", April 2019.

<sup>9</sup> Correspondence with Tali Ashurov, David J. Powers & Associates, Inc., May 28, 2019.

<sup>10</sup> Pacific Gas & Electric, 2015. *Greenhouse Gas Emission Factors: Guidance for PG&E Customers*. November.

**Table 3. Operational Emissions**

Scenario	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
2022 Western Portion Operational Emissions (tons/year)	0.80 tons	0.68 tons	0.76 tons	0.22 tons
2022 Eastern Portion Operational Emissions (tons/year)	0.01 tons	<0.01 tons	<0.01 tons	<0.01 tons
2022 Existing Use Emissions (tons/year)	0.08 tons	0.06 tons	0.07 tons	0.02 tons
Net Annual Emissions (tons/year)	0.73 tons	0.62 tons	0.69 tons	0.20 tons
BAAQMD Thresholds (tons /year)	10 tons	10 tons	15 tons	10 tons
<b>Exceed Threshold?</b>	No	No	No	No
2021 Project Operational Emissions (lbs/day) <sup>1</sup>	4.0 lbs.	3.4 lbs.	3.8 lbs.	1.1 lbs.
BAAQMD Thresholds (pounds/day)	54 lbs.	54 lbs.	82 lbs.	54 lbs.
<b>Exceed Threshold?</b>	No	No	No	No

Notes: <sup>1</sup> Assumes 365-day operation.

**Mitigation Measure AQ-1: Include 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. Additional measures are identified to reduce construction equipment exhaust emissions. The contractor shall implement the following best management practices that are required of all projects:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

### Effectiveness of Mitigation Measure

The measures above are consistent with BAAQMD-recommended basic control measures for reducing fugitive particulate matter that are contained in the BAAQMD CEQA Air Quality Guidelines.

### **Impact 2: Expose sensitive receptors to substantial pollutant concentrations?**

Project impacts related to increased community risk can occur either by introducing a new source of TAC and air pollutant emissions or introducing new sensitive receptor, such as a residential use, in proximity to an existing source of TACs. The project would introduce new residents that are sensitive receptors. There are several sources of TACs and localized air pollutants in the vicinity of the project. The impacts of these sources upon the project were assessed. Temporary project construction activity would generate dust and equipment exhaust on a temporary basis that could affect nearby sensitive receptors. A construction health risk assessment was prepared to address construction impacts caused by the project. Operation of the project is not expected to be a source of TAC or localized air pollutant emissions, as the project would not generate substantial truck traffic or include stationary sources of emissions, such as generators.

Community risk impacts are addressed by predicting increased lifetime cancer risk, the increase in annual PM<sub>2.5</sub> concentrations and computing the Hazard Index (HI) for non-cancer health risks. The methodology for computing community risks impacts is contained in *Attachment 1*. The following sections discuss the health risk impacts to the new project sensitive receptors, the community health risk impacts from construction, and the cumulative community health risk impact.

### **Operational Community Health Risk Impacts**

Community health risk assessments typically look at all substantial sources of TACs located within 1,000 feet of project site and at new TAC sources that would be introduced by the project. These sources include highways, railways, busy surface streets, and stationary sources identified by BAAQMD. A review of the project area indicates that traffic on State Route 1 (S.R. 1), S.R. 35, Serramonte Boulevard, and Callan Boulevard have an average daily traffic (ADT) of over 10,000 vehicles, which are sources of TACs. All other roadways within the area are assumed to have an ADT that is less than 10,000 vehicles. Two stationary sources were identified within the 1,000-foot influence area using the BAAQMD's stationary source Google Earth map. This project would not introduce any new TAC sources, such as substantial truck traffic or generators. Figure 1 shows

the sources affecting the project site. Details of the screening, modeling, and community risk calculations are included in *Attachment 3*.

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



#### Highways – State Route 1 and State Route 35

BAAQMD provides a Google Earth *Highway Screening Analysis Tool* that can be used to identify screening level impacts from State highways. S.R. 1 (Link 54, 6ft elevation) and S.R. 35 (Link 39, 6ft elevation) risk impacts were screened using the BAAQMD *Highway Screening Analysis Tool*. The lifetime cancer risk, annual PM<sub>2.5</sub> exposure, and non-cancer HI corresponding to the distance between the project and the site was used. The data were based on the project being 500 feet south of S.R. 1 and 1,000 feet north of S.R. 35. Cancer risk levels were adjusted for exposure duration, age, and new exposure guidance provided by OEHHA, as described in *Attachment 1*. The community risk impacts are discussed in Table 4.

## Local Roadways – Serramonte Boulevard and Callan Boulevard

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. Note this is a screening model and more refined modeling could be conducted if potentially significant impacts are identified. Two adjustments were made to the cancer risk predictions made by this calculator: (1) adjustment for latest vehicle emissions rates and (2) adjustment of cancer risk to reflect new OEHHA guidance (see *Attachment 1*).

The calculator uses EMFAC2011 emission rates for the year 2014. In addition, a new version of the emissions factor model, EMFAC2014 is available. This version predicts lower emission rates. An adjustment factor of 0.5 was developed by comparing emission rates of total organic gases (TOG) for running exhaust and running losses developed using EMFAC2011 for year 2014 and those from EMFAC2014 for 2018. The predicted cancer risk was then adjusted using a factor of 1.3744 to account for new OEHHA guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.<sup>11</sup>

The ADT on Serramonte Boulevard was estimated to be 17,100 vehicles and the ADT on Callan Boulevard was estimated to be 12,370 vehicles. This estimate was based on the peak hour turning movement counts for the cumulative plus project scenario included in the project's traffic analysis. The AM and PM peak-hour volumes were averaged and then multiplied by 10 to estimate the ADT.

The BAAQMD *Roadway Screening Analysis Calculator* for San Mateo County was used for this roadway. Serramonte Boulevard was identified as an east-west roadway with the project site south of the roadway and Callan Boulevard was identified as a north-south roadway with the project site west of the roadway. Estimated risk values for the roadways upon the project's sensitive receptors are listed in Table 4. Note that BAAQMD has found that non-cancer hazards from all local roadways would be below a Hazard Index of 0.03.

## Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth and identified the location of two stationary source and its estimated risk and hazard impacts. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. They provided updated risk levels, emissions and adjustments to account for new OEHHA guidance.<sup>12</sup> The risk values were then adjusted with the appropriate distance multiplier values provided by BAAQMD or the emissions information was used in refined modeling.

Two stationary sources (Plant #13900 and #111517) were identified as a diesel-powered generator and a gasoline dispensing facility. The screening risk levels for these stationary sources were provided by BAAQMD and adjusted for distance based on BAAQMD's *Distance Adjustment*

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<sup>11</sup> Correspondence with Alison Kirk, BAAQMD, November 23, 2015.

<sup>12</sup> Correspondence with Areana Flores, BAAQMD, May 22, 2019.

*Multiplier Tool for Diesel Internal Combustion Engines or Distance Adjustment Multiplier Tool for Gasoline Dispensing Facilities.* Concentrations and community risk impacts from this source upon the project is reported in Table 4.

Cumulative Community Health Risk at Project Site

Community risk impacts from combined sources upon the project site are reported in Table 4. As shown, the annual cancer risks, annual PM<sub>2.5</sub> concentrations, and HI are all below their respective single and cumulative source significance thresholds and would be considered a *less-than significant* impact.

**Table 4. Community Risk Impact to New Project Residences**

Source	Cancer Risk (per million)	Annual PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Hazard Index
State Route 1 (Link 54, 6ft) at 500ft south	1.8	0.02	0.01
State Route 35 (Link 39, 6ft) at 1,000ft north	0.7	0.01	<0.01
Serramonte Boulevard (east-west) at 40 feet south, ADT 17,110	6.2	0.22	<0.03
Callan Boulevard (north-south) at 750 feet west, ADT 12,370	0.3	0.01	<0.03
Plant #13900 (generator) at 200 feet	9.0	--	0.02
Plant #111517 (gas station) at 800 feet	0.2	--	<0.01
<b>BAAQMD Single-Source Threshold</b>	<b>&gt;10.0</b>	<b>&gt;0.3</b>	<b>&gt;0.1</b>
<i>Significant?</i>	<i>No</i>	<i>No</i>	<i>No</i>
Cumulative Total	18.2	0.26	<0.11
<b>BAAQMD Cumulative Source Threshold</b>	<b>&gt;100</b>	<b>&gt;0.8</b>	<b>&gt;10.0</b>
<i>Significant?</i>	<i>No</i>	<i>No</i>	<i>No</i>

**Construction Community Health Risk Impacts**

Project Construction Activity

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 health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to PM<sub>2.5</sub>. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and PM<sub>2.5</sub>.<sup>13</sup> This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

<sup>13</sup> DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

### *Construction Emissions*

The CalEEMod model provided total annual PM<sub>10</sub> exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.16314 tons (326 pounds) for the western staff housing portion and 0.019 tons (38 pounds) for the eastern parking portion. The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive PM<sub>2.5</sub> dust emissions were calculated by CalEEMod as 0.04169 tons (83 pounds) for the overall construction period of the western staff housing portion and 0.011 tons (22 pounds) for the overall construction period of the eastern parking portion.

### *Dispersion Modeling*

The U.S. EPA ISCST3 dispersion model was used to predict concentrations of DPM and PM<sub>2.5</sub> concentrations at existing sensitive receptors in the vicinity of the project construction area. The ISCST3 dispersion model is a BAAQMD-recommended model for use in modeling these types of emission activities for CEQA projects.<sup>14</sup> Emission sources for the construction site were grouped into two categories, exhaust emissions of DPM and fugitive PM<sub>2.5</sub> dust emissions. The ISCST3 modeling utilized four area sources to represent the on-site construction emissions, two area sources for DPM exhaust emissions and two area sources for fugitive PM<sub>2.5</sub> dust emissions. For the exhaust emissions from construction equipment, an emission release height of 6 meters (20 feet) was used for the area sources. 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<sub>2.5</sub> emissions, a near-ground level release height of 2 meters (6.6 feet) was used for the area sources. Emissions from vehicle travel around the project site were included in the modeled area sources. Construction emissions were modeled as occurring daily between 7 a.m. and 4 p.m., when the majority of the construction activity involving equipment usage would occur.

The modeling used a five-year meteorological data set (2001-2005) for Fort Funston that was prepared by the BAAQMD for use with the ISCST3 model. Annual DPM and PM<sub>2.5</sub> concentrations from construction activities at the project site during the 2020-2021 period were calculated using the model. DPM and PM<sub>2.5</sub> 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 height on the first and second levels of students in the high school and residences in nearby single- and multi-family homes. A receptor height of 1.0 meter was used for modeling impacts to infants and children at the IHSD, Inc., Serramonte Head Start daycare.

The maximum-modeled annual DPM and PM<sub>2.5</sub> concentrations, which includes both the DPM and fugitive PM<sub>2.5</sub> concentrations, were identified at nearby sensitive receptors (as shown in Figure 2) to find the maximally exposed individuals (MEIs). Using the maximum annual modeled DPM

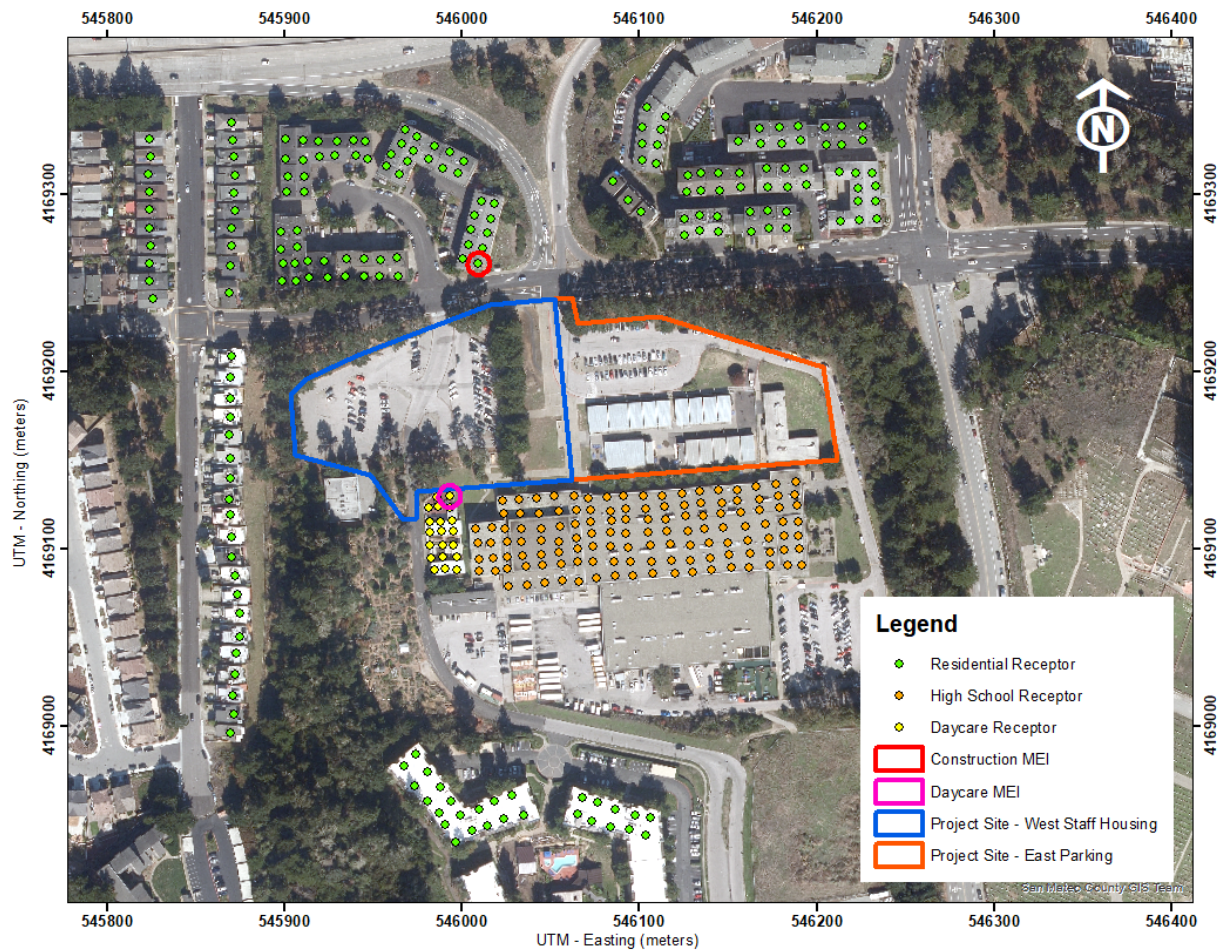
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<sup>14</sup> Bay Area Air Quality Management District (BAAQMD), 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0*. May.

concentrations, the maximum increased cancer risks were calculated using BAAQMD recommended methods and exposure parameters described in *Attachment 1*. Non-cancer health hazards and maximum PM<sub>2.5</sub> concentrations were also calculated and identified.

Results of this assessment, reported in Table 5, found that the construction MEI was located on the first-level southeast corner unit (1.5 meters) of a multi-family apartment building located opposite Serramonte Boulevard to the north of the project site. The maximum excess residential cancer risks at this location would be 27.0 in one million, which would be greater than the BAAQMD significance threshold of 10 in one million for cancer risk. In addition, the daycare MEI, located in the northeast corner of the daycare area, would have maximum excess cancer risks of 25.7 in one million, which would also be greater than the BAAQMD significance threshold. Table 5 summarizes the maximum cancer risks, PM<sub>2.5</sub> concentrations, and health hazard indexes for project related construction activities affecting the construction MEI. *Attachment 4* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

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



## Cumulative Community Health Risk at Construction MEI

Cumulative community risk or TAC impacts are assessed by predicting the combined community risk impacts from the project and nearby sources. Table 5 reports both the project and cumulative community risk impacts. The project would have a *significant* impact with respect to community risk caused by project construction activities, since the maximum cancer risk is above the single-source threshold of 10.0 per million. As shown in Table 5, the combined cancer risk, PM<sub>2.5</sub> concentration, and hazard risk values, which includes unmitigated and mitigated, would not exceed the cumulative thresholds. *Mitigation Measures AQ-2 would reduce these impacts to less-than-significant levels.*

**Table 5. Impacts from Combined Sources at Construction MEI**

Source	Cancer Risk (per million)	Annual PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Hazard Index
Project Construction	Unmitigated Mitigated	27.0 (infant) 3.1 (infant)	0.20 0.03
<b>BAAQMD Single-Source Threshold</b>		<b>&gt;10.0</b>	<b>&gt;0.1</b>
Significant?	Unmitigated Mitigated	Yes No	No No
State Route 1 (Link 54, 6ft) at 400ft south		2.2	0.02
State Route 35 (Link 39, 6ft) at 1,000ft north		0.7	0.01
Serramonte Boulevard (east-west) at 20 feet north, ADT 17,110		8.4	0.27
Callan Boulevard (north-south) at 750 feet west, ADT 12,370		0.3	0.01
Plant #13900 (generator) at 520 feet		2.2	--
Plant #111517 (gas station) at 865 feet		0.2	--
Cumulative Total	Unmitigated Mitigated	41.0 17.1	0.51 0.34
<b>BAAQMD Cumulative Source Threshold</b>		<b>&gt;100</b>	<b>&gt;0.8</b>
Significant?	Unmitigated Mitigated	No No	No No

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

The project shall develop a plan demonstrating that the off-road equipment used on-site to construct the project would achieve a fleet-wide average 65 percent reduction in particulate matter exhaust emissions or greater. One feasible plan to achieve this reduction would include the following:

- All diesel-powered off-road equipment, larger than 25 horsepower, operating on the site for more than two days continuously shall, at a minimum, meet U.S. EPA particulate matter emissions standards for Tier 3 engines with CARB-certified Level 3 Diesel Particulate Filters<sup>15</sup> or equivalent. The use of equipment meeting U.S. EPA Tier

<sup>15</sup> See <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>

4 standards for particulate matter would also meet this requirement. Alternatively, the use of equipment that includes electric or alternatively-fueled equipment (i.e., non-diesel) would meet this requirement.

### Effectiveness of Mitigation Measure

Implementation of *Mitigation Measure AQ-1* is considered to reduce exhaust emissions by 5 percent and fugitive dust emissions by over 50 percent. Implementation of *Mitigation Measure AQ-2* using construction equipment meeting Tier 3 engine standards and equipped with Level 3 diesel particulate filters would further reduce on-site diesel exhaust emissions from construction equipment by 89 percent. This would reduce the cancer risk, such that the mitigated infant cancer risk from the project at the construction MEI would be less than 3.1 in one million and the mitigated infant cancer risk at the daycare MEI would be less than 3.0 in one million, which would not exceed 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.

## **Greenhouse Gas Emissions**

### Setting

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<sub>2</sub>) and water vapor but there are also several others, most importantly methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). 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<sub>2</sub> and N<sub>2</sub>O are byproducts of fossil fuel combustion.
- N<sub>2</sub>O is associated with agricultural operations such as fertilization of crops.
- CH<sub>4</sub> 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.

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<sub>2</sub> being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO<sub>2</sub> equivalents (CO<sub>2</sub>e).

An expanding body of scientific research supports the theory that global climate change 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 are adversely affected by the global warming trend. Increased precipitation and sea level rise will 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.

