CYPRESS POINT AFFORDABLE HOUSING PROJECT AIR QUALITY & GREENHOUSE GAS EMISSIONS ASSESSMENT

Moss Beach, California

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Introduction

The purpose of this report is to address air quality, toxic air contaminant (TAC), and greenhouse gas (GHG) emission impacts associated with the proposed residential project located northeast of the intersection of Carlos street and Sierra Street in Moss Beach. The project proposes to develop 71 affordable housing units, consisting of 18 two-story buildings holding 3 to 4 units each and a one-story community building. Air quality and GHG impacts could occur due to temporary construction emissions and as a result of direct and indirect emissions from new uses. Also, the localized community risk impacts from diesel emissions of project construction equipment and nearby TACs (such as emergency backup generators and roadway traffic) are addressed. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).

Setting

The project is located in San Mateo County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards for criteria air pollutants (defined below) have been established at the federal level under the Clean Air Act, and at the state level under the California Clean Air Act. In addition, BAAQMD has established significance thresholds for TACs, discussed below.

Criteria Air Pollutants

The Clean Air Act and California Clean Air Act authorize the Environmental Protection Agency (EPA) and California Air Resources Board (CARB) respectively to establish standards for a set of six pollution constituents that contribute to chronic and acute health impacts. These criteria pollutants include: ground-level ozone, oxides of nitrogen (NO_X), particulate matter (PM), carbon monoxide, sulfur dioxide, and lead. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$), which are described below.

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

Particulate matter is another problematic air pollutant in the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

TACs are a broad class of compounds known to cause sickness or death (usually because they cause cancer). 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. While not a TAC, fine particulate matter ($PM_{2.5}$) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the California Environmental Quality Act (CEQA).

Diesel exhaust is the predominant TAC in air in urban areas and is estimated to contribute more than eighty-five percent of a 2006 inventory of Bay Area cancer risk from TACs.[1] According to CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB has adopted and implemented a number of regulations to reduce emissions of DPM from stationary and mobile sources. Several of these regulatory programs affect medium- and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles, including those used at construction sites.[2] The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

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. Land uses that may contain a high concentration of these sensitive population groups include residential neighborhoods, hospitals, daycare facilities, elder care facilities, and schools.

Sensitive receptors (residences) are located adjacent to the north, east and south of the project site, with additional residences located southwest of the site, as shown in Figure 1. The

[1] BAAQMD, 2014. *Air Quality and Health in Bay Area Communities*. April.
[2] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: June 9, 2015.

maximally exposed individual (MEI) is the receptor exposed to the maximum excess cancer risk and annual $PM_{2.5}$ concentration.

County of San Mateo Zoning Ordinance and Local Coastal Program

There are no air quality policies contained in the County's Local Coastal Program Policies[3] or Zoning Ordinance that are applicable to the proposed project.

California Coastal Act

California Coastal Act Section 30253(c) requires that new development in the Coastal Zone shall "be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development." In this case, the air pollution control district is BAAQMD.

Greenhouse Gases

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

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

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

An expanding body of scientific research supports the theory that global warming is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. California's climate

[3] County of San Mateo, 2013. *Local Coastal Program Policies*.

and several other natural resources and processes within California have and will continue to be adversely affected by the global warming trend, including: increased precipitation; sea level rise; increased coastal flooding; saltwater intrusion; degradation of wetlands; and adverse impacts on plant and animal species. The effects of global climate change that could adversely affect human health include: increases in extreme heat events and heat-related stress; increases in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

Methodology

The emissions of criteria air pollutants resulting from project construction and operations (long-term habitation), and emissions of GHG from project operations are addressed qualitatively in this analysis, using screening criteria provided by BAAQMD based on project type and size. While they are not significance thresholds, BAAQMD has developed these screening criteria to provide lead agencies with a method to develop a conservative indication of whether a project could result in potentially significant air quality impacts. If the screening criteria are met, a lead agency does not need to perform a quantified assessment of criteria air pollutant emissions. The screening criteria used are discussed under Impact 2 in *Impacts and Project Measures* below.

Community risk impacts resulting from construction of the proposed project are evaluated by computing estimated construction DPM and fugitive dust emissions using the California Emissions Estimator Model (CalEEMod 2016.3.2). Those emissions are then input to the EPA ISCST3 dispersion model to determine concentrations at nearby sensitive receptors. Finally, State of California Office of Environmental Health Hazard Assessment (OEHHA) and CARB health risk modeling methodology, as recommended by BAAQMD, are used to predict community risk values at the receptors, which are evaluated against the BAAQMD-recommended significance thresholds contained in Table 1. In addition, though not required by the California Environmental Quality Act (CEQA)[4], the potential impact of non-project pollutant sources (i.e., roadway and stationary sources) on project residents is addressed using BAAQMD screening tools.

Significance Thresholds

The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency [EPA]) oversees regional air district activities and regulates air quality at the State level. The BAAQMD published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate the air quality impacts of projects.[5]

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[4] In December 2015, the Supreme Court determined that an analysis of the impacts of the environment on a project – known as "CEQA-in-reverse" – is only required under two limited circumstances: (1) when a statute provides an express legislative directive to consider such impacts; and (2) when a proposed project risks exacerbating environmental hazards or conditions that already exist (Cal. Supreme Court Case No. S213478). Though not necessarily a CEQA issue, the effect of existing TAC sources on future project receptors (residences) is analyzed to comply with the Clean Air Plan key goal of reducing population TAC exposure and protecting public health in the Bay Area.

[5] BAAQMD, 2017. *BAAQMD CEQA Air Quality Guidelines*. May.

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. BAAQMD's adoption of significance thresholds, as contained in the 2011 CEQA Air Quality Guidelines, was challenged in court and ultimately the California Supreme Court upheld the thresholds. In May 2017, BAAQMD published a new version of its CEQA Guidelines, which includes revisions that address the California Supreme Court's decision. The BAAQMD May 2017 CEQA Guidelines are used in this analysis (Table 1). In addition, Table 2 contains the BAAQMD screening sizes for low-rise apartments. The screening criteria are not thresholds of significance, but may be used by a lead agency as a conservative indication of whether a proposed project can be considered small enough that analysis of air quality or GHG emissions are not required.

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_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)**	
Excess Cancer Risk	>10 per one million	>100 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual $PM_{2.5}$	>0.3 µg/m^3	>0.8 µg/m^3	
Greenhouse Gas Emissions			
GHG Annual Emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons or 4.6 metric tons per capita		

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

Table 2. BAAQMD Screening Sizes for Low-Rise Apartments

Land Use	Operational Criteria Pollutant Screening Size	Operational GHG Screening Size	Construction Screening Size
Low-Rise Apartment	451 dwelling units	78 dwelling units	240 dwelling units

Impacts and Mitigation Measures

Impact 1: Conflict with or obstruct implementation of the applicable air quality plan? ***Less than significant.***

The most recent clean air plan covering the project site is the *2017 Clean Air Plan* adopted by BAAQMD in April 2017.[6] The proposed project would not conflict with the latest Clean Air planning efforts since 1) the project would have emissions below the BAAQMD thresholds (see Impact 2). The project is too small to exceed any of the significance thresholds and, thus, it is not required to incorporate the project-specific transportation control measures listed in the latest Clean Air Plan. This would be a less-than-significant impact and no mitigation is required.

Impact 2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable State or federal ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? ***Less than significant with mitigation incorporated.***

The Bay Area is considered a non-attainment area for ground-level ozone and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM_{10} under the California Clean Air Act, but not the federal act. The area has attained both State and federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors (see Table 1). These thresholds are for ozone precursor pollutants (ROG and NOx), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

In the 2017 update to the CEQA Air Quality Guidelines,[7] BAAQMD identifies screening criteria for the sizes of land use projects that could result in significant air pollutant emissions. For construction impacts, the screening project size for low-rise apartments is identified as 240 dwelling units. For operational impacts, the screening size for apartments is identified at 451 dwelling units. Since the project proposes to develop up to 71 dwelling units, project emissions would be below the BAAQMD significance thresholds. No stationary sources of air pollution (e.g., back-up generators) have been identified with this project. Therefore, project construction and operations emissions would be less than significant.

[6] BAAQMD, 2017. *Spare the Air Cool the Climate A Blueprint for Clean Air and Climate Protection in the Bay Area: Final 2017 Clean Air Plan*. April 19.

[7] BAAQMD, 2017. *CEQA Air Quality Guidelines*. May.

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

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

During any construction period ground disturbance, the applicant shall ensure that the project contractor implements measures to control dust and exhaust. MidPen will include terms in all construction contracts related to the Cypress Point project that require contractors to implement the following best management practices:

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

Implementation of Mitigation Measure AQ-1 would ensure that the recommended BAAQMD best management practices are instated, which the BAAQMD considers sufficient to reduce this impact to a level of less than significant.

Impact 3: Violate any air quality standard or contribute substantially to an existing or projected air quality violation? ***Less than significant with mitigation incorporated.***

Particulate Matter and Ozone. As discussed under Impact 2, the project would have emissions less than the BAAQMD screening size for evaluating impacts related to ozone and particulate matter. As discussed above, construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD *CEQA Air Quality Guidelines* consider these impacts to be less than significant if best management practices are implemented to reduce these emissions. This impact is considered significant because appropriate control measures are not part of the project. With implementation of *Mitigation Measure AQ-1, described above, which would implement BAAQMD-recommended best management practices, this impact is considered less than significant*.

Carbon Monoxide. Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for the standard. The highest measured level over any 8-hour averaging period during the last 3 years in the Bay Area is less than 3.0 parts per million (ppm), compared to the ambient air quality standard of 9.0 ppm. Intersections affected by the project would have traffic volumes less than 3,000 vehicles per hour, which is much less than the BAAQMD screening criteria and, thus, would not cause a violation of an ambient air quality standard or have a considerable contribution to cumulative violations of these standards.[8]

[8] For a land-use project type, the BAAQMD CEQA Air Quality Guidelines state that a proposed project would result in a less than significant impact to localized carbon monoxide concentrations if the project would not increase traffic at affected intersections with more than 44,000 vehicles per hour.