### Recent Regulatory Actions

#### *Assembly Bill 32 (AB 32), California Global Warming Solutions Act (2006)*

AB 32, the Global Warming Solutions Act of 2006, codified the State's GHG emissions target by directing CARB to reduce the State's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, California Public Utilities Commission (CPUC), and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State's main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

#### *Senate Bill 375, California's Regional Transportation and Land Use Planning Efforts (2008)*

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

### *SB 350 Renewable Portfolio Standards*

In September 2015, the California Legislature passed SB 350, which increases the states Renewables Portfolio Standard (RPS) for content of electrical generation from the 33 percent target for 2020 to a 50 percent renewables target by 2030.

### *Executive Order EO-B-30-15 (2015) and SB 32 GHG Reduction Targets*

In April 2015, Governor Brown signed Executive Order which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed SB 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*. While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

The new Scoping Plan establishes a strategy that will reduce GHG emissions in California to meet the 2030 target (note that the AB 32 Scoping Plan only addressed 2020 targets and a long-term goal). Key features of this plan are:

- Cap and Trade program places a firm limit on 80 percent of the State's emissions;
- Achieving a 50-percent Renewable Portfolio Standard by 2030 (currently at about 29 percent statewide);
- Increase energy efficiency in existing buildings;
- Develop fuels with an 18-percent reduction in carbon intensity;
- Develop more high-density, transit oriented housing;
- Develop walkable and bikable communities;
- Greatly increase the number of electric vehicles on the road and reduce oil demand in half;
- Increase zero-emissions transit so that 100 percent of new buses are zero emissions;
- Reduce freight-related emissions by transitioning to zero emissions where feasible and near-zero emissions with renewable fuels everywhere else; and
- Reduce "super pollutants" by reducing methane and hydrofluorocarbons or HFCs by 40 percent.

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons CO<sub>2</sub>e per capita (statewide) by 2030 and no more than 2 metric tons CO<sub>2</sub>e per capita by 2050. The statewide per capita targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

### BAAQMD Significance Thresholds

The BAAQMD's CEQA Air Quality Guidelines do not use quantified thresholds for projects that are in a jurisdiction with a qualified GHG reductions plan (i.e., a Climate Action Plan). The plan has to address emissions associated with the period that the project would operate (e.g., beyond year 2020). For quantified emissions, the guidelines recommended a GHG threshold of 1,100

metric tons or 4.6 metric tons (MT) per capita. These thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of the project would occur beyond 2020, so a threshold that addresses a future target is appropriate. Although BAAQMD has not published a quantified threshold for 2030 yet, this assessment uses a “Substantial Progress” efficiency metric of 2.8 MT CO<sub>2e</sub>/year/service population and a bright-line threshold of 660 MT CO<sub>2e</sub>/year based on the GHG reduction goals of EO B-30-15. The service population metric of 2.8 is calculated for 2030 based on the 1990 inventory and the projected 2030 statewide population and employment levels.<sup>16</sup> The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO<sub>2e</sub>/year threshold.

**Impact 3: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.

CalEEMod Modeling

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, as described above within the operational period emissions. CalEEMod output is included in *Attachment 2*.

Service Population Emissions

The project service population efficiency rate is based on the number of future residents. For this project, the number of future residents was estimated by multiplying the total number of units by the persons per household rate for Daly City found in the California Department of Finance Population and Housing Estimate report.<sup>17</sup> Using the 3.39 persons per household 2018 estimate for Daly City, the number of future residents and the project’s service population is estimated to be 414.

Construction Emissions

GHG emissions associated with construction were computed to be 590 MT of CO<sub>2e</sub> for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends

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<sup>16</sup> Association of Environmental Professionals, 2016. *Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California*. April.

<sup>17</sup> State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2011-2018*. Sacramento, California, May 2018.

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.

### Operational Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with operation of the fully-developed site under the proposed project. As shown in Table 6, annual net emissions resulting from operation of the proposed project are predicted to be 790 MT of CO<sub>2e</sub> for the year 2022 and 665 MT of CO<sub>2e</sub> for the year 2030. Both the 2022 and the 2030 emissions exceed the 2030 “Substantial Progress” threshold of 660 MT of CO<sub>2e</sub>/yr. The Service Population Emissions for the year 2022 would be 2.2 and 1.9 for the year 2030, which would not exceed the “Substantial Progress” efficiency metric of 2.8 MT CO<sub>2e</sub>/year/service population.

To be considered significant, the project must exceed both the GHG significance threshold in metric tons per year and the service population significance threshold. This project does not exceed the service population significance threshold. Therefore, the project would have a *less-than-significant* impact regarding GHG emissions.

**Table 6. Annual Project GHG Emissions (CO<sub>2e</sub>) in Metric Tons**

Source Category	Existing in 2022	Proposed Project in 2022	Proposed Project in 2030
Area	<1	6	6
Energy Consumption	45	137	137
Mobile	71	728	603
Solid Waste Generation	5	28	28
Water Usage	1	13	13
Total	122	912	787
Net New Emissions		<b>790</b>	<b>665</b>
<b>Significance Threshold</b>		<b>660 MT CO<sub>2e</sub>/yr</b>	<b>660 MT CO<sub>2e</sub>/yr</b>
Service Population Emissions (MT CO <sub>2e</sub> /year/service population)		2.2	1.9
<b>Significance Threshold</b>		<b>2.8</b>	<b>2.8</b>
<b>Significant (Exceeds both thresholds)?</b>		<i>No</i>	<i>No</i>

## **Supporting Documentation**

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

*Attachment 2* includes the CalEEMod output for project construction and operational criteria air pollutant and GHG emissions. The operational outputs for existing and 2030 uses are also included in this attachment. Also included are any modeling assumptions.

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

*Attachment 4* is the construction health risk assessment. ISCST3 dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format.

## **Attachment 1: Health Risk Calculation Methodology**

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.<sup>18</sup> These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.<sup>19</sup> This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.<sup>20</sup> Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

### Cancer Risk

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

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

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<sup>18</sup> OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

<sup>19</sup> CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

<sup>20</sup> BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD.

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

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

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

Where:

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

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

Where:

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

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

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

## Non-Cancer Hazards

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

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

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

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

**Attachment 2: CalEEMod Modeling Output**

JUHSD Staff Housing, Daly City - San Mateo County, Annual

**JUHSD Staff Housing, Daly City  
San Mateo County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	49.00	Space	0.44	19,600.00	0
Unenclosed Parking Structure	72.00	Space	0.00	28,800.00	0
Apartments Mid Rise	122.00	Dwelling Unit	3.21	122,000.00	349

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	70
<b>Climate Zone</b>	5			<b>Operational Year</b>	2022
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	290	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

- Project Characteristics - PG&E 2020 Rate = 290
- Land Use - Land uses from applicant provided plans
- Construction Phase - Default construction schedule, trenching added
- Off-road Equipment - Default Construction equipment and hours
- Off-road Equipment - Trenching Equipment added
- Trips and VMT - 280 one-way pavement demo trips
- Grading - 6,580cy exported during grading

Vehicle Trips - apts = 7.32, 7.03, 6.45

Woodstoves - All gas no wood

Water And Wastewater - WTP Treatment 100% aerobic

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	18.30	39.04
tblFireplaces	NumberWood	20.74	0.00
tblGrading	MaterialExported	0.00	6,580.00
tblLandUse	LotAcreage	0.65	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	0.00	280.00
tblVehicleTrips	ST_TR	6.39	7.03
tblVehicleTrips	SU_TR	5.86	6.45
tblVehicleTrips	WD_TR	6.65	7.32
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

## 2.0 Emissions Summary

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### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3462	3.2386	2.7181	5.7200e-003	0.1962	0.1587	0.3548	0.0719	0.1488	0.2207	0.0000	513.5302	513.5302	0.0942	0.0000	515.8855
2021	0.8834	0.1218	0.1432	2.4000e-004	3.4700e-003	6.5600e-003	0.0100	9.2000e-004	6.1300e-003	7.0500e-003	0.0000	21.1956	21.1956	5.1400e-003	0.0000	21.3241
<b>Maximum</b>	<b>0.8834</b>	<b>3.2386</b>	<b>2.7181</b>	<b>5.7200e-003</b>	<b>0.1962</b>	<b>0.1587</b>	<b>0.3548</b>	<b>0.0719</b>	<b>0.1488</b>	<b>0.2207</b>	<b>0.0000</b>	<b>513.5302</b>	<b>513.5302</b>	<b>0.0942</b>	<b>0.0000</b>	<b>515.8855</b>

### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3462	3.2386	2.7181	5.7200e-003	0.1962	0.1587	0.3548	0.0719	0.1488	0.2207	0.0000	513.5298	513.5298	0.0942	0.0000	515.8851
2021	0.8834	0.1218	0.1432	2.4000e-004	3.4700e-003	6.5600e-003	0.0100	9.2000e-004	6.1300e-003	7.0500e-003	0.0000	21.1956	21.1956	5.1400e-003	0.0000	21.3241
<b>Maximum</b>	<b>0.8834</b>	<b>3.2386</b>	<b>2.7181</b>	<b>5.7200e-003</b>	<b>0.1962</b>	<b>0.1587</b>	<b>0.3548</b>	<b>0.0719</b>	<b>0.1488</b>	<b>0.2207</b>	<b>0.0000</b>	<b>513.5298</b>	<b>513.5298</b>	<b>0.0942</b>	<b>0.0000</b>	<b>515.8851</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	1.1731	1.1731
2	4-1-2020	6-30-2020	0.7883	0.7883
3	7-1-2020	9-30-2020	0.7970	0.7970
4	10-1-2020	12-31-2020	0.8008	0.8008

5	1-1-2021	3-31-2021	1.0338	1.0338
		Highest	1.1731	1.1731

## 2.2 Overall Operational Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5945	0.0147	0.9097	7.0000e-005		5.3500e-003	5.3500e-003		5.3500e-003	5.3500e-003	0.0000	6.3556	6.3556	1.5300e-003	9.0000e-005	6.4204
Energy	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	132.1255	132.1255	8.6200e-003	2.6000e-003	133.1156
Mobile	0.2028	0.6197	2.2870	7.9400e-003	0.7474	6.6800e-003	0.7541	0.2009	6.2400e-003	0.2071	0.0000	726.8939	726.8939	0.0263	0.0000	727.5507
Waste						0.0000	0.0000		0.0000	0.0000	11.3919	0.0000	11.3919	0.6732	0.0000	28.2228
Water						0.0000	0.0000		0.0000	0.0000	2.8123	7.9649	10.7772	0.0105	6.2800e-003	12.9107
<b>Total</b>	<b>0.8031</b>	<b>0.6835</b>	<b>3.2176</b>	<b>8.3200e-003</b>	<b>0.7474</b>	<b>0.0160</b>	<b>0.7634</b>	<b>0.2009</b>	<b>0.0156</b>	<b>0.2164</b>	<b>14.2041</b>	<b>873.3398</b>	<b>887.5439</b>	<b>0.7201</b>	<b>8.9700e-003</b>	<b>908.2202</b>

## Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5945	0.0147	0.9097	7.0000e-005		5.3500e-003	5.3500e-003		5.3500e-003	5.3500e-003	0.0000	6.3556	6.3556	1.5300e-003	9.0000e-005	6.4204
Energy	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	132.1255	132.1255	8.6200e-003	2.6000e-003	133.1156
Mobile	0.2028	0.6197	2.2870	7.9400e-003	0.7474	6.6800e-003	0.7541	0.2009	6.2400e-003	0.2071	0.0000	726.8939	726.8939	0.0263	0.0000	727.5507

Waste						0.0000	0.0000		0.0000	0.0000	11.3919	0.0000	11.3919	0.6732	0.0000	28.2228
Water						0.0000	0.0000		0.0000	0.0000	2.8123	7.9649	10.7772	0.0105	6.2800e-003	12.9107
<b>Total</b>	<b>0.8031</b>	<b>0.6835</b>	<b>3.2176</b>	<b>8.3200e-003</b>	<b>0.7474</b>	<b>0.0160</b>	<b>0.7634</b>	<b>0.2009</b>	<b>0.0156</b>	<b>0.2164</b>	<b>14.2041</b>	<b>873.3398</b>	<b>887.5439</b>	<b>0.7201</b>	<b>8.9700e-003</b>	<b>908.2202</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/4/2020	5	5	
3	Grading	Grading	2/5/2020	2/14/2020	5	8	
4	Trenching	Trenching	2/5/2020	2/14/2020	5	8	
5	Building Construction	Building Construction	2/15/2020	1/1/2021	5	230	
6	Paving	Paving	1/2/2021	1/27/2021	5	18	
7	Architectural Coating	Architectural Coating	1/28/2021	2/22/2021	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.44

Residential Indoor: 247,050; Residential Outdoor: 82,350; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

#### 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	Excavators	3	8.00	158	0.38

Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Trenching	Excavators	1	8.00	158	0.38
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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	6	15.00	0.00	280.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	823.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	108.00	21.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Architectural Coating	1	22.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
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### 3.1 Mitigation Measures Construction

### 3.2 Demolition - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386
<b>Total</b>	<b>0.0331</b>	<b>0.3320</b>	<b>0.2175</b>	<b>3.9000e-004</b>		<b>0.0166</b>	<b>0.0166</b>		<b>0.0154</b>	<b>0.0154</b>	<b>0.0000</b>	<b>33.9986</b>	<b>33.9986</b>	<b>9.6000e-003</b>	<b>0.0000</b>	<b>34.2386</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2400e-003	0.0452	0.0188	1.1000e-004	2.3400e-003	1.4000e-004	2.4800e-003	6.4000e-004	1.3000e-004	7.8000e-004	0.0000	11.6944	11.6944	1.4600e-003	0.0000	11.7309
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	4.1000e-004	2.8000e-004	2.9200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	0.9833	0.9833	2.0000e-005	0.0000	0.9838
<b>Total</b>	<b>1.6500e-003</b>	<b>0.0455</b>	<b>0.0218</b>	<b>1.2000e-004</b>	<b>3.5200e-003</b>	<b>1.5000e-004</b>	<b>3.6700e-003</b>	<b>9.5000e-004</b>	<b>1.4000e-004</b>	<b>1.1000e-003</b>	<b>0.0000</b>	<b>12.6777</b>	<b>12.6777</b>	<b>1.4800e-003</b>	<b>0.0000</b>	<b>12.7147</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385
<b>Total</b>	<b>0.0331</b>	<b>0.3320</b>	<b>0.2175</b>	<b>3.9000e-004</b>		<b>0.0166</b>	<b>0.0166</b>		<b>0.0154</b>	<b>0.0154</b>	<b>0.0000</b>	<b>33.9986</b>	<b>33.9986</b>	<b>9.6000e-003</b>	<b>0.0000</b>	<b>34.2385</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2400e-003	0.0452	0.0188	1.1000e-004	2.3400e-003	1.4000e-004	2.4800e-003	6.4000e-004	1.3000e-004	7.8000e-004	0.0000	11.6944	11.6944	1.4600e-003	0.0000	11.7309
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	4.1000e-004	2.8000e-004	2.9200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	0.9833	0.9833	2.0000e-005	0.0000	0.9838
<b>Total</b>	<b>1.6500e-003</b>	<b>0.0455</b>	<b>0.0218</b>	<b>1.2000e-004</b>	<b>3.5200e-003</b>	<b>1.5000e-004</b>	<b>3.6700e-003</b>	<b>9.5000e-004</b>	<b>1.4000e-004</b>	<b>1.1000e-003</b>	<b>0.0000</b>	<b>12.6777</b>	<b>12.6777</b>	<b>1.4800e-003</b>	<b>0.0000</b>	<b>12.7147</b>

### **3.3 Site Preparation - 2020**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
	Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1060	0.0538	1.0000e-004		5.4900e-003	5.4900e-003		5.0500e-003	5.0500e-003	0.0000	8.3577	8.3577	2.7000e-003	0.0000	8.4253
<b>Total</b>	<b>0.0102</b>	<b>0.1060</b>	<b>0.0538</b>	<b>1.0000e-004</b>	<b>0.0452</b>	<b>5.4900e-003</b>	<b>0.0507</b>	<b>0.0248</b>	<b>5.0500e-003</b>	<b>0.0299</b>	<b>0.0000</b>	<b>8.3577</b>	<b>8.3577</b>	<b>2.7000e-003</b>	<b>0.0000</b>	<b>8.4253</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	8.8000e-004	0.0000	3.5000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2950	0.2950	1.0000e-005	0.0000	0.2951
<b>Total</b>	<b>1.2000e-004</b>	<b>8.0000e-005</b>	<b>8.8000e-004</b>	<b>0.0000</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.2950</b>	<b>0.2950</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2951</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1060	0.0538	1.0000e-004		5.4900e-003	5.4900e-003		5.0500e-003	5.0500e-003	0.0000	8.3577	8.3577	2.7000e-003	0.0000	8.4252

<b>Total</b>	<b>0.0102</b>	<b>0.1060</b>	<b>0.0538</b>	<b>1.0000e-004</b>	<b>0.0452</b>	<b>5.4900e-003</b>	<b>0.0507</b>	<b>0.0248</b>	<b>5.0500e-003</b>	<b>0.0299</b>	<b>0.0000</b>	<b>8.3577</b>	<b>8.3577</b>	<b>2.7000e-003</b>	<b>0.0000</b>	<b>8.4252</b>
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**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	1.2000e-004	8.0000e-005	8.8000e-004	0.0000	3.5000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2950	0.2950	1.0000e-005	0.0000	0.2951
<b>Total</b>	<b>1.2000e-004</b>	<b>8.0000e-005</b>	<b>8.8000e-004</b>	<b>0.0000</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.2950</b>	<b>0.2950</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2951</b>

**3.4 Grading - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0266	0.0000	0.0266	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1055	0.0642	1.2000e-004		5.0900e-003	5.0900e-003		4.6900e-003	4.6900e-003	0.0000	10.4235	10.4235	3.3700e-003	0.0000	10.5078
<b>Total</b>	<b>9.7200e-003</b>	<b>0.1055</b>	<b>0.0642</b>	<b>1.2000e-004</b>	<b>0.0266</b>	<b>5.0900e-003</b>	<b>0.0317</b>	<b>0.0135</b>	<b>4.6900e-003</b>	<b>0.0182</b>	<b>0.0000</b>	<b>10.4235</b>	<b>10.4235</b>	<b>3.3700e-003</b>	<b>0.0000</b>	<b>10.5078</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6400e-003	0.1328	0.0554	3.3000e-004	6.8800e-003	4.1000e-004	7.3000e-003	1.8900e-003	4.0000e-004	2.2900e-003	0.0000	34.3732	34.3732	4.2900e-003	0.0000	34.4804
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	1.6000e-004	1.1000e-004	1.1700e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3933	0.3933	1.0000e-005	0.0000	0.3935
<b>Total</b>	<b>3.8000e-003</b>	<b>0.1329</b>	<b>0.0565</b>	<b>3.3000e-004</b>	<b>7.3500e-003</b>	<b>4.1000e-004</b>	<b>7.7800e-003</b>	<b>2.0200e-003</b>	<b>4.0000e-004</b>	<b>2.4200e-003</b>	<b>0.0000</b>	<b>34.7665</b>	<b>34.7665</b>	<b>4.3000e-003</b>	<b>0.0000</b>	<b>34.8739</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0266	0.0000	0.0266	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1055	0.0642	1.2000e-004		5.0900e-003	5.0900e-003		4.6900e-003	4.6900e-003	0.0000	10.4235	10.4235	3.3700e-003	0.0000	10.5078
<b>Total</b>	<b>9.7200e-003</b>	<b>0.1055</b>	<b>0.0642</b>	<b>1.2000e-004</b>	<b>0.0266</b>	<b>5.0900e-003</b>	<b>0.0317</b>	<b>0.0135</b>	<b>4.6900e-003</b>	<b>0.0182</b>	<b>0.0000</b>	<b>10.4235</b>	<b>10.4235</b>	<b>3.3700e-003</b>	<b>0.0000</b>	<b>10.5078</b>