Impact 4: Expose sensitive receptors to substantial pollutant concentrations as defined by BAAQMD? ***Less than significant with mitigation incorporated.***

While criteria pollutants (such as particulate matter (PM_{10} and $PM_{2.5}$) are a concern at the regional level, community risk impacts from TACs and annual $PM_{2.5}$ exposure to nearby sensitive receptors are also a localized concern. While the discussion under Impacts 1-3 above addressed PM at the regional level, this impact addresses PM at the localized level. Impacts related to increased community risk can occur either by introducing new sensitive receptors, such as residences, in proximity to existing sources of TACs or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity.

The BAAQMD CEQA Air Quality Guidelines recommends using a 1,000-foot screening radius around a project site for purposes of identifying community health risk from siting a new sensitive receptor or a new source of TACs.

Operation of the project is not expected to cause any localized emissions that could expose sensitive receptors to unhealthy air pollutant levels, because no stationary sources of TACs, such as generators, are proposed as part of the project. However, the proposed project would introduce new sensitive receptors to the area in the form of future residences, which could be exposed to existing sources of TACs. Project-related construction activity would temporarily generate dust and equipment exhaust that could affect nearby sensitive receptors that include residences.

This analysis therefore evaluates the following community risk impacts:

- Exposure of project residents to existing mobile sources of TACs (Impact 4a);
- Exposure of project residents to existing stationary sources of TACs (Impact 4b);
- Exposure of nearby existing residences to project construction-related TACs (Impact 4c).

BAAQMD thresholds that address both the impact of single and cumulative TAC sources upon projects that include new sensitive receptors (see Table 1) are used in this analysis. *Attachment 1* includes the detailed community risk modeling methodology.

The exposure of residents to substantial air pollutant sources is analyzed below, beginning with an analysis of impacts on project residents from existing mobile and stationary sources, followed by an analysis of the impacts of project construction on existing sensitive receptors, and finally an analysis of the cumulative exposure of the maximally exposed individual.

Impact 4a: Impacts on Project Residents from Existing Sources

Mobile Sources

BAAQMD provides a Highway Screening Analysis tool that uses Google Earth to identify estimated risk and hazard impacts from highways throughout the Bay Area. Cancer risk, chronic and acute hazard index (HI), and annual $PM_{2.5}$ values at various distances are estimated for different highway segments (as described in detail in *Attachment 1*). The tool uses the average annual daily traffic (AADT) count, fleet mix and other modeling parameters specific to that segment of the highway. Impacts from traffic on SR-1 (Link 41, at 6 feet of elevation), which is

150 feet or greater north of the project site, were identified using this tool. The estimated cancer risk was adjusted using a factor of 1.3744 to account for new OEHHA guidance (see *Attachment 1*). This factor was provided by BAAQMD for use with their CEQA screening tools.[9] The cancer risk at the project site was found to be 5.9 in a million, which is below the significance threshold of 10 in one million. The $PM_{2.5}$ concentration was found to be 0.06 µg/m^3, which is below the significance threshold of 0.3 µg/m^3, and the HI is 0.01, which is below the significance threshold of 1.0. This would be a less-than-significant impact and no mitigation is required.

Stationary Sources

The locations of any permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*, a mapping tool that uses Google Earth. This tool identified the location of one stationary source and its estimated risk and hazard screening values. The 2012 estimated risk values were adjusted using the factor of 1.3744 described above under *Mobile Sources*. The risk values were then adjusted with the appropriate distance multiplier values provided by BAAQMD. The values reported below reflect the above adjustments:

- Plant 14546, which is an emergency back-up generator operated by Sewer Authority Mid-Coastside, located at 16th Street and Cabrillo Highway, is approximately 450 feet west of the project site. At BAAQMD's direction, risk and PM2.5 concentrations from the facility were adjusted based on BAAQMD's Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines. According to the BAAQMD screening data (and adjusted for the 450-foot distance and 2015 OEHHA methodology), this facility would result in an adjusted lifetime cancer risk of 2.9 in one million, PM2.5 concentration of <0.01 µg/m3, and <0.01 HI, which would all be below BAAQMD thresholds of significance (Table 1). This would be a less-than-significant impact and no mitigation is required.

Combined Operational TAC Sources

Community risk impacts on project residents from combined sources are reported in Table 3. As shown in Table 3, risk from combined operational TAC sources at the project site would be below the BAAQMD cumulative thresholds of 100 in one million and 0.8 µg/m^3, respectively. Hazard index (HI) would also be cumulatively less than significant. This would be a less-than-significant impact and no mitigation is required.

Table 3. Impacts from Combined TAC Sources at Project Site

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration (µg/m^3)
SR-1/Cabrillo Highway	5.9	0.01	0.06
Plant 14546, Sewer Authority Mid-Coastside 16th Street and Cabrillo Highway	2.9	<0.01	<0.01
Combined Total	8.8	<0.01	<0.07
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

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

Impact 4b: Impacts on Existing Sensitive Receptors from Project Construction Activity

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

Construction equipment and associated heavy-duty truck traffic also generates diesel exhaust, which is a known TAC[10]. Construction exhaust emissions may pose community risks for sensitive receptors such as nearby residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A community risk assessment of the project construction activities was conducted to evaluate potential health effects on sensitive receptors at these nearby residences from construction emissions of DPM and $PM_{2.5}$. The closest sensitive receptors to the project site are located adjacent to the north, east and south sides of the project site (see Figure 1). Emissions and dispersion modeling was conducted to predict the off-site DPM concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Methodology