**Mitigated Construction Off-Site**

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

Hauling	3.6400e-003	0.1328	0.0554	3.3000e-004	6.8800e-003	4.1000e-004	7.3000e-003	1.8900e-003	4.0000e-004	2.2900e-003	0.0000	34.3732	34.3732	4.2900e-003	0.0000	34.4804
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	1.6000e-004	1.1000e-004	1.1700e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3933	0.3933	1.0000e-005	0.0000	0.3935
<b>Total</b>	<b>3.8000e-003</b>	<b>0.1329</b>	<b>0.0565</b>	<b>3.3000e-004</b>	<b>7.3500e-003</b>	<b>4.1000e-004</b>	<b>7.7800e-003</b>	<b>2.0200e-003</b>	<b>4.0000e-004</b>	<b>2.4200e-003</b>	<b>0.0000</b>	<b>34.7665</b>	<b>34.7665</b>	<b>4.3000e-003</b>	<b>0.0000</b>	<b>34.8739</b>

### 3.5 Trenching - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8200e-003	0.0181	0.0222	3.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	2.9062	2.9062	9.4000e-004	0.0000	2.9297
<b>Total</b>	<b>1.8200e-003</b>	<b>0.0181</b>	<b>0.0222</b>	<b>3.0000e-005</b>		<b>1.0000e-003</b>	<b>1.0000e-003</b>		<b>9.2000e-004</b>	<b>9.2000e-004</b>	<b>0.0000</b>	<b>2.9062</b>	<b>2.9062</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>2.9297</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	3.9000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1311	0.1311	0.0000	0.0000	0.1312

<b>Total</b>	<b>5.0000e-005</b>	<b>4.0000e-005</b>	<b>3.9000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1311</b>	<b>0.1311</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1312</b>
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**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8200e-003	0.0181	0.0222	3.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	2.9062	2.9062	9.4000e-004	0.0000	2.9297
<b>Total</b>	<b>1.8200e-003</b>	<b>0.0181</b>	<b>0.0222</b>	<b>3.0000e-005</b>		<b>1.0000e-003</b>	<b>1.0000e-003</b>		<b>9.2000e-004</b>	<b>9.2000e-004</b>	<b>0.0000</b>	<b>2.9062</b>	<b>2.9062</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>2.9297</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	3.9000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1311	0.1311	0.0000	0.0000	0.1312
<b>Total</b>	<b>5.0000e-005</b>	<b>4.0000e-005</b>	<b>3.9000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1311</b>	<b>0.1311</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1312</b>

**3.6 Building Construction - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2427	2.1968	1.9292	3.0800e-003		0.1279	0.1279		0.1203	0.1203	0.0000	265.1934	265.1934	0.0647	0.0000	266.8109
<b>Total</b>	<b>0.2427</b>	<b>2.1968</b>	<b>1.9292</b>	<b>3.0800e-003</b>		<b>0.1279</b>	<b>0.1279</b>		<b>0.1203</b>	<b>0.1203</b>	<b>0.0000</b>	<b>265.1934</b>	<b>265.1934</b>	<b>0.0647</b>	<b>0.0000</b>	<b>266.8109</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.3200e-003	0.2788	0.1110	6.4000e-004	0.0157	1.3900e-003	0.0171	4.5300e-003	1.3300e-003	5.8600e-003	0.0000	63.7178	63.7178	5.5400e-003	0.0000	63.8562
Worker	0.0337	0.0229	0.2406	9.0000e-004	0.0974	6.1000e-004	0.0980	0.0259	5.6000e-004	0.0265	0.0000	81.0627	81.0627	1.5800e-003	0.0000	81.1023
<b>Total</b>	<b>0.0430</b>	<b>0.3017</b>	<b>0.3516</b>	<b>1.5400e-003</b>	<b>0.1130</b>	<b>2.0000e-003</b>	<b>0.1150</b>	<b>0.0304</b>	<b>1.8900e-003</b>	<b>0.0323</b>	<b>0.0000</b>	<b>144.7805</b>	<b>144.7805</b>	<b>7.1200e-003</b>	<b>0.0000</b>	<b>144.9584</b>

**Mitigated Construction On-Site**

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

Off-Road	0.2427	2.1968	1.9292	3.0800e-003		0.1279	0.1279		0.1203	0.1203	0.0000	265.1931	265.1931	0.0647	0.0000	266.8106
<b>Total</b>	<b>0.2427</b>	<b>2.1968</b>	<b>1.9292</b>	<b>3.0800e-003</b>		<b>0.1279</b>	<b>0.1279</b>		<b>0.1203</b>	<b>0.1203</b>	<b>0.0000</b>	<b>265.1931</b>	<b>265.1931</b>	<b>0.0647</b>	<b>0.0000</b>	<b>266.8106</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.3200e-003	0.2788	0.1110	6.4000e-004	0.0157	1.3900e-003	0.0171	4.5300e-003	1.3300e-003	5.8600e-003	0.0000	63.7178	63.7178	5.5400e-003	0.0000	63.8562
Worker	0.0337	0.0229	0.2406	9.0000e-004	0.0974	6.1000e-004	0.0980	0.0259	5.6000e-004	0.0265	0.0000	81.0627	81.0627	1.5800e-003	0.0000	81.1023
<b>Total</b>	<b>0.0430</b>	<b>0.3017</b>	<b>0.3516</b>	<b>1.5400e-003</b>	<b>0.1130</b>	<b>2.0000e-003</b>	<b>0.1150</b>	<b>0.0304</b>	<b>1.8900e-003</b>	<b>0.0323</b>	<b>0.0000</b>	<b>144.7805</b>	<b>144.7805</b>	<b>7.1200e-003</b>	<b>0.0000</b>	<b>144.9584</b>

### 3.6 Building Construction - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.5000e-004	8.7200e-003	8.2900e-003	1.0000e-005		4.8000e-004	4.8000e-004		4.5000e-004	4.5000e-004	0.0000	1.1582	1.1582	2.8000e-004	0.0000	1.1652
<b>Total</b>	<b>9.5000e-004</b>	<b>8.7200e-003</b>	<b>8.2900e-003</b>	<b>1.0000e-005</b>		<b>4.8000e-004</b>	<b>4.8000e-004</b>		<b>4.5000e-004</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>1.1582</b>	<b>1.1582</b>	<b>2.8000e-004</b>	<b>0.0000</b>	<b>1.1652</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	1.0900e-003	4.7000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2748	0.2748	2.0000e-005	0.0000	0.2754
Worker	1.4000e-004	9.0000e-005	9.7000e-004	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3414	0.3414	1.0000e-005	0.0000	0.3416
<b>Total</b>	<b>1.7000e-004</b>	<b>1.1800e-003</b>	<b>1.4400e-003</b>	<b>0.0000</b>	<b>5.0000e-004</b>	<b>0.0000</b>	<b>5.0000e-004</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>0.6162</b>	<b>0.6162</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.6169</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.5000e-004	8.7200e-003	8.2900e-003	1.0000e-005		4.8000e-004	4.8000e-004		4.5000e-004	4.5000e-004	0.0000	1.1582	1.1582	2.8000e-004	0.0000	1.1652
<b>Total</b>	<b>9.5000e-004</b>	<b>8.7200e-003</b>	<b>8.2900e-003</b>	<b>1.0000e-005</b>		<b>4.8000e-004</b>	<b>4.8000e-004</b>		<b>4.5000e-004</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>1.1582</b>	<b>1.1582</b>	<b>2.8000e-004</b>	<b>0.0000</b>	<b>1.1652</b>

**Mitigated Construction Off-Site**



Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.0000e-004	3.2300e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1380	1.1380	2.0000e-005	0.0000	1.1385
<b>Total</b>	<b>4.6000e-004</b>	<b>3.0000e-004</b>	<b>3.2300e-003</b>	<b>1.0000e-005</b>	<b>1.4200e-003</b>	<b>1.0000e-005</b>	<b>1.4300e-003</b>	<b>3.8000e-004</b>	<b>1.0000e-005</b>	<b>3.9000e-004</b>	<b>0.0000</b>	<b>1.1380</b>	<b>1.1380</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>1.1385</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8500e-003	0.0976	0.1103	1.7000e-004		5.2100e-003	5.2100e-003		4.8100e-003	4.8100e-003	0.0000	14.7335	14.7335	4.6300e-003	0.0000	14.8493
Paving	5.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0104</b>	<b>0.0976</b>	<b>0.1103</b>	<b>1.7000e-004</b>		<b>5.2100e-003</b>	<b>5.2100e-003</b>		<b>4.8100e-003</b>	<b>4.8100e-003</b>	<b>0.0000</b>	<b>14.7335</b>	<b>14.7335</b>	<b>4.6300e-003</b>	<b>0.0000</b>	<b>14.8493</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.0000e-004	3.2300e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1380	1.1380	2.0000e-005	0.0000	1.1385
<b>Total</b>	<b>4.6000e-004</b>	<b>3.0000e-004</b>	<b>3.2300e-003</b>	<b>1.0000e-005</b>	<b>1.4200e-003</b>	<b>1.0000e-005</b>	<b>1.4300e-003</b>	<b>3.8000e-004</b>	<b>1.0000e-005</b>	<b>3.9000e-004</b>	<b>0.0000</b>	<b>1.1380</b>	<b>1.1380</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>1.1385</b>

### 3.8 Architectural Coating - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8689					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0137	0.0164	3.0000e-005		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
<b>Total</b>	<b>0.8709</b>	<b>0.0137</b>	<b>0.0164</b>	<b>3.0000e-005</b>		<b>8.5000e-004</b>	<b>8.5000e-004</b>		<b>8.5000e-004</b>	<b>8.5000e-004</b>	<b>0.0000</b>	<b>2.2979</b>	<b>2.2979</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>2.3019</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.3000e-004	3.5600e-003	1.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.2518	1.2518	2.0000e-005	0.0000	1.2524
<b>Total</b>	<b>5.0000e-004</b>	<b>3.3000e-004</b>	<b>3.5600e-003</b>	<b>1.0000e-005</b>	<b>1.5600e-003</b>	<b>1.0000e-005</b>	<b>1.5700e-003</b>	<b>4.1000e-004</b>	<b>1.0000e-005</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>1.2518</b>	<b>1.2518</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>1.2524</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8689					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0137	0.0164	3.0000e-005		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
<b>Total</b>	<b>0.8709</b>	<b>0.0137</b>	<b>0.0164</b>	<b>3.0000e-005</b>		<b>8.5000e-004</b>	<b>8.5000e-004</b>		<b>8.5000e-004</b>	<b>8.5000e-004</b>	<b>0.0000</b>	<b>2.2979</b>	<b>2.2979</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>2.3019</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.3000e-004	3.5600e-003	1.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.2518	1.2518	2.0000e-005	0.0000	1.2524
<b>Total</b>	<b>5.0000e-004</b>	<b>3.3000e-004</b>	<b>3.5600e-003</b>	<b>1.0000e-005</b>	<b>1.5600e-003</b>	<b>1.0000e-005</b>	<b>1.5700e-003</b>	<b>4.1000e-004</b>	<b>1.0000e-005</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>1.2518</b>	<b>1.2518</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>1.2524</b>

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2028	0.6197	2.2870	7.9400e-003	0.7474	6.6800e-003	0.7541	0.2009	6.2400e-003	0.2071	0.0000	726.8939	726.8939	0.0263	0.0000	727.5507
Unmitigated	0.2028	0.6197	2.2870	7.9400e-003	0.7474	6.6800e-003	0.7541	0.2009	6.2400e-003	0.2071	0.0000	726.8939	726.8939	0.0263	0.0000	727.5507

## 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	893.04	857.66	786.90	2,015,878	2,015,878
Parking Lot	0.00	0.00	0.00		
Unenclosed Parking Structure	0.00	0.00	0.00		
Total	893.04	857.66	786.90	2,015,878	2,015,878

## 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unenclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

## 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.476244	0.050164	0.262181	0.139658	0.017521	0.006864	0.023236	0.006525	0.004137	0.003158	0.009064	0.000471	0.000777
Parking Lot	0.476244	0.050164	0.262181	0.139658	0.017521	0.006864	0.023236	0.006525	0.004137	0.003158	0.009064	0.000471	0.000777
Unenclosed Parking Structure	0.476244	0.050164	0.262181	0.139658	0.017521	0.006864	0.023236	0.006525	0.004137	0.003158	0.009064	0.000471	0.000777

## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	75.2870	75.2870	7.5300e-003	1.5600e-003	75.9394
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	75.2870	75.2870	7.5300e-003	1.5600e-003	75.9394
NaturalGas Mitigated	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8385	56.8385	1.0900e-003	1.0400e-003	57.1762
NaturalGas Unmitigated	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8385	56.8385	1.0900e-003	1.0400e-003	57.1762

## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.06511e+006	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8385	56.8385	1.0900e-003	1.0400e-003	57.1762
Parking Lot	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
Unenclosed Parking Structure	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
<b>Total</b>		<b>5.7400e-003</b>	<b>0.0491</b>	<b>0.0209</b>	<b>3.1000e-004</b>		<b>3.9700e-003</b>	<b>3.9700e-003</b>		<b>3.9700e-003</b>	<b>3.9700e-003</b>	<b>0.0000</b>	<b>56.8385</b>	<b>56.8385</b>	<b>1.0900e-003</b>	<b>1.0400e-003</b>	<b>57.1762</b>

### Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.06511e+006	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8385	56.8385	1.0900e-003	1.0400e-003	57.1762
Parking Lot	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
Unenclosed Parking Structure	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
<b>Total</b>		<b>5.7400e-003</b>	<b>0.0491</b>	<b>0.0209</b>	<b>3.1000e-004</b>		<b>3.9700e-003</b>	<b>3.9700e-003</b>		<b>3.9700e-003</b>	<b>3.9700e-003</b>	<b>0.0000</b>	<b>56.8385</b>	<b>56.8385</b>	<b>1.0900e-003</b>	<b>1.0400e-003</b>	<b>57.1762</b>

### 5.3 Energy by Land Use - Electricity

#### Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	515083	67.7549	6.7800e-003	1.4000e-003	68.3420
Parking Lot	6860	0.9024	9.0000e-005	2.0000e-005	0.9102
Unenclosed Parking Structure	50400	6.6297	6.6000e-004	1.4000e-004	6.6872
<b>Total</b>		<b>75.2870</b>	<b>7.5300e-003</b>	<b>1.5600e-003</b>	<b>75.9394</b>

#### Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
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Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	515083	67.7549	6.7800e-003	1.4000e-003	68.3420
Parking Lot	6860	0.9024	9.0000e-005	2.0000e-005	0.9102
Unenclosed Parking Structure	50400	6.6297	6.6000e-004	1.4000e-004	6.6872
<b>Total</b>		<b>75.2870</b>	<b>7.5300e-003</b>	<b>1.5600e-003</b>	<b>75.9394</b>

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5945	0.0147	0.9097	7.0000e-005		5.3500e-003	5.3500e-003		5.3500e-003	5.3500e-003	0.0000	6.3556	6.3556	1.5300e-003	9.0000e-005	6.4204
Unmitigated	0.5945	0.0147	0.9097	7.0000e-005		5.3500e-003	5.3500e-003		5.3500e-003	5.3500e-003	0.0000	6.3556	6.3556	1.5300e-003	9.0000e-005	6.4204

### 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	0.0869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4796					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.9000e-004	4.2100e-003	1.7900e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8737	4.8737	9.0000e-005	9.0000e-005	4.9027
Landscaping	0.0275	0.0105	0.9080	5.0000e-005		5.0100e-003	5.0100e-003		5.0100e-003	5.0100e-003	0.0000	1.4819	1.4819	1.4300e-003	0.0000	1.5177
<b>Total</b>	<b>0.5945</b>	<b>0.0147</b>	<b>0.9097</b>	<b>8.0000e-005</b>		<b>5.3500e-003</b>	<b>5.3500e-003</b>		<b>5.3500e-003</b>	<b>5.3500e-003</b>	<b>0.0000</b>	<b>6.3556</b>	<b>6.3556</b>	<b>1.5200e-003</b>	<b>9.0000e-005</b>	<b>6.4204</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0869						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4796						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.9000e-004	4.2100e-003	1.7900e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8737	4.8737	9.0000e-005	9.0000e-005	4.9027
Landscaping	0.0275	0.0105	0.9080	5.0000e-005		5.0100e-003	5.0100e-003		5.0100e-003	5.0100e-003	0.0000	1.4819	1.4819	1.4300e-003	0.0000	1.5177
<b>Total</b>	<b>0.5945</b>	<b>0.0147</b>	<b>0.9097</b>	<b>8.0000e-005</b>		<b>5.3500e-003</b>	<b>5.3500e-003</b>		<b>5.3500e-003</b>	<b>5.3500e-003</b>	<b>0.0000</b>	<b>6.3556</b>	<b>6.3556</b>	<b>1.5200e-003</b>	<b>9.0000e-005</b>	<b>6.4204</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
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Category	MT/yr			
Mitigated	10.7772	0.0105	6.2800e-003	12.9107
Unmitigated	10.7772	0.0105	6.2800e-003	12.9107

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	7.94879 / 5.01119	10.7772	0.0105	6.2800e-003	12.9107
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>10.7772</b>	<b>0.0105</b>	<b>6.2800e-003</b>	<b>12.9107</b>

### Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	7.94879 / 5.01119	10.7772	0.0105	6.2800e-003	12.9107
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000

Total		10.7772	0.0105	6.2800e-003	12.9107
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## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.3919	0.6732	0.0000	28.2228
Unmitigated	11.3919	0.6732	0.0000	28.2228

### 8.2 Waste by Land Use

#### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	56.12	11.3919	0.6732	0.0000	28.2228
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>11.3919</b>	<b>0.6732</b>	<b>0.0000</b>	<b>28.2228</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	56.12	11.3919	0.6732	0.0000	28.2228
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>11.3919</b>	<b>0.6732</b>	<b>0.0000</b>	<b>28.2228</b>

**9.0 Operational Offroad**

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

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**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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**11.0 Vegetation**

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JUHSD East Parking, Daly City - San Mateo County, Annual

**JUHSD East Parking, Daly City  
San Mateo County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	197.00	Space	2.85	78,800.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	70
<b>Climate Zone</b>	5			<b>Operational Year</b>	2022
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	290	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

- Project Characteristics - PG&E 2020 Rate = 290
- Land Use - Land uses from applicant provided plans
- Construction Phase - Default construction schedule, no building construction or arch coating
- Off-road Equipment - Default Construction equipment and hours
- Off-road Equipment -
- Off-road Equipment -
- Off-road Equipment -
- Off-road Equipment - Trenching Equipment added
- Trips and VMT - 280 one-way pavement demo trips added + 34 = 314