Construction period emissions were modeled using the California Emissions Estimator Model, Version 2016.3.2 (CalEEMod). A build-out construction schedule including equipment usage assumptions was developed based on CalEEMod defaults for a project of this type and size. The proposed project land uses were input into CalEEMod, which included 71 dwelling units entered as "Condo/Townhouse," and 161 spaces entered as "Parking Lot"[11] on 5.8 acres of the 10.875-acre site. It was assumed that cut and fill at the site would be balanced, so that there would not be any substantial amount of soil hauling either on or off-site. Construction emissions were then input to the U.S. EPA ISCST3 dispersion model with project and receptor coordinates and meteorological data. DPM and $PM_{2.5}$ concentrations at modeled receptor locations were then used to estimate community risk impacts (cancer risk, annual $PM_{2.5}$ concentration and hazard index) from project construction using the detailed methodology contained in *Attachment 1*.

The CalEEMod model estimated total annual PM_{10} exhaust emissions (assumed to be DPM) from off-road construction equipment and from on-road vehicles (haul truck travel during demolition, worker travel, and vendor deliveries during construction). An average trip length of 0.5 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

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

[11] The proposed project was subsequently revised to reduce the number of parking places, so this analysis represents an overstatement of the emissions of the proposed project.

the construction site. Total emissions of PM_{10} exhaust from all stages of project construction were estimated to be 0.217 tons (434 pounds). Total emissions of fugitive $PM_{2.5}$ dust emissions from all stages of project construction were estimated to be 210 pounds.

Next, annual DPM and $PM_{2.5}$ concentrations at neighboring residences from construction activities during the expected 2018 – 2019 construction period were calculated using the U.S. EPA ISCST3 dispersion model. The ISCST3 modeling used two separate area pollution sources[12] to represent different areas of on-site construction activities. Emission rates for two area sources were used to represent the on-site construction emissions, one for exhaust emissions and one for fugitive dust emissions. To represent the construction equipment exhaust emissions, an emission release height of 6 meters (19.7 feet) was used for the area source. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height that the hot exhaust plume will rise above the exhaust pipes. For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 2 meters (6.6 feet) was used for the area source. Emissions from the construction equipment and on-road vehicle travel were distributed amongst the modeled area sources. Construction emissions were modeled as occurring daily between 7 a.m. to 4 p.m., when the majority of construction activity would occur. The modeling used a 5-year meteorological data set (2001-2005) from a meteorological monitoring station in Fort Funston, San Francisco to determine wind patterns. These data were prepared for use with the ISCST3 model by BAAQMD and are the most recent and available data from the Air District.

DPM and $PM_{2.5}$ concentrations were then calculated at nearby sensitive receptor locations. Receptor heights of 1.5 meters (4.9 feet) and 4.5 meters (14.8 feet) were used to represent the breathing heights for residences.

Cancer Risk

Figure 1 shows the locations where the maximum-modeled DPM and $PM_{2.5}$ concentrations occurred. The maximum concentrations occurred at a residence adjacent to the northern boundary of the project site at the 1.5-meter receptor height. Using the maximum annual modeled DPM concentrations, the maximum increased cancer risk at the location of the maximally exposed individual (MEI) was calculated using BAAQMD-recommended methods. The cancer risk calculations are based on applying the BAAQMD recommended age sensitivity factors to the TAC concentrations. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. BAAQMD-recommended exposure parameters were used for the cancer risk calculations, as described in *Attachment 1*. To be conservative, infant and adult exposures were assumed to occur at all residences through the entire construction period.

Results of this assessment indicate that the maximum increased residential cancer risks would be 45.9 in one million for an infant exposure and 0.8 in one million for an adult exposure. The maximum residential excess cancer risk would be above the significance threshold of 10.0 in one

[12] Area sources are used to represent conditions where emissions are spread out over a wide geographical area, as opposed to point sources (such as boilers) which are emitted from a single exhaust stack, and mobile sources (such as vehicles) which emit pollutants as they travel along roadways.

million, so this impact would be significant. *Implementation of Mitigation Measures AQ-1 (described above) and AQ-2 (described below) would reduce this impact to less than significant.*

Annual $PM_{2.5}$ Concentration

The maximum-modeled annual $PM_{2.5}$ concentration, which is based on combined exhaust and fugitive dust emissions, was 0.41 $\mu g/m^3$. This maximum annual $PM_{2.5}$ concentration would be above the BAAQMD significance threshold of greater than 0.3 $\mu g/m^3$. The location of the receptor with the maximum $PM_{2.5}$ concentration is at the same as where the maximum TAC impact would occur, and is shown in Figure 1. *Implementation of Mitigation Measures AQ-1 (described above) and Mitigation Measure AQ-2 (described below) would reduce this impact to less than significant.*

Non-Cancer Hazards

The maximum modeled annual residential DPM concentration (i.e., from construction exhaust) was 0.16 $\mu g/m^3$. The maximum computed HI based on this DPM concentration was 0.03, which is lower than the BAAQMD significance criterion of a HI greater than 1.0. This would be a less-than-significant impact and no mitigation is required.

Cumulative Impact on Construction MEI

The cumulative impacts of TAC emissions from three sources (construction of the project, the nearby stationary source, and traffic on SR-1) on the construction MEI are summarized in Table 4. As shown in Table 4, the sum of impacts from combined sources at the construction MEI would be below the BAAQMD threshold, and therefore would be less than significant.

Table 4. Impacts from Combined Sources at Construction MEI

Source	Maximum Cancer Risk (per million)	$PM_{2.5}$ concentration ($\mu g/m^3$)	Hazard Index
Project Construction	45.9	0.41	0.03
SR-1/Cabrillo Highway	<5.9	<0.01	<0.06
Plant 14546, Sewer Authority Mid-Coastside 16th Street and Cabrillo Highway	<2.9	<0.01	<0.01
Combined Total	<54.7	<0.43	<0.10
BAAQMD Threshold – Combined Sources	*100*	*0.8*	*10.0*

Overall Community Risk Conclusion

The project would have a *significant* impact with respect to community risk caused by project construction activities, since estimated cancer risk and $PM_{2.5}$ concentrations are above the single-source thresholds of 10.0 per million for cancer risk and a concentration of greater than 0.3 $\mu g/m^3$ for annual $PM_{2.5}$. *Implementation of Mitigation Measures AQ-1 (described above) and Mitigation Measure AQ-2 (described below) would reduce this impact to less than significant. Attachment 2* includes the emission calculations and source information used in the modeling and the cancer risk calculations.

Mitigation Measure AQ-2: **Use Construction equipment that has low diesel particulate matter exhaust emissions.**

Prior to initiating any construction activities, MidPen or their contractors shall develop a plan demonstrating that the off-road equipment used to on-site to construct the project would achieve a fleet-wide average of at least 78 percent reduction in DPM emissions compared to the emissions calculated for the project without mitigation (434 pounds of DPM emissions). One feasible plan to achieve this reduction would include the following:

> All mobile diesel-powered off-road equipment larger than 25 hp and operating on the site for more than two days shall meet, at a minimum, U.S. EPA particulate matter emissions standards for Tier 4 engines or equivalent. Note that the construction contractor could use other measures to minimize construction period DPM emission to reduce the estimated cancer risk below the thresholds. The use of equipment that meets U.S. EPA Tier 2 standards and includes CARB-certified Level 3 Diesel Particulate Filters[13] or alternatively-fueled equipment (i.e., non-diesel) would meet this requirement. Other measures may be the use of added exhaust devices, or a combination of measures, provided that these measures are approved by the County and demonstrated to reduce community risk impacts to less than significant.

Effectiveness of Mitigation

The effectiveness of proposed mitigation measures to reduce impacts related to community risk was evaluated by comparing DPM and $PM_{2.5}$ emissions between the unmitigated and mitigated CalEEMod runs and estimating mitigated risk values based on the unmitigated ISCST3 run (see *Attachment 2* for the CalEEMod runs and risk calculations). With mitigation, the computed maximum increased lifetime residential cancer risk from construction, assuming infant exposure, would be 7.3 in one million or less, and the maximum annual $PM_{2.5}$ concentration would be than 0.1 $\mu g/m^3$. The cancer risk would be below the BAAQMD threshold of 10 in one million for cancer risk and the annual $PM_{2.5}$ concentration would be below the BAAQMD threshold of 0.3 $\mu g/m^3$. *After implementation of these recommended measures, the project would have a less-than-significant impact with respect to community risk caused by construction activities.*

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

Figure 1. Project Construction Site, Locations of Off-Site Sensitive Receptors and Maximum TAC Impact

Impact 5: Create objectionable odors affecting a substantial number of people? ***Less than significant.***

Construction of the project would generate localized emissions of diesel exhaust from construction equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and are not likely to adversely affect people off site by resulting in confirmed odor complaints. Operation of the project would not include any sources of significant odors, such as sewage treatment, landfills, petroleum refining, autobody and coating operations, or livestock operations, that would be likely to cause complaints from surrounding uses. This would be a *less-than-significant impact.*

Impact 6: Generate pollutants (hydrocarbon, thermal odor, dust or smoke particulates, radiation, etc.) that will violate existing standards of air quality on-site or in the surrounding area.? ***Less than significant with mitigation incorporated.***

As described under Impacts 2 and 3, the project would be a source of air pollutant emissions that include hydrocarbons (i.e., ROG). This impact is considered less than significant if appropriate best management control measures are incorporated during construction. As described under Impact 5, the project would not be a long-term source of odors. There would be temporary, localized, odors generated during construction. The project would not be a source of heat, radiation or smoke.

Impact 7: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? ***Less than significant.***

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 generated by the project, energy and water usage by project residents, and the disposal of solid waste generated by project residents. Both short-term and long-term GHG emissions from the project were estimated.

Construction Emissions

GHG emissions were computed using the CalEEMod model and project-specific information. Construction of the project is estimated to emit 676 MT of CO_2e over the total construction duration. Neither San Mateo County nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction, where feasible and applicable. As part of the project's environmental commitments, MidPen will make the best efforts to meet the following as part of construction of the Cypress Point project:

- Use at least 10 percent local building materials;
- Recycle or reuse at least 50 percent of construction waste or demolition materials.

Operational Emissions

For operational GHG emissions, the BAAQMD screening level is 78 dwelling units for low-rise apartments. Since, the project proposes 71 dwelling units, it is concluded that the operational GHG emissions would not exceed the BAAQMD significance thresholds. Therefore, this impact would be less than significant and no mitigation is required.