- Grading -
- Vehicle Trips -
- Woodstoves -
- Water And Wastewater - WTP Treatment 100% aerobic
- Construction Off-road Equipment Mitigation -
- Demolition - Existing building demo = 7,500sf
- Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblLandUse	LotAcreage	1.77	2.85
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	34.00	314.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00

## 2.0 Emissions Summary

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### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0411	0.4124	0.2783	5.7000e-004	0.0303	0.0191	0.0494	0.0122	0.0178	0.0299	0.0000	52.2165	52.2165	0.0123	0.0000	52.5250
<b>Maximum</b>	<b>0.0411</b>	<b>0.4124</b>	<b>0.2783</b>	<b>5.7000e-004</b>	<b>0.0303</b>	<b>0.0191</b>	<b>0.0494</b>	<b>0.0122</b>	<b>0.0178</b>	<b>0.0299</b>	<b>0.0000</b>	<b>52.2165</b>	<b>52.2165</b>	<b>0.0123</b>	<b>0.0000</b>	<b>52.5250</b>



Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>6.9100e-003</b>	<b>2.0000e-005</b>	<b>1.8100e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.6314</b>	<b>3.6314</b>	<b>3.7000e-004</b>	<b>8.0000e-005</b>	<b>3.6631</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.9100e-003	2.0000e-005	1.8100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6279	3.6279	3.6000e-004	8.0000e-005	3.6594
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>6.9100e-003</b>	<b>2.0000e-005</b>	<b>1.8100e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.6314</b>	<b>3.6314</b>	<b>3.7000e-004</b>	<b>8.0000e-005</b>	<b>3.6631</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	1/31/2020	5	3	

3	Grading	Grading	2/1/2020	2/10/2020	5	6
4	Paving	Paving	2/11/2020	2/24/2020	5	10

**Acres of Grading (Site Preparation Phase): 4.5**

**Acres of Grading (Grading Phase): 3**

**Acres of Paving: 2.85**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0**

**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	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	314.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 3.2 Demolition - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.6900e-003	0.0000	3.6900e-003	5.6000e-004	0.0000	5.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0677	21.0677	5.4200e-003	0.0000	21.2031
<b>Total</b>	<b>0.0213</b>	<b>0.2095</b>	<b>0.1466</b>	<b>2.4000e-004</b>	<b>3.6900e-003</b>	<b>0.0115</b>	<b>0.0152</b>	<b>5.6000e-004</b>	<b>0.0108</b>	<b>0.0113</b>	<b>0.0000</b>	<b>21.0677</b>	<b>21.0677</b>	<b>5.4200e-003</b>	<b>0.0000</b>	<b>21.2031</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3900e-003	0.0507	0.0211	1.3000e-004	2.6300e-003	1.6000e-004	2.7800e-003	7.2000e-004	1.5000e-004	8.7000e-004	0.0000	13.1144	13.1144	1.6400e-003	0.0000	13.1554
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	2.4000e-004	2.5300e-003	1.0000e-005	1.0200e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8522	0.8522	2.0000e-005	0.0000	0.8526
<b>Total</b>	<b>1.7400e-003</b>	<b>0.0509</b>	<b>0.0237</b>	<b>1.4000e-004</b>	<b>3.6500e-003</b>	<b>1.7000e-004</b>	<b>3.8100e-003</b>	<b>9.9000e-004</b>	<b>1.6000e-004</b>	<b>1.1500e-003</b>	<b>0.0000</b>	<b>13.9666</b>	<b>13.9666</b>	<b>1.6600e-003</b>	<b>0.0000</b>	<b>14.0080</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.6900e-003	0.0000	3.6900e-003	5.6000e-004	0.0000	5.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0676	21.0676	5.4200e-003	0.0000	21.2030
<b>Total</b>	<b>0.0213</b>	<b>0.2095</b>	<b>0.1466</b>	<b>2.4000e-004</b>	<b>3.6900e-003</b>	<b>0.0115</b>	<b>0.0152</b>	<b>5.6000e-004</b>	<b>0.0108</b>	<b>0.0113</b>	<b>0.0000</b>	<b>21.0676</b>	<b>21.0676</b>	<b>5.4200e-003</b>	<b>0.0000</b>	<b>21.2030</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3900e-003	0.0507	0.0211	1.3000e-004	2.6300e-003	1.6000e-004	2.7800e-003	7.2000e-004	1.5000e-004	8.7000e-004	0.0000	13.1144	13.1144	1.6400e-003	0.0000	13.1554
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	2.4000e-004	2.5300e-003	1.0000e-005	1.0200e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8522	0.8522	2.0000e-005	0.0000	0.8526
<b>Total</b>	<b>1.7400e-003</b>	<b>0.0509</b>	<b>0.0237</b>	<b>1.4000e-004</b>	<b>3.6500e-003</b>	<b>1.7000e-004</b>	<b>3.8100e-003</b>	<b>9.9000e-004</b>	<b>1.6000e-004</b>	<b>1.1500e-003</b>	<b>0.0000</b>	<b>13.9666</b>	<b>13.9666</b>	<b>1.6600e-003</b>	<b>0.0000</b>	<b>14.0080</b>

**3.3 Site Preparation - 2020**

**Unmitigated Construction On-Site**



Off-Road	2.4800e-003	0.0299	0.0169	4.0000e-005		1.1700e-003	1.1700e-003		1.0700e-003	1.0700e-003	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
<b>Total</b>	<b>2.4800e-003</b>	<b>0.0299</b>	<b>0.0169</b>	<b>4.0000e-005</b>	<b>2.3900e-003</b>	<b>1.1700e-003</b>	<b>3.5600e-003</b>	<b>2.6000e-004</b>	<b>1.0700e-003</b>	<b>1.3300e-003</b>	<b>0.0000</b>	<b>3.2290</b>	<b>3.2290</b>	<b>1.0400e-003</b>	<b>0.0000</b>	<b>3.2551</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0787	0.0787	0.0000	0.0000	0.0787
<b>Total</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>2.3000e-004</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0787</b>	<b>0.0787</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0787</b>

**3.4 Grading - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0197	0.0000	0.0197	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7700e-003	0.0640	0.0298	6.0000e-005		2.9700e-003	2.9700e-003		2.7300e-003	2.7300e-003	0.0000	5.4333	5.4333	1.7600e-003	0.0000	5.4773
<b>Total</b>	<b>5.7700e-003</b>	<b>0.0640</b>	<b>0.0298</b>	<b>6.0000e-005</b>	<b>0.0197</b>	<b>2.9700e-003</b>	<b>0.0226</b>	<b>0.0101</b>	<b>2.7300e-003</b>	<b>0.0128</b>	<b>0.0000</b>	<b>5.4333</b>	<b>5.4333</b>	<b>1.7600e-003</b>	<b>0.0000</b>	<b>5.4773</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	5.8000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1967	0.1967	0.0000	0.0000	0.1968
<b>Total</b>	<b>8.0000e-005</b>	<b>6.0000e-005</b>	<b>5.8000e-004</b>	<b>0.0000</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>2.4000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.1967</b>	<b>0.1967</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1968</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0197	0.0000	0.0197	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7700e-003	0.0640	0.0298	6.0000e-005		2.9700e-003	2.9700e-003		2.7300e-003	2.7300e-003	0.0000	5.4333	5.4333	1.7600e-003	0.0000	5.4773
<b>Total</b>	<b>5.7700e-003</b>	<b>0.0640</b>	<b>0.0298</b>	<b>6.0000e-005</b>	<b>0.0197</b>	<b>2.9700e-003</b>	<b>0.0226</b>	<b>0.0101</b>	<b>2.7300e-003</b>	<b>0.0128</b>	<b>0.0000</b>	<b>5.4333</b>	<b>5.4333</b>	<b>1.7600e-003</b>	<b>0.0000</b>	<b>5.4773</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
	Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	5.8000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1967	0.1967	0.0000	0.0000	0.1968
<b>Total</b>	<b>8.0000e-005</b>	<b>6.0000e-005</b>	<b>5.8000e-004</b>	<b>0.0000</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>2.4000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.1967</b>	<b>0.1967</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1968</b>

### 3.5 Paving - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	3.7300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>9.5000e-003</b>	<b>0.0579</b>	<b>0.0590</b>	<b>9.0000e-005</b>		<b>3.2800e-003</b>	<b>3.2800e-003</b>		<b>3.0300e-003</b>	<b>3.0300e-003</b>	<b>0.0000</b>	<b>7.7529</b>	<b>7.7529</b>	<b>2.4600e-003</b>	<b>0.0000</b>	<b>7.8143</b>

#### Unmitigated Construction Off-Site

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

Worker	2.0000e-004	1.4000e-004	1.4600e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4917	0.4917	1.0000e-005	0.0000	0.4919
<b>Total</b>	<b>2.0000e-004</b>	<b>1.4000e-004</b>	<b>1.4600e-003</b>	<b>1.0000e-005</b>	<b>5.9000e-004</b>	<b>0.0000</b>	<b>5.9000e-004</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>0.4917</b>	<b>0.4917</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.4919</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	3.7300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>9.5000e-003</b>	<b>0.0579</b>	<b>0.0590</b>	<b>9.0000e-005</b>		<b>3.2800e-003</b>	<b>3.2800e-003</b>		<b>3.0300e-003</b>	<b>3.0300e-003</b>	<b>0.0000</b>	<b>7.7529</b>	<b>7.7529</b>	<b>2.4600e-003</b>	<b>0.0000</b>	<b>7.8143</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.4600e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4917	0.4917	1.0000e-005	0.0000	0.4919
<b>Total</b>	<b>2.0000e-004</b>	<b>1.4000e-004</b>	<b>1.4600e-003</b>	<b>1.0000e-005</b>	<b>5.9000e-004</b>	<b>0.0000</b>	<b>5.9000e-004</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>0.4917</b>	<b>0.4917</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.4919</b>

**4.0 Operational Detail - Mobile**

#### 4.1 Mitigation Measures Mobile

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

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

#### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.476244	0.050164	0.262181	0.139658	0.017521	0.006864	0.023236	0.006525	0.004137	0.003158	0.009064	0.000471	0.000777

#### 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3.6279	3.6279	3.6000e-004	8.0000e-005	3.6594
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3.6279	3.6279	3.6000e-004	8.0000e-005	3.6594
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

## 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					
Parking Lot	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

### Mitigated

	Natural Gas 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					
Parking Lot	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

### 5.3 Energy by Land Use - Electricity

#### Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	27580	3.6279	3.6000e-004	8.0000e-005	3.6594
<b>Total</b>		<b>3.6279</b>	<b>3.6000e-004</b>	<b>8.0000e-005</b>	<b>3.6594</b>

#### Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	27580	3.6279	3.6000e-004	8.0000e-005	3.6594

Total		3.6279	3.6000e-004	8.0000e-005	3.6594
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## 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	6.9100e-003	2.0000e-005	1.8100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003
Unmitigated	6.9100e-003	2.0000e-005	1.8100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003

### 6.2 Area by SubCategory

#### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.0900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003

<b>Total</b>	<b>6.9000e-003</b>	<b>2.0000e-005</b>	<b>1.8100e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.5200e-003</b>	<b>3.5200e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.7500e-003</b>
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**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	1.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.0900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003
<b>Total</b>	<b>6.9000e-003</b>	<b>2.0000e-005</b>	<b>1.8100e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.5200e-003</b>	<b>3.5200e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.7500e-003</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

### 7.2 Water by Land Use

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

### 8.0 Waste Detail

#### 8.1 Mitigation Measures Waste

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

## 8.2 Waste by Land Use

### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

### Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000

Total		0.0000	0.0000	0.0000	0.0000
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## 9.0 Operational Offroad

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

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### Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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## 11.0 Vegetation

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JUHSD Existing - San Mateo County, Annual

**JUHSD Existing**  
**San Mateo County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	7.50	1000sqft	0.17	7,500.00	0
Parking Lot	6.33	Acre	6.33	275,734.80	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	70
<b>Climate Zone</b>	5			<b>Operational Year</b>	2022
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

- Project Characteristics -
- Land Use - Existing land use
- Construction Phase - Existing land use
- Off-road Equipment - Existing land use
- Energy Use - Historical energy data

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00

tblConstructionPhase	PhaseEndDate	2/11/2020	1/29/2020
tblEnergyUse	LightingElect	3.11	2.51
tblEnergyUse	LightingElect	0.88	0.35
tblEnergyUse	T24E	0.86	0.66
tblEnergyUse	T24NG	17.50	14.85
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00

## 2.0 Emissions Summary

### 2.2 Overall Operational

#### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0568	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004
Energy	6.7000e-004	6.0600e-003	5.0900e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	44.3542	44.3542	1.8300e-003	4.7000e-004	44.5413
Mobile	0.0185	0.0582	0.2177	7.8000e-004	0.0734	6.5000e-004	0.0741	0.0197	6.0000e-004	0.0203	0.0000	71.0845	71.0845	2.5400e-003	0.0000	71.1479
Waste						0.0000	0.0000		0.0000	0.0000	1.9792	0.0000	1.9792	0.1170	0.0000	4.9033
Water						0.0000	0.0000		0.0000	0.0000	0.0790	1.0440	1.1230	8.1600e-003	2.0000e-004	1.3871
<b>Total</b>	<b>0.0760</b>	<b>0.0643</b>	<b>0.2229</b>	<b>8.2000e-004</b>	<b>0.0734</b>	<b>1.1100e-003</b>	<b>0.0745</b>	<b>0.0197</b>	<b>1.0600e-003</b>	<b>0.0208</b>	<b>2.0582</b>	<b>116.4829</b>	<b>118.5411</b>	<b>0.1295</b>	<b>6.7000e-004</b>	<b>121.9798</b>



Mitigated	0.0185	0.0582	0.2177	7.8000e-004	0.0734	6.5000e-004	0.0741	0.0197	6.0000e-004	0.0203	0.0000	71.0845	71.0845	2.5400e-003	0.0000	71.1479
Unmitigated	0.0185	0.0582	0.2177	7.8000e-004	0.0734	6.5000e-004	0.0741	0.0197	6.0000e-004	0.0203	0.0000	71.0845	71.0845	2.5400e-003	0.0000	71.1479

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	96.68	32.78	13.43	198,073	198,073
Parking Lot	0.00	0.00	0.00		
Total	96.68	32.78	13.43	198,073	198,073

#### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.476244	0.050164	0.262181	0.139658	0.017521	0.006864	0.023236	0.006525	0.004137	0.003158	0.009064	0.000471	0.000777
Parking Lot	0.476244	0.050164	0.262181	0.139658	0.017521	0.006864	0.023236	0.006525	0.004137	0.003158	0.009064	0.000471	0.000777

#### 5.0 Energy Detail

Historical Energy Use: Y

#### 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	37.7624	37.7624	1.7100e-003	3.5000e-004	37.9104
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000	0.0000	37.7624	37.7624	1.7100e-003	3.5000e-004	37.9104
NaturalGas Mitigated	6.7000e-004	6.0600e-003	5.0900e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5918	6.5918	1.3000e-004	1.2000e-004	6.6309	
NaturalGas Unmitigated	6.7000e-004	6.0600e-003	5.0900e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5918	6.5918	1.3000e-004	1.2000e-004	6.6309	

## 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					
High School	123525	6.7000e-004	6.0600e-003	5.0900e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5918	6.5918	1.3000e-004	1.2000e-004	6.6309
Parking Lot	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
<b>Total</b>		<b>6.7000e-004</b>	<b>6.0600e-003</b>	<b>5.0900e-003</b>	<b>4.0000e-005</b>		<b>4.6000e-004</b>	<b>4.6000e-004</b>		<b>4.6000e-004</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>6.5918</b>	<b>6.5918</b>	<b>1.3000e-004</b>	<b>1.2000e-004</b>	<b>6.6309</b>

### Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High School	123525	6.7000e-004	6.0600e-003	5.0900e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5918	6.5918	1.3000e-004	1.2000e-004	6.6309

Parking Lot	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
<b>Total</b>		<b>6.7000e-004</b>	<b>6.0600e-003</b>	<b>5.0900e-003</b>	<b>4.0000e-005</b>		<b>4.6000e-004</b>	<b>4.6000e-004</b>		<b>4.6000e-004</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>6.5918</b>	<b>6.5918</b>	<b>1.3000e-004</b>	<b>1.2000e-004</b>	<b>6.6309</b>

### 5.3 Energy by Land Use - Electricity

#### Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	33300	9.6874	4.4000e-004	9.0000e-005	9.7253
Parking Lot	96507.2	28.0751	1.2700e-003	2.6000e-004	28.1851
<b>Total</b>		<b>37.7624</b>	<b>1.7100e-003</b>	<b>3.5000e-004</b>	<b>37.9104</b>

#### Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	33300	9.6874	4.4000e-004	9.0000e-005	9.7253
Parking Lot	96507.2	28.0751	1.2700e-003	2.6000e-004	28.1851
<b>Total</b>		<b>37.7624</b>	<b>1.7100e-003</b>	<b>3.5000e-004</b>	<b>37.9104</b>

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0568	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004
Unmitigated	0.0568	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004

## 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	9.6600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0471					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004
<b>Total</b>	<b>0.0568</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.5000e-004</b>	<b>2.5000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.6000e-004</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.6600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0471					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004
<b>Total</b>	<b>0.0568</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.5000e-004</b>	<b>2.5000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.6000e-004</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.1230	8.1600e-003	2.0000e-004	1.3871
Unmitigated	1.1230	8.1600e-003	2.0000e-004	1.3871

### 7.2 Water by Land Use

#### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
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Land Use	Mgal	MT/yr			
High School	0.249035 / 0.640375	1.1230	8.1600e- 003	2.0000e- 004	1.3871
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>1.1230</b>	<b>8.1600e- 003</b>	<b>2.0000e- 004</b>	<b>1.3871</b>

### Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	0.249035 / 0.640375	1.1230	8.1600e- 003	2.0000e- 004	1.3871
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>1.1230</b>	<b>8.1600e- 003</b>	<b>2.0000e- 004</b>	<b>1.3871</b>

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.9792	0.1170	0.0000	4.9033

Unmitigated	1.9792	0.1170	0.0000	4.9033
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## 8.2 Waste by Land Use

### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	9.75	1.9792	0.1170	0.0000	4.9033
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>1.9792</b>	<b>0.1170</b>	<b>0.0000</b>	<b>4.9033</b>

### Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	9.75	1.9792	0.1170	0.0000	4.9033
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>1.9792</b>	<b>0.1170</b>	<b>0.0000</b>	<b>4.9033</b>

## 9.0 Operational Offroad

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

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## Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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# 11.0 Vegetation

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JUHSD Staff Housing, Daly City - San Mateo County, Annual

**JUHSD Staff Housing, Daly City - Construction  
San Mateo County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	49.00	Space	0.44	19,600.00	0
Unenclosed Parking Structure	72.00	Space	0.00	28,800.00	0
Apartments Mid Rise	122.00	Dwelling Unit	3.21	122,000.00	349

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	70
<b>Climate Zone</b>	5			<b>Operational Year</b>	2022
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	290	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

- Project Characteristics - PG&E 2020 Rate = 290
- Land Use - Land uses from applicant provided plans
- Construction Phase - Default construction schedule, trenching added
- Off-road Equipment - Default Construction equipment and hours
- Off-road Equipment - Trenching Equipment added
- Trips and VMT - TAC 1 mile length for localized emissions, 280 one-way pavement demo trips,
- Grading - 6,580cy exported during grading