Impact 8: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ***Less-than-significant.***

Plan Bay Area 2040

As required by Senate Bill 375, all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of a Regional Transportation Plan. In the Bay Area, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) are jointly responsible for developing and adopting a SCS that integrates transportation, land use and housing to meet greenhouse gas reduction targets set by the California Air Resources Board (CARB). Plan Bay Area 2040 is the latest update of the integrated long-range transportation and land use plan prepared by MTC and ABAG in compliance with SB 375. (MTC and ABAG. 2018)

The region adopted its previous plan — Plan Bay Area — in July 2013. As the Bay Area's first regional transportation plan to include a Sustainable Communities Strategy, the original Plan Bay Area charted a course for reducing per-capita greenhouse gas emissions through the promotion of more compact, mixed-use residential and commercial neighborhoods near transit. Plan Bay Area supported Priority Development Areas (PDAs) selected and approved by city and county governments. Development of PDAs is supported with planning grants, technical assistance, and prioritization for regional and state transportation and affordable housing funds. (MTC and ABAG. 2018)

Plan Bay Area 2040 is a limited and focused update that builds upon the growth pattern and strategies developed in the original Plan Bay Area, but with updated planning assumptions that incorporate key economic, demographic and financial trends from the last four years. It also provides both a roadmap for accommodating projected household and employment growth in the nine-county Bay Area by 2040, and a transportation investment strategy for the region. Plan Bay Area 2040 details how the Bay Area can make progress toward the region's long-range transportation and land use goals. (MTC and ABAG. 2018)

Compatibility of Proposed Project with Plan Bay Area 2040

While the Plan Bay Area 2040 addresses transportation and housing issues at a very large scale (the nine-county Bay Area), and the focus of the plan within San Mateo County is on the more densely developed San Francisco Bay side of the County, there are some aspects of the Plan Bay Area against which the proposed project can be evaluated. Specifically, Plan Bay Area 2040 includes several goals, objectives, and actions pertinent to the proposed project.

Plan Bay Area 2040, under Setting Goals and Targets to Address Challenges**,** states one of its goals as: "Plan Bay Area 2040 must include sufficient housing for all of the region's projected population growth, regardless of income." (MTC and ABAG. 2018)[14]

The Plan Bay Area 2040, under Action Plan, includes the following objective regarding housing: "Lower the share of income spent on housing and transportation costs, lessen displacement risk, and increase the availability of housing affordable to low- and moderate-income households." (MTC and ABAG. 2018)

The Plan Bay Area 2040 Action Plan, under Housing Production, Preservation and Protection section states: "Regional agencies will partner with state and local government, business leaders, and nongovernmental organizations (NGOs) to identify and implement game-changing housing solutions that will facilitate improved housing performance by: producing more housing, particularly housing affordable to very low-, low- and moderate-income households; preserving existing housing that is affordable to very low-, low- and moderate-income households; and lessening displacement risks faced by existing residents."

The proposed project is consistent with and would contribute to fulfilling the Plan Bay Area 2040 goal of providing housing for the Bay Area's population, regardless of income by providing affordable housing units within San Mateo County. Similarly, it is consistent with the Plan Bay Area 2040 objective of increasing the availability of housing for low- and moderate-income households, as that is the goal of the proposed project. Finally, it would be consistent with the Plan Bay Area 2040 action related to teaming with nongovernmental organizations to provide affordable housing, as MidPen is working with San Mateo County to provide affordable housing in the MidCoast region.

Thus, the proposed project is consistent with the Plan Bay Area 2040, and would contribute, although to a modest degree, to the fulfillment of the plan's goals, objectives, and actions. Therefore, this impact is less than significant, and no mitigation is required.

Impact 9: Other impacts related to Climate Change. ***Less-than-significant.***

The proposed project would not result in the loss of forestland, or convert forestland to non-forest uses (see discussion under "Agriculture and Forestry Resources" in the Preliminary Environmental Evaluation Report). The project site is located more than 500 feet from a cliff and does not involve the development of leach fields, so it would not expose new structures to accelerated coastal cliff or bluff erosion due to rising sea levels. The project site sits at an elevation of from 77 to 189 feet above mean sea level, so it is not threatened by sea level rise. Finally, the project is not within the 100-year floodplain, and would not result in the construction of any structures within the floodplain (see discussion under "Hydrology and Water Quality" in the Preliminary Environmental Evaluation Report). Therefore, this impact is less than significant, and no mitigation is required.

[14] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG). 2018. Plan Bay Area 2040 webpage. Accessed at: http://2040.planbayarea.org/; by Craig Stevens on May 25, 2018. Includes "What is Plan Bay Area 2040" and "Action Plan" web pages.

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.[1] 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.[2] This HRA used the recent 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[3] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day). As recommended by the BAAQMD, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways).

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

[1] 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.
[2] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[3] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. January 2016.

(FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 to 70 years. Use of the FAH factors is allowed by the BAAQMD if there are no schools in the project vicinity that would have a cancer risk of one in a million or greater assuming 100 percent exposure (FAH = 1.0).

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

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

Where:

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

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

Where:

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

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

Parameter	*Exposure Type* →	Infant		Child		Adult
	Age Range →	3rd Trimester	0<2	2 < 9	2 < 16	16 - 30
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day)*		361	1,090	631	572	261
Inhalation Absorption Factor		1	1	1	1	1
Averaging Time (years)		70	70	70	70	70
Exposure Duration (years)		0.25	2	14	14	14
Exposure Frequency (days/year)		350	350	350	350	350
Age Sensitivity Factor		10	10	3	3	1
Fraction of Time at Home		0.85-1.0	0.85-1.0	0.72-1.0	0.72-1.0	0.73

* 95th percentile breathing rates for 3rd trimester and infants and 80th percentile for children and adults

Non-Cancer Hazards

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

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

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: CalEEMod Modeling Output and Risk Calculations

Cypress Point Affordable Housing, Moss Beach - San Mateo County, Annual

Cypress Point Affordable Housing, Moss Beach

San Mateo County, Annual

Construction TAC Emissions

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	142.00	Space	0.00	65,971.00	0
Condo/Townhouse	71.00	Dwelling Unit	5.80	76,401.00	203

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - From worksheet provided 6/13/2018. Assigned acreage to residential

Construction Phase - default

Trips and VMT - 0.5mi trip lengths to calculate risk from on- and near-site vehicle travel

Grading - assume balanced site

Construction Off-road Equipment Mitigation - Tier 4 engines. BAAQMD BMPs

Off-road Equipment -

Demolition -

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	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblGrading	MaterialImported	0.00	7,000.00
tblLandUse	LandUseSquareFeet	56,800.00	65,971.00
tblLandUse	LandUseSquareFeet	71,000.00	76,401.00
tblLandUse	LotAcreage	1.28	0.00
tblLandUse	LotAcreage	4.44	5.80
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00

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					
2018	0.2326	2.2375	1.4686	2.4000e-003	0.1607	0.1246	0.2853	0.0846	0.1164	0.2010	0.0000	215.6143	215.6143	0.0548	0.0000	216.9854
2019	0.7276	1.6003	1.3264	2.1100e-003	5.0100e-003	0.0924	0.0974	1.3700e-003	0.0867	0.0881	0.0000	185.7431	185.7431	0.0444	0.0000	186.8541
Maximum	**0.7276**	**2.2375**	**1.4686**	**2.4000e-003**	**0.1607**	**0.1246**	**0.2853**	**0.0846**	**0.1164**	**0.2010**	**0.0000**	**215.6143**	**215.6143**	**0.0548**	**0.0000**	**216.9854**

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					
2018	0.1120	2.0621	1.5510	2.4000e-003	0.0396	0.0179	0.0575	0.0200	0.0178	0.0378	0.0000	215.6141	215.6141	0.0548	0.0000	216.9851
2019	0.6583	1.8032	1.4180	2.1100e-003	5.0100e-003	0.0166	0.0216	1.3700e-003	0.0166	0.0180	0.0000	185.7429	185.7429	0.0444	0.0000	186.8539
Maximum	**0.6583**	**2.0621**	**1.5510**	**2.4000e-003**	**0.0396**	**0.0179**	**0.0575**	**0.0200**	**0.0178**	**0.0378**	**0.0000**	**215.6141**	**215.6141**	**0.0548**	**0.0000**	**216.9851**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**19.78**	**-0.72**	**-6.22**	**0.00**	**73.07**	**84.11**	**79.32**	**75.17**	**83.04**	**80.70**	**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	6-1-2018	8-31-2018	1.2838	1.0356
2	9-1-2018	11-30-2018	0.8939	0.8579
3	12-1-2018	2-28-2019	0.8270	0.8444
4	3-1-2019	5-31-2019	0.8153	0.8616
5	6-1-2019	8-31-2019	0.9794	1.0365
		Highest	1.2838	1.0365

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	6/1/2018	6/28/2018	5	20	
2	Site Preparation	Site Preparation	6/29/2018	7/12/2018	5	10	
3	Grading	Grading	7/13/2018	8/9/2018	5	20	
4	Building Construction	Building Construction	8/10/2018	6/27/2019	5	230	
5	Paving	Paving	6/28/2019	7/25/2019	5	20	
6	Architectural Coating	Architectural Coating	7/26/2019	8/22/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 154,712; Residential Outdoor: 51,571; 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
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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
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	0.00	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	875.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	79.00	18.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	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

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0372	0.3832	0.2230	3.9000e-004		0.0194	0.0194		0.0181	0.0181	0.0000	35.1241	35.1241	9.6800e-003	0.0000	35.3660
Total	**0.0372**	**0.3832**	**0.2230**	**3.9000e-004**		**0.0194**	**0.0194**		**0.0181**	**0.0181**	**0.0000**	**35.1241**	**35.1241**	**9.6800e-003**	**0.0000**	**35.3660**

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	8.0000e-005	1.0200e-003	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1253	0.1253	1.0000e-005	0.0000	0.1254
Total	**1.6000e-004**	**8.0000e-005**	**1.0200e-003**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1253**	**0.1253**	**1.0000e-005**	**0.0000**	**0.1254**