Vehicle Trips - apts = 7.32, 7.03, 6.45

Woodstoves - All gas no wood

Water And Wastewater - WTP Treatment 100% aerobic

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00



tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	280.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblVehicleTrips	ST_TR	6.39	7.03
tblVehicleTrips	SU_TR	5.86	6.45
tblVehicleTrips	WD_TR	6.65	7.32
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3141	2.9716	2.4312	4.0500e-003	0.0838	0.1566	0.2403	0.0416	0.1468	0.1884	0.0000	353.0930	353.0930	0.0841	0.0000	355.1959
2021	0.8826	0.1208	0.1374	2.1000e-004	3.3000e-004	6.5400e-003	6.8700e-003	9.0000e-005	6.1100e-003	6.2000e-003	0.0000	18.5875	18.5875	5.0800e-003	0.0000	18.7146
<b>Maximum</b>	<b>0.8826</b>	<b>2.9716</b>	<b>2.4312</b>	<b>4.0500e-003</b>	<b>0.0838</b>	<b>0.1566</b>	<b>0.2403</b>	<b>0.0416</b>	<b>0.1468</b>	<b>0.1884</b>	<b>0.0000</b>	<b>353.0930</b>	<b>353.0930</b>	<b>0.0841</b>	<b>0.0000</b>	<b>355.1959</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1090	2.1489	2.5960	4.0500e-003	0.0443	0.0182	0.0625	0.0119	0.0182	0.0301	0.0000	353.0926	353.0926	0.0841	0.0000	355.1955
2021	0.8747	0.1019	0.1496	2.1000e-004	3.3000e-004	9.1000e-004	1.2400e-003	9.0000e-005	9.1000e-004	1.0000e-003	0.0000	18.5875	18.5875	5.0800e-003	0.0000	18.7146
<b>Maximum</b>	<b>0.8747</b>	<b>2.1489</b>	<b>2.5960</b>	<b>4.0500e-003</b>	<b>0.0443</b>	<b>0.0182</b>	<b>0.0625</b>	<b>0.0119</b>	<b>0.0182</b>	<b>0.0301</b>	<b>0.0000</b>	<b>353.0926</b>	<b>353.0926</b>	<b>0.0841</b>	<b>0.0000</b>	<b>355.1955</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>17.80</b>	<b>27.21</b>	<b>-6.89</b>	<b>0.00</b>	<b>46.93</b>	<b>88.26</b>	<b>74.20</b>	<b>71.25</b>	<b>87.49</b>	<b>84.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
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1	1-1-2020	3-31-2020	1.0271	0.6335
2	4-1-2020	6-30-2020	0.7424	0.5342
3	7-1-2020	9-30-2020	0.7505	0.5400
4	10-1-2020	12-31-2020	0.7497	0.5392
5	1-1-2021	3-31-2021	1.0320	1.0050
		Highest	1.0320	1.0050

### 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	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/4/2020	5	5	
3	Grading	Grading	2/5/2020	2/14/2020	5	8	
4	Trenching	Trenching	2/5/2020	2/14/2020	5	8	
5	Building Construction	Building Construction	2/15/2020	1/1/2021	5	230	
6	Paving	Paving	1/2/2021	1/27/2021	5	18	
7	Architectural Coating	Architectural Coating	1/28/2021	2/22/2021	5	18	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 4**

**Acres of Paving: 0.44**

**Residential Indoor: 247,050; Residential Outdoor: 82,350; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:**

#### 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	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Trenching	Excavators	1	8.00	158	0.38
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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	6	15.00	0.00	280.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	823.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	108.00	21.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Demolition - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386
<b>Total</b>	<b>0.0331</b>	<b>0.3320</b>	<b>0.2175</b>	<b>3.9000e-004</b>		<b>0.0166</b>	<b>0.0166</b>		<b>0.0154</b>	<b>0.0154</b>	<b>0.0000</b>	<b>33.9986</b>	<b>33.9986</b>	<b>9.6000e-003</b>	<b>0.0000</b>	<b>34.2386</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-004	0.0137	4.2900e-003	1.0000e-005	1.2000e-004	2.0000e-005	1.4000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	1.4872	1.4872	1.8000e-004	0.0000	1.4917

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	6.0000e-005	8.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1177	0.1177	0.0000	0.0000	0.1178
<b>Total</b>	<b>4.3000e-004</b>	<b>0.0138</b>	<b>5.1000e-003</b>	<b>1.0000e-005</b>	<b>2.3000e-004</b>	<b>2.0000e-005</b>	<b>2.5000e-004</b>	<b>6.0000e-005</b>	<b>2.0000e-005</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>1.6049</b>	<b>1.6049</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.6095</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.2500e-003	0.1831	0.2467	3.9000e-004		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385
<b>Total</b>	<b>9.2500e-003</b>	<b>0.1831</b>	<b>0.2467</b>	<b>3.9000e-004</b>		<b>1.2900e-003</b>	<b>1.2900e-003</b>		<b>1.2900e-003</b>	<b>1.2900e-003</b>	<b>0.0000</b>	<b>33.9986</b>	<b>33.9986</b>	<b>9.6000e-003</b>	<b>0.0000</b>	<b>34.2385</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-004	0.0137	4.2900e-003	1.0000e-005	1.2000e-004	2.0000e-005	1.4000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	1.4872	1.4872	1.8000e-004	0.0000	1.4917
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	6.0000e-005	8.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1177	0.1177	0.0000	0.0000	0.1178
<b>Total</b>	<b>4.3000e-004</b>	<b>0.0138</b>	<b>5.1000e-003</b>	<b>1.0000e-005</b>	<b>2.3000e-004</b>	<b>2.0000e-005</b>	<b>2.5000e-004</b>	<b>6.0000e-005</b>	<b>2.0000e-005</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>1.6049</b>	<b>1.6049</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.6095</b>

### 3.3 Site Preparation - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1060	0.0538	1.0000e-004		5.4900e-003	5.4900e-003		5.0500e-003	5.0500e-003	0.0000	8.3577	8.3577	2.7000e-003	0.0000	8.4253
<b>Total</b>	<b>0.0102</b>	<b>0.1060</b>	<b>0.0538</b>	<b>1.0000e-004</b>	<b>0.0452</b>	<b>5.4900e-003</b>	<b>0.0507</b>	<b>0.0248</b>	<b>5.0500e-003</b>	<b>0.0299</b>	<b>0.0000</b>	<b>8.3577</b>	<b>8.3577</b>	<b>2.7000e-003</b>	<b>0.0000</b>	<b>8.4253</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	2.0000e-005	2.4000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0353	0.0353	0.0000	0.0000	0.0353
<b>Total</b>	<b>4.0000e-005</b>	<b>2.0000e-005</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0353</b>	<b>0.0353</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0353</b>

#### Mitigated Construction On-Site



Off-Road	9.7200e-003	0.1055	0.0642	1.2000e-004		5.0900e-003	5.0900e-003		4.6900e-003	4.6900e-003	0.0000	10.4235	10.4235	3.3700e-003	0.0000	10.5078
<b>Total</b>	<b>9.7200e-003</b>	<b>0.1055</b>	<b>0.0642</b>	<b>1.2000e-004</b>	<b>0.0266</b>	<b>5.0900e-003</b>	<b>0.0317</b>	<b>0.0135</b>	<b>4.6900e-003</b>	<b>0.0182</b>	<b>0.0000</b>	<b>10.4235</b>	<b>10.4235</b>	<b>3.3700e-003</b>	<b>0.0000</b>	<b>10.5078</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.7000e-004	0.0403	0.0126	4.0000e-005	3.5000e-004	5.0000e-005	4.0000e-004	1.0000e-004	5.0000e-005	1.5000e-004	0.0000	4.3714	4.3714	5.3000e-004	0.0000	4.3845
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	5.0000e-005	2.0000e-005	3.2000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0471	0.0471	0.0000	0.0000	0.0471
<b>Total</b>	<b>9.2000e-004</b>	<b>0.0403</b>	<b>0.0129</b>	<b>4.0000e-005</b>	<b>3.9000e-004</b>	<b>5.0000e-005</b>	<b>4.4000e-004</b>	<b>1.1000e-004</b>	<b>5.0000e-005</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>4.4184</b>	<b>4.4184</b>	<b>5.3000e-004</b>	<b>0.0000</b>	<b>4.4316</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0120	0.0000	0.0120	3.0400e-003	0.0000	3.0400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9100e-003	0.0594	0.0760	1.2000e-004		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	10.4235	10.4235	3.3700e-003	0.0000	10.5078
<b>Total</b>	<b>2.9100e-003</b>	<b>0.0594</b>	<b>0.0760</b>	<b>1.2000e-004</b>	<b>0.0120</b>	<b>4.5000e-004</b>	<b>0.0124</b>	<b>3.0400e-003</b>	<b>4.5000e-004</b>	<b>3.4900e-003</b>	<b>0.0000</b>	<b>10.4235</b>	<b>10.4235</b>	<b>3.3700e-003</b>	<b>0.0000</b>	<b>10.5078</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.7000e-004	0.0403	0.0126	4.0000e-005	3.5000e-004	5.0000e-005	4.0000e-004	1.0000e-004	5.0000e-005	1.5000e-004	0.0000	4.3714	4.3714	5.3000e-004	0.0000	4.3845
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	5.0000e-005	2.0000e-005	3.2000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0471	0.0471	0.0000	0.0000	0.0471
<b>Total</b>	<b>9.2000e-004</b>	<b>0.0403</b>	<b>0.0129</b>	<b>4.0000e-005</b>	<b>3.9000e-004</b>	<b>5.0000e-005</b>	<b>4.4000e-004</b>	<b>1.1000e-004</b>	<b>5.0000e-005</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>4.4184</b>	<b>4.4184</b>	<b>5.3000e-004</b>	<b>0.0000</b>	<b>4.4316</b>

**3.5 Trenching - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8200e-003	0.0181	0.0222	3.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	2.9062	2.9062	9.4000e-004	0.0000	2.9297
<b>Total</b>	<b>1.8200e-003</b>	<b>0.0181</b>	<b>0.0222</b>	<b>3.0000e-005</b>		<b>1.0000e-003</b>	<b>1.0000e-003</b>		<b>9.2000e-004</b>	<b>9.2000e-004</b>	<b>0.0000</b>	<b>2.9062</b>	<b>2.9062</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>2.9297</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
	Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0157	0.0157	0.0000	0.0000	0.0157
<b>Total</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0157</b>	<b>0.0157</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0157</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.1000e-004	0.0168	0.0250	3.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.9062	2.9062	9.4000e-004	0.0000	2.9297
<b>Total</b>	<b>8.1000e-004</b>	<b>0.0168</b>	<b>0.0250</b>	<b>3.0000e-005</b>		<b>1.4000e-004</b>	<b>1.4000e-004</b>		<b>1.4000e-004</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>2.9062</b>	<b>2.9062</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>2.9297</b>

**Mitigated Construction Off-Site**

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

Worker	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0157	0.0157	0.0000	0.0000	0.0157
<b>Total</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0157</b>	<b>0.0157</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0157</b>

### 3.6 Building Construction - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2427	2.1968	1.9292	3.0800e-003		0.1279	0.1279		0.1203	0.1203	0.0000	265.1934	265.1934	0.0647	0.0000	266.8109
<b>Total</b>	<b>0.2427</b>	<b>2.1968</b>	<b>1.9292</b>	<b>3.0800e-003</b>		<b>0.1279</b>	<b>0.1279</b>		<b>0.1203</b>	<b>0.1203</b>	<b>0.0000</b>	<b>265.1934</b>	<b>265.1934</b>	<b>0.0647</b>	<b>0.0000</b>	<b>266.8109</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-003	0.1540	0.0593	1.6000e-004	2.2000e-003	2.9000e-004	2.4900e-003	6.4000e-004	2.7000e-004	9.2000e-004	0.0000	16.4379	16.4379	1.7500e-003	0.0000	16.4815
Worker	0.0109	5.0100e-003	0.0666	1.1000e-004	9.1200e-003	1.2000e-004	9.2500e-003	2.4400e-003	1.1000e-004	2.5600e-003	0.0000	9.7014	9.7014	3.5000e-004	0.0000	9.7101
<b>Total</b>	<b>0.0152</b>	<b>0.1590</b>	<b>0.1259</b>	<b>2.7000e-004</b>	<b>0.0113</b>	<b>4.1000e-004</b>	<b>0.0117</b>	<b>3.0800e-003</b>	<b>3.8000e-004</b>	<b>3.4800e-003</b>	<b>0.0000</b>	<b>26.1393</b>	<b>26.1393</b>	<b>2.1000e-003</b>	<b>0.0000</b>	<b>26.1916</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0772	1.6289	2.0465	3.0800e-003		0.0155	0.0155		0.0155	0.0155	0.0000	265.1931	265.1931	0.0647	0.0000	266.8106
<b>Total</b>	<b>0.0772</b>	<b>1.6289</b>	<b>2.0465</b>	<b>3.0800e-003</b>		<b>0.0155</b>	<b>0.0155</b>		<b>0.0155</b>	<b>0.0155</b>	<b>0.0000</b>	<b>265.1931</b>	<b>265.1931</b>	<b>0.0647</b>	<b>0.0000</b>	<b>266.8106</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-003	0.1540	0.0593	1.6000e-004	2.2000e-003	2.9000e-004	2.4900e-003	6.4000e-004	2.7000e-004	9.2000e-004	0.0000	16.4379	16.4379	1.7500e-003	0.0000	16.4815
Worker	0.0109	5.0100e-003	0.0666	1.1000e-004	9.1200e-003	1.2000e-004	9.2500e-003	2.4400e-003	1.1000e-004	2.5600e-003	0.0000	9.7014	9.7014	3.5000e-004	0.0000	9.7101
<b>Total</b>	<b>0.0152</b>	<b>0.1590</b>	<b>0.1259</b>	<b>2.7000e-004</b>	<b>0.0113</b>	<b>4.1000e-004</b>	<b>0.0117</b>	<b>3.0800e-003</b>	<b>3.8000e-004</b>	<b>3.4800e-003</b>	<b>0.0000</b>	<b>26.1393</b>	<b>26.1393</b>	<b>2.1000e-003</b>	<b>0.0000</b>	<b>26.1916</b>

**3.6 Building Construction - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
	Off-Road	9.5000e-004	8.7200e-003	8.2900e-003	1.0000e-005		4.8000e-004	4.8000e-004		4.5000e-004	4.5000e-004	0.0000	1.1582	1.1582	2.8000e-004	0.0000
<b>Total</b>	<b>9.5000e-004</b>	<b>8.7200e-003</b>	<b>8.2900e-003</b>	<b>1.0000e-005</b>		<b>4.8000e-004</b>	<b>4.8000e-004</b>		<b>4.5000e-004</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>1.1582</b>	<b>1.1582</b>	<b>2.8000e-004</b>	<b>0.0000</b>	<b>1.1652</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	6.3000e-004	2.5000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0707	0.0707	1.0000e-005	0.0000	0.0709
Worker	4.0000e-005	2.0000e-005	2.6000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0409	0.0409	0.0000	0.0000	0.0409
<b>Total</b>	<b>6.0000e-005</b>	<b>6.5000e-004</b>	<b>5.1000e-004</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.1116</b>	<b>0.1116</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.1118</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4000e-004	7.1100e-003	8.9400e-003	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	1.1582	1.1582	2.8000e-004	0.0000	1.1652
<b>Total</b>	<b>3.4000e-004</b>	<b>7.1100e-003</b>	<b>8.9400e-003</b>	<b>1.0000e-005</b>		<b>7.0000e-005</b>	<b>7.0000e-005</b>		<b>7.0000e-005</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>1.1582</b>	<b>1.1582</b>	<b>2.8000e-004</b>	<b>0.0000</b>	<b>1.1652</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	6.3000e-004	2.5000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0707	0.0707	1.0000e-005	0.0000	0.0709
Worker	4.0000e-005	2.0000e-005	2.6000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0409	0.0409	0.0000	0.0000	0.0409
<b>Total</b>	<b>6.0000e-005</b>	<b>6.5000e-004</b>	<b>5.1000e-004</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.1116</b>	<b>0.1116</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.1118</b>

**3.7 Paving - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8500e-003	0.0976	0.1103	1.7000e-004		5.2100e-003	5.2100e-003		4.8100e-003	4.8100e-003	0.0000	14.7336	14.7336	4.6300e-003	0.0000	14.8493
Paving	5.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0104</b>	<b>0.0976</b>	<b>0.1103</b>	<b>1.7000e-004</b>		<b>5.2100e-003</b>	<b>5.2100e-003</b>		<b>4.8100e-003</b>	<b>4.8100e-003</b>	<b>0.0000</b>	<b>14.7336</b>	<b>14.7336</b>	<b>4.6300e-003</b>	<b>0.0000</b>	<b>14.8493</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	6.0000e-005	8.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1363	0.1363	0.0000	0.0000	0.1364
<b>Total</b>	<b>1.4000e-004</b>	<b>6.0000e-005</b>	<b>8.8000e-004</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1363</b>	<b>0.1363</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1364</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9500e-003	0.0818	0.1218	1.7000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	14.7335	14.7335	4.6300e-003	0.0000	14.8493
Paving	5.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>4.5300e-003</b>	<b>0.0818</b>	<b>0.1218</b>	<b>1.7000e-004</b>		<b>7.1000e-004</b>	<b>7.1000e-004</b>		<b>7.1000e-004</b>	<b>7.1000e-004</b>	<b>0.0000</b>	<b>14.7335</b>	<b>14.7335</b>	<b>4.6300e-003</b>	<b>0.0000</b>	<b>14.8493</b>

**Mitigated Construction Off-Site**

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	6.0000e-005	8.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1363	0.1363	0.0000	0.0000	0.1364
<b>Total</b>	<b>1.4000e-004</b>	<b>6.0000e-005</b>	<b>8.8000e-004</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1363</b>	<b>0.1363</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1364</b>

### 3.8 Architectural Coating - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8689						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0137	0.0164	3.0000e-005		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
<b>Total</b>	<b>0.8709</b>	<b>0.0137</b>	<b>0.0164</b>	<b>3.0000e-005</b>		<b>8.5000e-004</b>	<b>8.5000e-004</b>		<b>8.5000e-004</b>	<b>8.5000e-004</b>	<b>0.0000</b>	<b>2.2979</b>	<b>2.2979</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>2.3019</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	7.0000e-005	9.7000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1499	0.1499	0.0000	0.0000	0.1501

<b>Total</b>	<b>1.6000e-004</b>	<b>7.0000e-005</b>	<b>9.7000e-004</b>	<b>0.0000</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>1.5000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1499</b>	<b>0.1499</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1501</b>
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**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	0.8689					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3000e-004	0.0122	0.0165	3.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
<b>Total</b>	<b>0.8694</b>	<b>0.0122</b>	<b>0.0165</b>	<b>3.0000e-005</b>		<b>1.3000e-004</b>	<b>1.3000e-004</b>		<b>1.3000e-004</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>2.2979</b>	<b>2.2979</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>2.3019</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	7.0000e-005	9.7000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1499	0.1499	0.0000	0.0000	0.1501
<b>Total</b>	<b>1.6000e-004</b>	<b>7.0000e-005</b>	<b>9.7000e-004</b>	<b>0.0000</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>1.5000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1499</b>	<b>0.1499</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1501</b>

JUHSD East Parking, Daly City - San Mateo County, Annual

**JUHSD East Parking, Daly City - Construction**  
**San Mateo County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	197.00	Space	2.85	78,800.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	70
<b>Climate Zone</b>	5			<b>Operational Year</b>	2022
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	290	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

Project Characteristics - PG&E 2020 Rate = 290

Land Use - Land uses from applicant provided plans

Construction Phase - Default construction schedule, no building construction or arch coating

Off-road Equipment - Default Construction equipment and hours

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Trenching Equipment added

Trips and VMT - TAC 1 mile length for localized emissions, 280 one-way pavement demo trips added + 34 = 314

Grading -

Vehicle Trips -

Woodstoves -

Water And Wastewater - WTP Treatment 100% aerobic

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

Demolition - Existing building demo = 7,500sf

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	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	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblLandUse	LotAcreage	1.77	2.85
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	34.00	314.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00

## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0396	0.3768	0.2585	4.5000e-004	0.0261	0.0190	0.0450	0.0110	0.0176	0.0286	0.0000	39.3445	39.3445	0.0109	0.0000	39.6165
Maximum	0.0396	0.3768	0.2585	4.5000e-004	0.0261	0.019	0.0450	0.011	0.0176	0.0286	0.0000	39.3445	39.3445	0.0109	0.0000	39.6165

### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0144	0.2292	0.2821	4.5000e-004	0.0119	1.8300e-003	0.0137	2.5400e-003	1.8300e-003	4.3700e-003	0.0000	39.3444	39.3444	0.0109	0.0000	39.6165
Maximum	0.0144	0.2292	0.2821	4.5000e-004	0.0119	1.83E-03	0.0137	2.54E-03	1.8300e-003	4.3700e-003	0.0000	39.3444	39.3444	0.0109	0.0000	39.6165

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	63.55	39.17	-9.13	0.00	54.32	90.35	69.52	76.91	89.61	84.73	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	0.4201	0.2442
		Highest	0.4201	0.2442

### 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	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	1/31/2020	5	3	
3	Grading	Grading	2/1/2020	2/10/2020	5	6	
4	Paving	Paving	2/11/2020	2/24/2020	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 2.85

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

#### 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	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	314.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

**3.2 Demolition - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.6900e-003	0.0000	3.6900e-003	5.6000e-004	0.0000	5.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0677	21.0677	5.4200e-003	0.0000	21.2031
<b>Total</b>	<b>0.0213</b>	<b>0.2095</b>	<b>0.1466</b>	<b>2.4000e-004</b>	<b>3.6900e-003</b>	<b>0.0115</b>	<b>0.0152</b>	<b>5.6000e-004</b>	<b>0.0108</b>	<b>0.0113</b>	<b>0.0000</b>	<b>21.0677</b>	<b>21.0677</b>	<b>5.4200e-003</b>	<b>0.0000</b>	<b>21.2031</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.3000e-004	0.0154	4.8200e-003	2.0000e-005	1.3000e-004	2.0000e-005	1.5000e-004	4.0000e-005	2.0000e-005	6.0000e-005	0.0000	1.6678	1.6678	2.0000e-004	0.0000	1.6728
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	5.0000e-005	7.0000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1020	0.1020	0.0000	0.0000	0.1021
<b>Total</b>	<b>4.4000e-004</b>	<b>0.0154</b>	<b>5.5200e-003</b>	<b>2.0000e-005</b>	<b>2.3000e-004</b>	<b>2.0000e-005</b>	<b>2.5000e-004</b>	<b>7.0000e-005</b>	<b>2.0000e-005</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>1.7698</b>	<b>1.7698</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>1.7749</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6600e-003	0.0000	1.6600e-003	1.3000e-004	0.0000	1.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.6200e-003	0.1210	0.1542	2.4000e-004		1.0800e-003	1.0800e-003		1.0800e-003	1.0800e-003	0.0000	21.0676	21.0676	5.4200e-003	0.0000	21.2030
<b>Total</b>	<b>5.6200e-003</b>	<b>0.1210</b>	<b>0.1542</b>	<b>2.4000e-004</b>	<b>1.6600e-003</b>	<b>1.0800e-003</b>	<b>2.7400e-003</b>	<b>1.3000e-004</b>	<b>1.0800e-003</b>	<b>1.2100e-003</b>	<b>0.0000</b>	<b>21.0676</b>	<b>21.0676</b>	<b>5.4200e-003</b>	<b>0.0000</b>	<b>21.2030</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Worker	1.0000e-005	0.0000	6.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	9.4100e-003	9.4100e-003	0.0000	0.0000	9.4200e-003
<b>Total</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.4100e-003</b>	<b>9.4100e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.4200e-003</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0700e-003	0.0000	1.0700e-003	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	0.0178	0.0205	4.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
<b>Total</b>	<b>9.0000e-004</b>	<b>0.0178</b>	<b>0.0205</b>	<b>4.0000e-005</b>	<b>1.0700e-003</b>	<b>1.1000e-004</b>	<b>1.1800e-003</b>	<b>6.0000e-005</b>	<b>1.1000e-004</b>	<b>1.7000e-004</b>	<b>0.0000</b>	<b>3.2290</b>	<b>3.2290</b>	<b>1.0400e-003</b>	<b>0.0000</b>	<b>3.2551</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	0.0000	6.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	9.4100e-003	9.4100e-003	0.0000	0.0000	9.4200e-003
<b>Total</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.4100e-003</b>	<b>9.4100e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.4200e-003</b>

**3.4 Grading - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0197	0.0000	0.0197	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7700e-003	0.0640	0.0298	6.0000e-005		2.9700e-003	2.9700e-003		2.7300e-003	2.7300e-003	0.0000	5.4333	5.4333	1.7600e-003	0.0000	5.4773
<b>Total</b>	<b>5.7700e-003</b>	<b>0.0640</b>	<b>0.0298</b>	<b>6.0000e-005</b>	<b>0.0197</b>	<b>2.9700e-003</b>	<b>0.0226</b>	<b>0.0101</b>	<b>2.7300e-003</b>	<b>0.0128</b>	<b>0.0000</b>	<b>5.4333</b>	<b>5.4333</b>	<b>1.7600e-003</b>	<b>0.0000</b>	<b>5.4773</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	1.0000e-005	1.6000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0235	0.0235	0.0000	0.0000	0.0236
<b>Total</b>	<b>3.0000e-005</b>	<b>1.0000e-005</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0235</b>	<b>0.0235</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0236</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Fugitive Dust					8.8500e-003	0.0000	8.8500e-003	2.2700e-003	0.0000	2.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5100e-003	0.0307	0.0364	6.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	5.4333	5.4333	1.7600e-003	0.0000	5.4773
<b>Total</b>	<b>1.5100e-003</b>	<b>0.0307</b>	<b>0.0364</b>	<b>6.0000e-005</b>	<b>8.8500e-003</b>	<b>2.2000e-004</b>	<b>9.0700e-003</b>	<b>2.2700e-003</b>	<b>2.2000e-004</b>	<b>2.4900e-003</b>	<b>0.0000</b>	<b>5.4333</b>	<b>5.4333</b>	<b>1.7600e-003</b>	<b>0.0000</b>	<b>5.4773</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	1.0000e-005	1.6000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0235	0.0235	0.0000	0.0000	0.0236
<b>Total</b>	<b>3.0000e-005</b>	<b>1.0000e-005</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0235</b>	<b>0.0235</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0236</b>

**3.5 Paving - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	3.7300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

<b>Total</b>	<b>9.5000e-003</b>	<b>0.0579</b>	<b>0.0590</b>	<b>9.0000e-005</b>		<b>3.2800e-003</b>	<b>3.2800e-003</b>		<b>3.0300e-003</b>	<b>3.0300e-003</b>	<b>0.0000</b>	<b>7.7529</b>	<b>7.7529</b>	<b>2.4600e-003</b>	<b>0.0000</b>	<b>7.8143</b>
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**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	3.0000e-005	4.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0588	0.0588	0.0000	0.0000	0.0589
<b>Total</b>	<b>7.0000e-005</b>	<b>3.0000e-005</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0588</b>	<b>0.0588</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0589</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1000e-003	0.0443	0.0649	9.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	3.7300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.8300e-003</b>	<b>0.0443</b>	<b>0.0649</b>	<b>9.0000e-005</b>		<b>4.0000e-004</b>	<b>4.0000e-004</b>		<b>4.0000e-004</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>7.7529</b>	<b>7.7529</b>	<b>2.4600e-003</b>	<b>0.0000</b>	<b>7.8143</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	3.0000e-005	4.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0588	0.0588	0.0000	0.0000	0.0589
<b>Total</b>	<b>7.0000e-005</b>	<b>3.0000e-005</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0588</b>	<b>0.0588</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0589</b>

JUHSD Staff Housing, Daly City - San Mateo County, Annual

**JUHSD Staff Housing, Daly City - 2030  
San Mateo County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	49.00	Space	0.44	19,600.00	0
Unenclosed Parking Structure	72.00	Space	0.00	28,800.00	0
Apartments Mid Rise	122.00	Dwelling Unit	3.21	122,000.00	349

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	70
<b>Climate Zone</b>	5			<b>Operational Year</b>	2030
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	290	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

- Project Characteristics - PG&E 2020 Rate = 290
- Land Use - Land uses from applicant provided plans
- Construction Phase - Default construction schedule, trenching added
- Off-road Equipment - Default Construction equipment and hours
- Off-road Equipment - Trenching Equipment added
- Trips and VMT - 280 one-way pavement demo trips
- Grading - 6,580cy exported during grading

Vehicle Trips - apts = 7.32, 7.03, 6.45

Woodstoves - All gas no wood

Water And Wastewater - WTP Treatment 100% aerobic

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	18.30	39.04
tblFireplaces	NumberWood	20.74	0.00
tblGrading	MaterialExported	0.00	6,580.00
tblLandUse	LotAcreage	0.65	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	0.00	280.00
tblVehicleTrips	ST_TR	6.39	7.03
tblVehicleTrips	SU_TR	5.86	6.45
tblVehicleTrips	WD_TR	6.65	7.32
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

## 2.0 Emissions Summary

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### 2.2 Overall Operational Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5941	0.0146	0.9064	7.0000e-005		5.3700e-003	5.3700e-003		5.3700e-003	5.3700e-003	0.0000	6.3556	6.3556	1.5100e-003	9.0000e-005	6.4200
Energy	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	132.1255	132.1255	8.6200e-003	2.6000e-003	133.1156
Mobile	0.1529	0.4261	1.6625	6.5500e-003	0.7477	4.2400e-003	0.7520	0.2010	3.9500e-003	0.2049	0.0000	602.4899	602.4899	0.0215	0.0000	603.0271
Waste						0.0000	0.0000		0.0000	0.0000	11.3919	0.0000	11.3919	0.6732	0.0000	28.2228
Water						0.0000	0.0000		0.0000	0.0000	2.8123	7.9649	10.7772	0.0105	6.2800e-003	12.9107
<b>Total</b>	<b>0.7527</b>	<b>0.4898</b>	<b>2.5898</b>	<b>6.9300e-003</b>	<b>0.7477</b>	<b>0.0136</b>	<b>0.7613</b>	<b>0.2010</b>	<b>0.0133</b>	<b>0.2143</b>	<b>14.2041</b>	<b>748.9358</b>	<b>763.1399</b>	<b>0.7153</b>	<b>8.9700e-003</b>	<b>783.6962</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5941	0.0146	0.9064	7.0000e-005		5.3700e-003	5.3700e-003		5.3700e-003	5.3700e-003	0.0000	6.3556	6.3556	1.5100e-003	9.0000e-005	6.4200
Energy	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	132.1255	132.1255	8.6200e-003	2.6000e-003	133.1156
Mobile	0.1529	0.4261	1.6625	6.5500e-003	0.7477	4.2400e-003	0.7520	0.2010	3.9500e-003	0.2049	0.0000	602.4899	602.4899	0.0215	0.0000	603.0271
Waste						0.0000	0.0000		0.0000	0.0000	11.3919	0.0000	11.3919	0.6732	0.0000	28.2228
Water						0.0000	0.0000		0.0000	0.0000	2.8123	7.9649	10.7772	0.0105	6.2800e-003	12.9107
<b>Total</b>	<b>0.7527</b>	<b>0.4898</b>	<b>2.5898</b>	<b>6.9300e-003</b>	<b>0.7477</b>	<b>0.0136</b>	<b>0.7613</b>	<b>0.2010</b>	<b>0.0133</b>	<b>0.2143</b>	<b>14.2041</b>	<b>748.9358</b>	<b>763.1399</b>	<b>0.7153</b>	<b>8.9700e-003</b>	<b>783.6962</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 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	0.1529	0.4261	1.6625	6.5500e-003	0.7477	4.2400e-003	0.7520	0.2010	3.9500e-003	0.2049	0.0000	602.4899	602.4899	0.0215	0.0000	603.0271
Unmitigated	0.1529	0.4261	1.6625	6.5500e-003	0.7477	4.2400e-003	0.7520	0.2010	3.9500e-003	0.2049	0.0000	602.4899	602.4899	0.0215	0.0000	603.0271

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	893.04	857.66	786.90	2,015,878	2,015,878
Parking Lot	0.00	0.00	0.00		
Unenclosed Parking Structure	0.00	0.00	0.00		
<b>Total</b>	<b>893.04</b>	<b>857.66</b>	<b>786.90</b>	<b>2,015,878</b>	<b>2,015,878</b>

### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

Unenclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
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#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.448867	0.051210	0.277116	0.145918	0.016779	0.007633	0.027321	0.006813	0.004476	0.002855	0.009510	0.000605	0.000896
Parking Lot	0.448867	0.051210	0.277116	0.145918	0.016779	0.007633	0.027321	0.006813	0.004476	0.002855	0.009510	0.000605	0.000896
Unenclosed Parking Structure	0.448867	0.051210	0.277116	0.145918	0.016779	0.007633	0.027321	0.006813	0.004476	0.002855	0.009510	0.000605	0.000896

#### 5.0 Energy Detail

Historical Energy Use: N

#### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	75.2870	75.2870	7.5300e-003	1.5600e-003	75.9394
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	75.2870	75.2870	7.5300e-003	1.5600e-003	75.9394
NaturalGas Mitigated	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8385	56.8385	1.0900e-003	1.0400e-003	57.1762
NaturalGas Unmitigated	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8385	56.8385	1.0900e-003	1.0400e-003	57.1762

#### 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
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Land Use	kBTU/yr	tons/yr									MT/yr						
Apartments Mid Rise	1.06511e+006	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8385	56.8385	1.0900e-003	1.0400e-003	57.1762
Parking Lot	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
Unenclosed Parking Structure	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
<b>Total</b>		<b>5.7400e-003</b>	<b>0.0491</b>	<b>0.0209</b>	<b>3.1000e-004</b>		<b>3.9700e-003</b>	<b>3.9700e-003</b>		<b>3.9700e-003</b>	<b>3.9700e-003</b>	<b>0.0000</b>	<b>56.8385</b>	<b>56.8385</b>	<b>1.0900e-003</b>	<b>1.0400e-003</b>	<b>57.1762</b>

**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr									MT/yr						
Apartments Mid Rise	1.06511e+006	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8385	56.8385	1.0900e-003	1.0400e-003	57.1762
Parking Lot	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
Unenclosed Parking Structure	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
<b>Total</b>		<b>5.7400e-003</b>	<b>0.0491</b>	<b>0.0209</b>	<b>3.1000e-004</b>		<b>3.9700e-003</b>	<b>3.9700e-003</b>		<b>3.9700e-003</b>	<b>3.9700e-003</b>	<b>0.0000</b>	<b>56.8385</b>	<b>56.8385</b>	<b>1.0900e-003</b>	<b>1.0400e-003</b>	<b>57.1762</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	515083	67.7549	6.7800e-003	1.4000e-003	68.3420
Parking Lot	6860	0.9024	9.0000e-005	2.0000e-005	0.9102

Unenclosed Parking Structure	50400	6.6297	6.6000e-004	1.4000e-004	6.6872
<b>Total</b>		<b>75.2870</b>	<b>7.5300e-003</b>	<b>1.5600e-003</b>	<b>75.9394</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	515083	67.7549	6.7800e-003	1.4000e-003	68.3420
Parking Lot	6860	0.9024	9.0000e-005	2.0000e-005	0.9102
Unenclosed Parking Structure	50400	6.6297	6.6000e-004	1.4000e-004	6.6872
<b>Total</b>		<b>75.2870</b>	<b>7.5300e-003</b>	<b>1.5600e-003</b>	<b>75.9394</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5941	0.0146	0.9064	7.0000e-005		5.3700e-003	5.3700e-003		5.3700e-003	5.3700e-003	0.0000	6.3556	6.3556	1.5100e-003	9.0000e-005	6.4200
Unmitigated	0.5941	0.0146	0.9064	7.0000e-005		5.3700e-003	5.3700e-003		5.3700e-003	5.3700e-003	0.0000	6.3556	6.3556	1.5100e-003	9.0000e-005	6.4200

## 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	0.0869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4796					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.9000e-004	4.2100e-003	1.7900e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8737	4.8737	9.0000e-005	9.0000e-005	4.9027
Landscaping	0.0271	0.0104	0.9046	5.0000e-005		5.0300e-003	5.0300e-003		5.0300e-003	5.0300e-003	0.0000	1.4819	1.4819	1.4200e-003	0.0000	1.5173
<b>Total</b>	<b>0.5941</b>	<b>0.0146</b>	<b>0.9064</b>	<b>8.0000e-005</b>		<b>5.3700e-003</b>	<b>5.3700e-003</b>		<b>5.3700e-003</b>	<b>5.3700e-003</b>	<b>0.0000</b>	<b>6.3556</b>	<b>6.3556</b>	<b>1.5100e-003</b>	<b>9.0000e-005</b>	<b>6.4200</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4796					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.9000e-004	4.2100e-003	1.7900e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8737	4.8737	9.0000e-005	9.0000e-005	4.9027
Landscaping	0.0271	0.0104	0.9046	5.0000e-005		5.0300e-003	5.0300e-003		5.0300e-003	5.0300e-003	0.0000	1.4819	1.4819	1.4200e-003	0.0000	1.5173
<b>Total</b>	<b>0.5941</b>	<b>0.0146</b>	<b>0.9064</b>	<b>8.0000e-005</b>		<b>5.3700e-003</b>	<b>5.3700e-003</b>		<b>5.3700e-003</b>	<b>5.3700e-003</b>	<b>0.0000</b>	<b>6.3556</b>	<b>6.3556</b>	<b>1.5100e-003</b>	<b>9.0000e-005</b>	<b>6.4200</b>

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.7772	0.0105	6.2800e-003	12.9107
Unmitigated	10.7772	0.0105	6.2800e-003	12.9107

### 7.2 Water by Land Use

#### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	7.94879 / 5.01119	10.7772	0.0105	6.2800e-003	12.9107
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>10.7772</b>	<b>0.0105</b>	<b>6.2800e-003</b>	<b>12.9107</b>

#### Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	7.94879 / 5.01119	10.7772	0.0105	6.2800e-003	12.9107
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>10.7772</b>	<b>0.0105</b>	<b>6.2800e-003</b>	<b>12.9107</b>

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.3919	0.6732	0.0000	28.2228
Unmitigated	11.3919	0.6732	0.0000	28.2228

### 8.2 Waste by Land Use

#### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	56.12	11.3919	0.6732	0.0000	28.2228
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>11.3919</b>	<b>0.6732</b>	<b>0.0000</b>	<b>28.2228</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	56.12	11.3919	0.6732	0.0000	28.2228
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>11.3919</b>	<b>0.6732</b>	<b>0.0000</b>	<b>28.2228</b>

**9.0 Operational Offroad**

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

**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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## **11.0 Vegetation**

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JUHSD East Parking, Daly City - San Mateo County, Annual

**JUHSD East Parking, Daly City - 2030**  
**San Mateo County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	197.00	Space	2.85	78,800.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	70
<b>Climate Zone</b>	5			<b>Operational Year</b>	2030
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	290	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

- Project Characteristics - PG&E 2020 Rate = 290
- Land Use - Land uses from applicant provided plans
- Construction Phase - Default construction schedule, no building construction or arch coating
- Off-road Equipment - Default Construction equipment and hours
- Off-road Equipment -
- Off-road Equipment -
- Off-road Equipment -
- Off-road Equipment - Trenching Equipment added
- Trips and VMT - 280 one-way pavement demo trips added + 34 = 314



Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>6.9000e-003</b>	<b>2.0000e-005</b>	<b>1.8000e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.6314</b>	<b>3.6314</b>	<b>3.7000e-004</b>	<b>8.0000e-005</b>	<b>3.6631</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.9000e-003	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6279	3.6279	3.6000e-004	8.0000e-005	3.6594
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>6.9000e-003</b>	<b>2.0000e-005</b>	<b>1.8000e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.6314</b>	<b>3.6314</b>	<b>3.7000e-004</b>	<b>8.0000e-005</b>	<b>3.6631</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**4.0 Operational Detail - Mobile**

**4.1 Mitigation Measures Mobile**

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

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

#### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.448867	0.051210	0.277116	0.145918	0.016779	0.007633	0.027321	0.006813	0.004476	0.002855	0.009510	0.000605	0.000896

#### 5.0 Energy Detail

Historical Energy Use: N

#### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated							0.0000	0.0000		0.0000	0.0000	3.6279	3.6279	3.6000e-004	8.0000e-005	3.6594
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000	3.6279	3.6279	3.6000e-004	8.0000e-005	3.6594
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

## 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					
Parking Lot	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

### Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	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	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

### 5.3 Energy by Land Use - Electricity

#### Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	27580	3.6279	3.6000e-004	8.0000e-005	3.6594
<b>Total</b>		<b>3.6279</b>	<b>3.6000e-004</b>	<b>8.0000e-005</b>	<b>3.6594</b>

#### Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	27580	3.6279	3.6000e-004	8.0000e-005	3.6594
<b>Total</b>		<b>3.6279</b>	<b>3.6000e-004</b>	<b>8.0000e-005</b>	<b>3.6594</b>

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.9000e-003	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003
Unmitigated	6.9000e-003	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003

### 6.2 Area by SubCategory

#### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.0900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003
<b>Total</b>	<b>6.8900e-003</b>	<b>2.0000e-005</b>	<b>1.8000e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.5200e-003</b>	<b>3.5200e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.7500e-003</b>

#### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.0900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.5200e-003	3.5200e-003	1.0000e-005	0.0000	3.7500e-003
<b>Total</b>	<b>6.8900e-003</b>	<b>2.0000e-005</b>	<b>1.8000e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.5200e-003</b>	<b>3.5200e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.7500e-003</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

### 7.2 Water by Land Use

#### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

## 8.2 Waste by Land Use

### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

### Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## 9.0 Operational Offroad

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

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### Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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## 11.0 Vegetation

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**Project Name:** \_\_\_\_\_

**Project Size** \_\_\_\_\_ **Dwelling Units** \_\_\_\_\_ **6.5 total project acres disturbed**

\_\_\_\_\_ **s.f. residential** \_\_\_\_\_ **s.f. retail**

\_\_\_\_\_ **s.f. office/commercial** \_\_\_\_\_ **s.f. other, specify:** \_\_\_\_\_

\_\_\_\_\_ **s.f. other, specify:** \_\_\_\_\_

\_\_\_\_\_ **s.f. parking garage** \_\_\_\_\_ **spaces**

\_\_\_\_\_ **105715 s.f. parking lot** \_\_\_\_\_ **238 spaces**

\_\_\_\_\_ **am to** \_\_\_\_\_ **pm**

**Construction Hours** \_\_\_\_\_

Complete ALL Portions in Yellow

SCANNED  
4/12/14

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Comments	Typical Equipment Type & Load Factors		
	<b>Demolition</b>	<b>Start Date:</b> e.g., 9/1/2016		<b>Total phase:</b>			<b>Overall Import/Export Volumes</b>	<b>OFFROAD Equipment Type</b>	<b>HP</b>	<b>Load Factor</b>
		<b>End Date:</b>						Aerial Lifts	62	0.31
	Concrete/Industrial Saws	81	0.73			#DIV/0!	<b>Demolition Volume</b>	Air Compressors	78	0.48
	Excavators	162	0.38			#DIV/0!	Square footage of buildings to be demolished (or total tons to be hauled)	Bore/Drill Rigs	205	0.5
	Rubber-Tired Dozers	255	0.4			#DIV/0!	252,090 square feet or	Cement and Mortar Mixers	9	0.56
	Tractors/Loaders/Backhoes	97	0.37			#DIV/0!	? Hauling volume (tons)	Concrete/Industrial Saws	81	0.73
							Any pavement demolished and hauled? ? tons	Cranes	226	0.29
	<b>Site Preparation</b>	<b>Start Date:</b>		<b>Total phase:</b>			<b>Soil Hauling Volume</b>	Crawler Tractors	208	0.43
		<b>End Date:</b>						Crushing/Proc. Equipment	85	0.78
	Graders	174	0.41			#DIV/0!	Export volume = ? cubic yards?	Dumpers/Tenders	16	0.38
	Rubber Tired Dozers	255	0.4			#DIV/0!	Import volume = ? cubic yards?	Excavators	162	0.38
	Tractors/Loaders/Backhoes	97	0.37			#DIV/0!		Forklifts	89	0.2
								Generator Sets	84	0.74
	<b>Grading / Excavation</b>	<b>Start Date:</b>		<b>Total phase:</b>			<b>Soil Hauling Volume</b>	Graders	174	0.41
		<b>End Date:</b>						Off-Highway Tractors	122	0.44
	Scrapers	361	0.48			#DIV/0!	Export volume = 6,580 cubic yards?	Off-Highway Trucks	400	0.38
	Excavators	162	0.38			#DIV/0!	Import volume = ? cubic yards?	Other Construction Equipment	171	0.42
	Graders	174	0.41			#DIV/0!		Other General Industrial Equipment	150	0.34
	Rubber Tired Dozers	255	0.4			#DIV/0!		Other Material Handling Equipment	167	0.4
	Tractors/Loaders/Backhoes	97	0.37			#DIV/0!		Pavers	125	0.42
	Other Equipment?							Paving Equipment	130	0.36
								Plate Compactors	8	0.43
	<b>Trenching</b>	<b>Start Date:</b>		<b>Total phase:</b>			<b>Cement Trucks? ? Total Round-Trips</b>	Pressure Washers	13	0.2
		<b>End Date:</b>						Pumps	84	0.74
	Tractor/Loader/Backhoe	97	0.37			#DIV/0!		Rollers	80	0.38
	Excavators	162	0.38			#DIV/0!		Rough Terrain Forklifts	100	0.4
	Other Equipment?							Rubber Tired Dozers	255	0.4
								Rubber Tired Loaders	199	0.36
	<b>Building - Exterior</b>	<b>Start Date:</b>		<b>Total phase:</b>			<b>Electric? (Y/N) Otherwise assumed diesel</b>	Scrapers	361	0.48
		<b>End Date:</b>					Liquid Propane (LPG)? (Y/N) Otherwise Assumed diesel	Signal Boards	6	0.82
	Cranes	226	0.29			#DIV/0!	Or temporary line power? (Y/N)	Skid Steer Loaders	64	0.37
	Forklifts	89	0.2			#DIV/0!	otherwise, assume diesel generator	Surfacing Equipment	253	0.3
	Generator Sets	84	0.74			#DIV/0!		Sweepers/Scrubbers	64	0.46
	Tractors/Loaders/Backhoes	97	0.37			#DIV/0!		Tractors/Loaders/Backhoes	97	0.37
	Welders	46	0.45			#DIV/0!		Trenchers	80	0.5
	Other Equipment?					#DIV/0!		Welders	46	0.45
	<b>Building - interior/Architectural Coating</b>	<b>Start Date:</b>		<b>Total phase:</b>						
		<b>End Date:</b>								
	Air Compressors	78	0.48			#DIV/0!				
	Aerial Lift	62	0.31			#DIV/0!				
	Other Equipment?									
	<b>Paving</b>	<b>Start Date:</b>		<b>Total phase:</b>						
		<b>End Date:</b>								
	Cement and Mortar Mixers	9	0.56			#DIV/0!	Asphalt? ___ cubic yards or ___ round trips?			
	Pavers	125	0.42			#DIV/0!				
	Paving Equipment	130	0.36			#DIV/0!				
	Rollers	80	0.38			#DIV/0!				
	Tractors/Loaders/Backhoes	97	0.37			#DIV/0!				
	Other Equipment?									

APR 24 2014

Equipment listed in this sheet is to provide an example of inputs. Add or subtract phases and equipment, as appropriate. It is assumed that water trucks would be used during grading. Modify horsepower or load factor, as appropriate.



## Casey Divine

---

**From:** Tali Ashurov <TAshurov@davidjpowers.com>  
**Sent:** Tuesday, May 28, 2019 2:48 PM  
**To:** Casey Divine  
**Cc:** Will Burns; James Reyff  
**Subject:** RE: Jefferson Union Staff Housing Project - Traffic Study

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

**Categories:** Data

Hi Casey,

Please see the following information from the traffic engineer:

According to ITE, Multi family housing (220) generates an average of 7.32 daily weekday trips per dwelling unit. Since the project has 122 units, this would equate to approximately 893 daily trips.

Thanks!

**Tali Ashurov** | Associate Project Manager  
David J. Powers & Associates, Inc.  
1611 Telegraph Avenue, Ste. 1002 | Oakland, CA 94612  
Main: 408.248.3500 | Cell: 510.458.3041  
[tashurov@davidjpowers.com](mailto:tashurov@davidjpowers.com)

*Quality Environmental Review Makes a Difference*

---

**From:** Casey Divine <CDivine@illingworthrodkin.com>  
**Sent:** Tuesday, May 28, 2019 8:34 AM  
**To:** Tali Ashurov <TAshurov@davidjpowers.com>  
**Cc:** Will Burns <wburns@davidjpowers.com>; James Reyff <jreyff@illingworthrodkin.com>  
**Subject:** RE: Jefferson Union Staff Housing Project - Traffic Study

Hi Tali,

Thanks for the traffic info. Looking it over, can you ask the traffic consultants for the project daily trip generation rate. They only provided peak hours.

I would estimate the AQ report could be ready in about 3 weeks once we get this information.

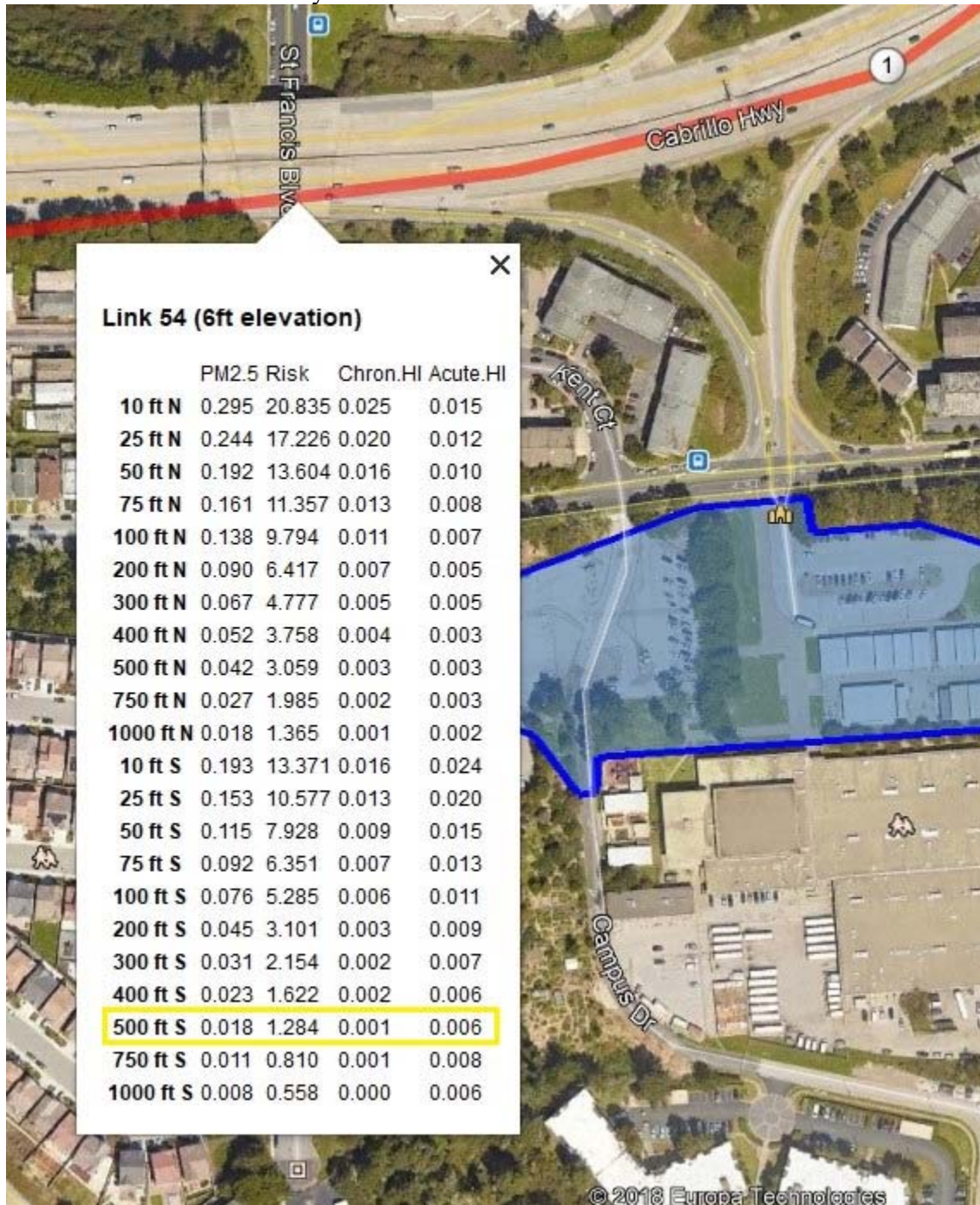
Mrs. Casey Divine  
Illingworth & Rodkin, Inc.  
429 E. Cotati Ave  
Cotati, CA 94931  
Phone: (707) 794-0400 x103  
Fax: (707) 794-0405

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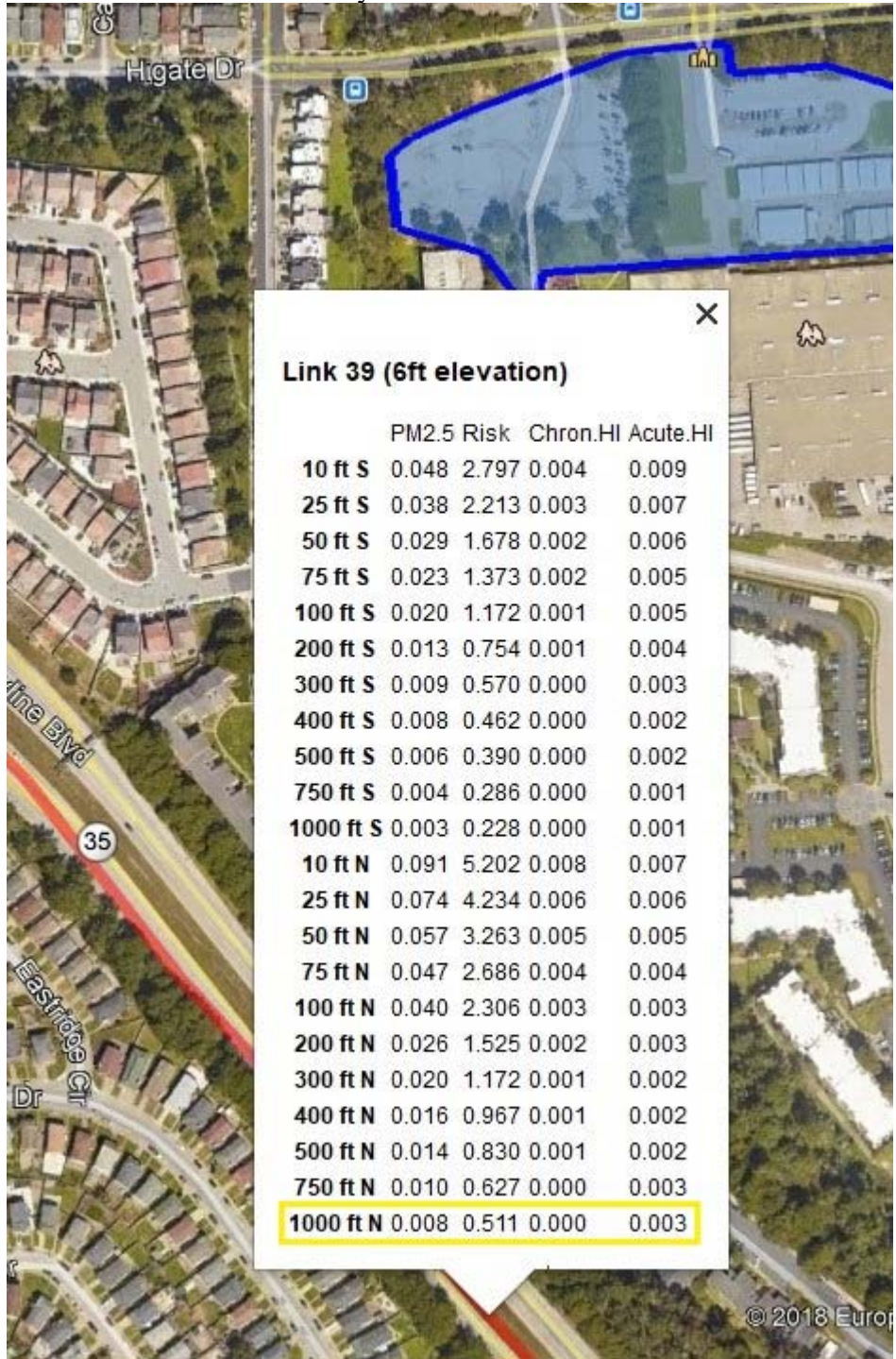
**From:** Tali Ashurov <TAshurov@davidjpowers.com>  
**Sent:** Monday, May 27, 2019 5:06 PM

# Attachment 3: Screening Community Risk Calculations

## State Route 1 Risk Summary



# State Route 35 Risk Summary



# Roadway Screening Analysis Calculator

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

## INSTRUCTIONS:

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

- County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.
- Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.
- Side of the Roadway: Identify on which side of the roadway the project is located.
- Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.
- Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

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

Notes and References listed below the Search Boxes

### Search Parameters

County

Roadway Direction

Side of the Roadway

Distance from Roadway  feet

Annual Average Daily Traffic (ADT)

### Results

## San Mateo County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

**8.95** (per million)

**Serramonte Blvd**

Cumulative plus project volumes from traffic report  
Data for San Mateo County based on meteorological data collected from San Mateo Sewage Treatment Plant in

Adjusted for 2015 OEHH  
and EMFAC2014 for 2018

**6.15**

(per million)

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

### Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 Cal3qhc air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHH toxicity values adopted in 2013.

# Roadway Screening Analysis Calculator

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

## INSTRUCTIONS:

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

- County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.
- Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.
- Side of the Roadway: Identify on which side of the roadway the project is located.
- Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.
- Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

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

Notes and References listed below the Search Boxes

### Search Parameters

County

Roadway Direction

Side of the Roadway

Distance from Roadway  feet

Annual Average Daily Traffic (ADT)

### Results

## San Mateo County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

**0.41** (per million)

**Callan Blvd**

Cumulative plus project volumes from traffic report  
Data for San Mateo County based on meteorological data collected from San Mateo Sewage Treatment Plant in

Adjusted for 2015 OEHH  
and EMFAC2014 for 2018

**0.28**

(per million)

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

### Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 Cal3qhc air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHH toxicity values adopted in 2013.

# Roadway Screening Analysis Calculator

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

## INSTRUCTIONS:

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

- County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.
- Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.
- Side of the Roadway: Identify on which side of the roadway the project is located.
- Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.
- Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

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

Notes and References listed below the Search Boxes

### Search Parameters

County:

Roadway Direction:

Side of the Roadway:

Distance from Roadway:  feet  
Const MEI

Annual Average Daily Traffic (ADT):

### Results

## San Mateo County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

**12.16** (per million)

**Serramonte Blvd**

Cumulative plus project volumes from traffic report  
Data for San Mateo County based on meteorological data collected from San Mateo Sewage Treatment Plant in

Adjusted for 2015 OEHH  
and EMFAC2014 for 2018

**8.36**

(per million)

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

### Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 Cal3qhc air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHH toxicity values adopted in 2013.

# Roadway Screening Analysis Calculator

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

## INSTRUCTIONS:

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

- County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.
- Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.
- Side of the Roadway: Identify on which side of the roadway the project is located.
- Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.
- Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

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

Notes and References listed below the Search Boxes

### Search Parameters

County:

Roadway Direction:

Side of the Roadway:

Distance from Roadway:  feet

Annual Average Daily Traffic (ADT):

Const MEI

### Results

## San Mateo County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

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

Cancer Risk

**0.41** (per million)

**Callan Blvd**

Cumulative plus project volumes from traffic report  
Data for San Mateo County based on meteorological data collected from San Mateo Sewage Treatment Plant in

Adjusted for 2015 OEHH  
and EMFAC2014 for 2018

**0.28**

(per million)

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

### Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 Cal3qhc air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHH toxicity values adopted in 2013.



# BAY AREA AIR QUALITY MANAGEMENT DISTRICT

## Risk & Hazard Stationary Source Inquiry Form

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

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

[Click here for guidance on conducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.](#)

[Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.](#)

**Table A: Requester Contact Information**

Date of Request	5/22/2019
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	<a href="mailto:cdivine@illingworthrodkin.com">cdivine@illingworthrodkin.com</a>
Project Name	Jefferson HS Staff Housing
Address	699 Serramonte Boulevard
City	Daly City
County	San Mateo
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	122du
Comments:	Emission data for 13900 needed

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

1. Complete all the contact and project information requested in **Table A**. Incomplete forms will not be processed. Please include a project site map.
2. Download and install the free program Google Earth, <http://www.google.com/earth/download/ge/>, and then download the county specific Google Earth stationary source application files from the District's website, <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>. The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table. Use the Google Earth address search box to confirm the source's address location. Please report any mapping errors to **Table B**.
5. List the stationary source information in the blue section only.
6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSAs) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSAs values are presented, these values have already been modeled and cannot be adjusted further.
7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

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

Submit forms, maps, and questions to Areana Flores at 415-749-4616, or [aflores@baaqmd.gov](mailto:aflores@baaqmd.gov)

**Table B: Google Earth data**

Table B: Google Earth data										PROJECT SITE				
Distance from Receptor (feet) or MEI <sup>1</sup>	Facility Name	Address	Plant No.	Cancer Risk <sup>2</sup>	Hazard Risk <sup>2</sup>	PM <sub>2.5</sub> <sup>2</sup>	Source No. <sup>3</sup>	Type of Source <sup>4</sup>	Fuel Code <sup>5</sup>	Status/Comments	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
200	Comcast Communications	699A Serramonte Blvd	13900	21.8483028	0.04945	--		Generator		Emissions attached. Use Health Risk Calculator. Max throughput for 2018: 7,720,000 Gallons/year	0.41	9.0	0.020	#VALUE!
800	KNK Petroleum Inc dba Triton Gas	4698 Callan Blvd	111517	9.98056989	0.0491681	--		GDF			0.02	0.2	0.001	#VALUE!

**Footnotes:**

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

Date last updated:  
03/13/2018

**Construction MEI**

Distance from Receptor (feet) or MEI <sup>1</sup>	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
520	0.10	2.2	0.005	#VALUE!
865	0.02	0.2	0.001	#VALUE!

## Attachment 4: Construction Health Risk Calculations

West - JUHSD Staff Housing, Daly City, CA

### DPM Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions			Modeled Area (m <sup>2</sup> )	DPM Emission Rate (g/s/m <sup>2</sup> )
				(lb/yr)	(lb/hr)	(g/s)		
2020-2021	Construction	0.1631	CON_DPM	326.3	0.09932	1.25E-02	12927.3	9.68E-07

*Construction Hours*

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

West - JUHSD Staff Housing, Daly City, CA

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

Construction Year	Activity	Area Source	Area (ton/year)	PM2.5 Emissions			Modeled Area (m <sup>2</sup> )	PM2.5 Emission Rate (g/s/m <sup>2</sup> )
				(lb/yr)	(lb/hr)	(g/s)		
2020-2021	Construction	CON_FUG	0.04169	83.4	0.02538	3.20E-03	12,927.3	2.47E-07

*Construction Hours*

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

### DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions			Modeled Area (m <sup>2</sup> )	DPM Emission Rate (g/s/m <sup>2</sup> )
				(lb/yr)	(lb/hr)	(g/s)		
2020-2021	Construction	0.0191	CON_DPM	38.2	0.01163	1.47E-03	12927.3	1.13E-07

*Construction Hours*

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

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

Construction Year	Activity	Area Source	Area (ton/year)	PM2.5 Emissions			Modeled Area (m <sup>2</sup> )	PM2.5 Emission Rate (g/s/m <sup>2</sup> )
				(lb/yr)	(lb/hr)	(g/s)		
2020-2021	Construction	CON_FUG	0.01199	24.0	0.00730	9.20E-04	12,927.3	7.12E-08

*Construction Hours*

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

East - Parking, Daly City, CA

**DPM Emissions and Modeling Emission Rates - Unmitigated**

Construction		DPM	Area	DPM Emissions			Modeled	DPM
Year	Activity	(ton/year)	Source	(lb/yr)	(lb/hr)	(g/s)	Area	Emission
							(m <sup>2</sup> )	Rate
							(g/s/m <sup>2</sup> )	
2020-2021	Construction	0.0190	CON_DPM	38.0	0.01157	1.46E-03	11580.4	1.26E-07

*Construction Hours*

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

East - Parking, Daly City, CA

**PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated**

Construction		Area	PM2.5 Emissions			Modeled	PM2.5	
Year	Activity	Source	(ton/year)	(lb/yr)	(lb/hr)	(g/s)	Area	
							(m <sup>2</sup> )	Rate
							(g/s/m <sup>2</sup> )	
2020-2021	Construction	CON_FUG	0.01100	22.0	0.00670	8.44E-04	11,580.4	7.29E-08

*Construction Hours*

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

**DPM Construction Emissions and Modeling Emission Rates - With Mitigation**

Construction		DPM	Area	DPM Emissions			Modeled	DPM
Year	Activity	(ton/year)	Source	(lb/yr)	(lb/hr)	(g/s)	Area	Emission
							(m <sup>2</sup> )	Rate
							(g/s/m <sup>2</sup> )	
2020-2021	Construction	0.0018	CON_DPM	3.7	0.00111	1.40E-04	11580.4	1.21E-08

*Construction Hours*

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

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

Construction		Area	PM2.5 Emissions			Modeled	PM2.5	
Year	Activity	Source	(ton/year)	(lb/yr)	(lb/hr)	(g/s)	Area	
							(m <sup>2</sup> )	Rate
							(g/s/m <sup>2</sup> )	
2020-2021	Construction	CON_FUG	0.00254	5.1	0.00155	1.95E-04	11,580.4	1.68E-08

*Construction Hours*

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

**JUHSD Staff Housing, Daly City, CA - Construction Health Impact Summary**

**Maximum Impacts at MEI Location - Unmitigated**

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration ( $\mu\text{g}/\text{m}^3$ )
	Exhaust PM10/DPM ( $\mu\text{g}/\text{m}^3$ )	Fugitive PM2.5 ( $\mu\text{g}/\text{m}^3$ )	Infant/Child	Adult		
	2020-2021	0.1517	0.0483	27.0	0.4	0.03

**Maximum Impacts at MEI Location - With Mitigation**

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration ( $\mu\text{g}/\text{m}^3$ )
	Exhaust PM10/DPM ( $\mu\text{g}/\text{m}^3$ )	Fugitive PM2.5 ( $\mu\text{g}/\text{m}^3$ )	Infant/Child	Adult		
	2020-2021	0.0177	0.0138	3.1	0.1	0.004

**Maximum Impacts at IHSD, Inc., Serramonte Head Start Daycare - Unmitigated**

Construction Year	Unmitigated Emissions				
	Maximum Concentrations		Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ( $\mu\text{g}/\text{m}^3$ )
	Exhaust PM2.5/DPM ( $\mu\text{g}/\text{m}^3$ )	Fugitive PM2.5 ( $\mu\text{g}/\text{m}^3$ )			
2020-2021	0.1563	0.0916	25.7	0.03	0.24

**Maximum Impacts at IHSD, Inc., Serramonte Head Start Daycare - With Mitigation**

Construction Year	Unmitigated Emissions				
	Maximum Concentrations		Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ( $\mu\text{g}/\text{m}^3$ )
	Exhaust PM2.5/DPM ( $\mu\text{g}/\text{m}^3$ )	Fugitive PM2.5 ( $\mu\text{g}/\text{m}^3$ )			
2020-2021	0.0181	0.0262	3.0	0.00	0.04

**JUHSD Staff Housing, Daly City, CA - Construction Impacts - Without Mitigation  
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction  
Impacts at Off-Site MEI Location - 1.5 meter receptor height**

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

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

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

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

Values

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum	
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor		Fugitive	Total
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	2020-2021	0.1517	10	2.06	2020-2021	0.1517	-	-		
1	1	0 - 1	2020-2021	0.1517	10	24.92	2020-2021	0.1517	1	0.44	0.0483	0.200
2	1	1 - 2	0	0.0000	10	0.00		0.0000	1	0.00		
3	1	2 - 3	0	0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4	0	0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5	0	0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6	0	0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7	0	0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8	0	0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9	0	0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10	0	0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11	0	0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12	0	0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13	0	0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14	0	0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15	0	0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16	0	0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17	0	0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18	0	0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19	0	0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20	0	0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21	0	0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22	0	0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23	0	0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24	0	0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25	0	0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26	0	0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27	0	0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28	0	0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29	0	0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30	0	0.0000	1	0.00		0.0000	1	0.00		
<b>Total Increased Cancer Risk</b>						<b>27.0</b>				<b>0.44</b>		

\* Third trimester of pregnancy

**JUHSD Staff Housing, Daly City, CA - Construction Impacts - Without Mitigation**  
**Maximum DPM Cancer Risk and PM2.5 Calculations From Construction**  
**Impacts at Off-Site MEI Location - 4.5 meter receptor height**

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

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

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

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

**Values**

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum	
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor		Fugitive PM2.5	Total PM2.5
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	2020-2021	0.1482	10	2.02	2020-2021	0.1482	-	-		
1	1	0 - 1	2020-2021	0.1482	10	24.35	2020-2021	0.1482	1	0.43	0.0433	0.1915
2	1	1 - 2	0	0.0000	10	0.00	0.0000	1	0.00			
3	1	2 - 3	0	0.0000	3	0.00	0.0000	1	0.00			
4	1	3 - 4	0	0.0000	3	0.00	0.0000	1	0.00			
5	1	4 - 5	0	0.0000	3	0.00	0.0000	1	0.00			
6	1	5 - 6	0	0.0000	3	0.00	0.0000	1	0.00			
7	1	6 - 7	0	0.0000	3	0.00	0.0000	1	0.00			
8	1	7 - 8	0	0.0000	3	0.00	0.0000	1	0.00			
9	1	8 - 9	0	0.0000	3	0.00	0.0000	1	0.00			
10	1	9 - 10	0	0.0000	3	0.00	0.0000	1	0.00			
11	1	10 - 11	0	0.0000	3	0.00	0.0000	1	0.00			
12	1	11 - 12	0	0.0000	3	0.00	0.0000	1	0.00			
13	1	12 - 13	0	0.0000	3	0.00	0.0000	1	0.00			
14	1	13 - 14	0	0.0000	3	0.00	0.0000	1	0.00			
15	1	14 - 15	0	0.0000	3	0.00	0.0000	1	0.00			
16	1	15 - 16	0	0.0000	3	0.00	0.0000	1	0.00			
17	1	16-17	0	0.0000	1	0.00	0.0000	1	0.00			
18	1	17-18	0	0.0000	1	0.00	0.0000	1	0.00			
19	1	18-19	0	0.0000	1	0.00	0.0000	1	0.00			
20	1	19-20	0	0.0000	1	0.00	0.0000	1	0.00			
21	1	20-21	0	0.0000	1	0.00	0.0000	1	0.00			
22	1	21-22	0	0.0000	1	0.00	0.0000	1	0.00			
23	1	22-23	0	0.0000	1	0.00	0.0000	1	0.00			
24	1	23-24	0	0.0000	1	0.00	0.0000	1	0.00			
25	1	24-25	0	0.0000	1	0.00	0.0000	1	0.00			
26	1	25-26	0	0.0000	1	0.00	0.0000	1	0.00			
27	1	26-27	0	0.0000	1	0.00	0.0000	1	0.00			
28	1	27-28	0	0.0000	1	0.00	0.0000	1	0.00			
29	1	28-29	0	0.0000	1	0.00	0.0000	1	0.00			
30	1	29-30	0	0.0000	1	0.00	0.0000	1	0.00			
<b>Total Increased Cancer Risk</b>						<b>26.4</b>				<b>0.43</b>		

\* Third trimester of pregnancy

**IHSD Serramonte Head Start, Daly City, CA - Construction Impacts - Without Mitigation  
 Maximum DPM Cancer Risk Calculations From Construction  
 Daycare - 1.0 meters - Child Exposure**

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

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

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

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

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	861	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Infant/Child - Exposure Information			Child Cancer Risk (per million)	Maximum	
		DPM Conc (ug/m3)		Age* Sensitivity Factor		Fugitive	Total
		Year	Annual			PM2.5	PM2.5
1	1	2020-2021	0.15626	10	25.7	0.0916	0.242

\* Students assumed to be from 0 to 2 years of age

**JUHSD, Daly City, CA - Construction Impacts - Without Mitigation  
Maximum DPM Cancer Risk Calculations From Construction  
Impacts at Off-Site High School Location - 1.5 meter receptor height**

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

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

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

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

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	861	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Child - Exposure Information			Child Cancer Risk (per million)	Maximum	
		DPM Conc (ug/m3)		Age* Sensitivity Factor		Fugitive PM2.5	Total PM2.5
		Year	Annual				
1	1	2020-2021	0.14000	3	3.6	0.0593	0.1993

\* Students assumed to be from 2 to 16 years of age

**JUHSD Staff Housing, Daly City, CA - Construction Impacts - With Mitigation  
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction  
Impacts at Off-Site MEI Location - 1.5 meter receptor height**

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

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

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

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

**Values**

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum	
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor		Fugitive PM2.5	Total PM2.5
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	2020-2021	0.0177	10	2020-2021	0.0177	-	-			
1	1	0 - 1	2020-2021	0.0177	10	2020-2021	0.0177	1	0.05	0.0138	0.0315	
2	1	1 - 2	0	0.0000	10		0.0000	1	0.00			
3	1	2 - 3	0	0.0000	3		0.0000	1	0.00			
4	1	3 - 4	0	0.0000	3		0.0000	1	0.00			
5	1	4 - 5	0	0.0000	3		0.0000	1	0.00			
6	1	5 - 6	0	0.0000	3		0.0000	1	0.00			
7	1	6 - 7	0	0.0000	3		0.0000	1	0.00			
8	1	7 - 8	0	0.0000	3		0.0000	1	0.00			
9	1	8 - 9	0	0.0000	3		0.0000	1	0.00			
10	1	9 - 10	0	0.0000	3		0.0000	1	0.00			
11	1	10 - 11	0	0.0000	3		0.0000	1	0.00			
12	1	11 - 12	0	0.0000	3		0.0000	1	0.00			
13	1	12 - 13	0	0.0000	3		0.0000	1	0.00			
14	1	13 - 14	0	0.0000	3		0.0000	1	0.00			
15	1	14 - 15	0	0.0000	3		0.0000	1	0.00			
16	1	15 - 16	0	0.0000	3		0.0000	1	0.00			
17	1	16-17	0	0.0000	1		0.0000	1	0.00			
18	1	17-18	0	0.0000	1		0.0000	1	0.00			
19	1	18-19	0	0.0000	1		0.0000	1	0.00			
20	1	19-20	0	0.0000	1		0.0000	1	0.00			
21	1	20-21	0	0.0000	1		0.0000	1	0.00			
22	1	21-22	0	0.0000	1		0.0000	1	0.00			
23	1	22-23	0	0.0000	1		0.0000	1	0.00			
24	1	23-24	0	0.0000	1		0.0000	1	0.00			
25	1	24-25	0	0.0000	1		0.0000	1	0.00			
26	1	25-26	0	0.0000	1		0.0000	1	0.00			
27	1	26-27	0	0.0000	1		0.0000	1	0.00			
28	1	27-28	0	0.0000	1		0.0000	1	0.00			
29	1	28-29	0	0.0000	1		0.0000	1	0.00			
30	1	29-30	0	0.0000	1		0.0000	1	0.00			
<b>Total Increased Cancer Risk</b>						<b>3.1</b>			<b>0.05</b>			

\* Third trimester of pregnancy

**IHSD Serramonte Head Start, Daly City, CA - Construction Impacts - With Mitigation  
 Maximum DPM Cancer Risk Calculations From Construction  
 Daycare - 1.0 meters - Child Exposure**

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

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

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

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

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	861	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Infant/Child - Exposure Information			Child Cancer Risk (per million)	Maximum	
		DPM Conc (ug/m3)		Age* Sensitivity Factor		Fugitive PM2.5	Total PM2.5
		Year	Annual				
1	1	2020-2021	0.01811	10	3.0	0.0262	0.043

\* Students assumed to be from 0 to 2 years of age