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	0.0154	0.3163	0.2454	3.9000e-004		3.7400e-003	3.7400e-003		3.7400e-003	3.7400e-003	0.0000	35.1240	35.1240	9.6800e-003	0.0000	35.3660
Total	**0.0154**	**0.3163**	**0.2454**	**3.9000e-004**		**3.7400e-003**	**3.7400e-003**		**3.7400e-003**	**3.7400e-003**	**0.0000**	**35.1240**	**35.1240**	**9.6800e-003**	**0.0000**	**35.3660**

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	8.0000e-005	1.0200e-003	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1253	0.1253	1.0000e-005	0.0000	0.1254
Total	**1.6000e-004**	**8.0000e-005**	**1.0200e-003**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1253**	**0.1253**	**1.0000e-005**	**0.0000**	**0.1254**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

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	1.0000e-004	5.0000e-005	6.1000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0752	0.0752	0.0000	0.0000	0.0753
Total	**1.0000e-004**	**5.0000e-005**	**6.1000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0752**	**0.0752**	**0.0000**	**0.0000**	**0.0753**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					0.0203	0.0000	0.0203	0.0112	0.0000	0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0203**	**7.1000e-004**	**0.0210**	**0.0112**	**7.1000e-004**	**0.0119**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	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-004	5.0000e-005	6.1000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0752	0.0752	0.0000	0.0000	0.0753
Total	**1.0000e-004**	**5.0000e-005**	**6.1000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0752**	**0.0752**	**0.0000**	**0.0000**	**0.0753**

3.4 Grading - 2018

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					0.0659	0.0000	0.0659	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0277	0.3067	0.1658	3.0000e-004		0.0155	0.0155		0.0143	0.0143	0.0000	27.1069	27.1069	8.4400e-003	0.0000	27.3178
Total	**0.0277**	**0.3067**	**0.1658**	**3.0000e-004**	**0.0659**	**0.0155**	**0.0814**	**0.0337**	**0.0143**	**0.0480**	**0.0000**	**27.1069**	**27.1069**	**8.4400e-003**	**0.0000**	**27.3178**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	1.2000e-003	0.0467	0.0146	5.0000e-005	3.7000e-004	8.0000e-005	4.6000e-004	1.0000e-004	8.0000e-005	1.8000e-004	0.0000	4.7028	4.7028	6.5000e-004	0.0000	4.7191
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	8.0000e-005	1.0200e-003	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1253	0.1253	1.0000e-005	0.0000	0.1254
Total	**1.3600e-003**	**0.0468**	**0.0156**	**5.0000e-005**	**4.8000e-004**	**8.0000e-005**	**5.7000e-004**	**1.3000e-004**	**8.0000e-005**	**2.1000e-004**	**0.0000**	**4.8280**	**4.8280**	**6.6000e-004**	**0.0000**	**4.8446**

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					0.0148	0.0000	0.0148	7.5900e-003	0.0000	7.5900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.2628	0.1899	3.0000e-004		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	27.1068	27.1068	8.4400e-003	0.0000	27.3178
Total	**0.0101**	**0.2628**	**0.1899**	**3.0000e-004**	**0.0148**	**1.1600e-003**	**0.0160**	**7.5900e-003**	**1.1600e-003**	**8.7500e-003**	**0.0000**	**27.1068**	**27.1068**	**8.4400e-003**	**0.0000**	**27.3178**

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	1.2000e-003	0.0467	0.0146	5.0000e-005	3.7000e-004	8.0000e-005	4.6000e-004	1.0000e-004	8.0000e-005	1.8000e-004	0.0000	4.7028	4.7028	6.5000e-004	0.0000	4.7191
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	8.0000e-005	1.0200e-003	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1253	0.1253	1.0000e-005	0.0000	0.1254
Total	**1.3600e-003**	**0.0468**	**0.0156**	**5.0000e-005**	**4.8000e-004**	**8.0000e-005**	**5.7000e-004**	**1.3000e-004**	**8.0000e-005**	**2.1000e-004**	**0.0000**	**4.8280**	**4.8280**	**6.6000e-004**	**0.0000**	**4.8446**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1367	1.1929	0.8966	1.3700e-003		0.0765	0.0765		0.0719	0.0719	0.0000	121.2613	121.2613	0.0297	0.0000	122.0040
Total	**0.1367**	**1.1929**	**0.8966**	**1.3700e-003**		**0.0765**	**0.0765**		**0.0719**	**0.0719**	**0.0000**	**121.2613**	**121.2613**	**0.0297**	**0.0000**	**122.0040**

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	2.1700e-003	0.0646	0.0261	6.0000e-005	8.4000e-004	1.9000e-004	1.0300e-003	2.5000e-004	1.8000e-004	4.3000e-004	0.0000	6.3488	6.3488	7.9000e-004	0.0000	6.3685
Worker	4.3900e-003	2.1500e-003	0.0275	4.0000e-005	2.9700e-003	4.0000e-005	3.0100e-003	8.0000e-004	4.0000e-005	8.3000e-004	0.0000	3.3648	3.3648	1.5000e-004	0.0000	3.3686
Total	**6.5600e-003**	**0.0667**	**0.0536**	**1.0000e-004**	**3.8100e-003**	**2.3000e-004**	**4.0400e-003**	**1.0500e-003**	**2.2000e-004**	**1.2600e-003**	**0.0000**	**9.7136**	**9.7136**	**9.4000e-004**	**0.0000**	**9.7371**

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	0.0723	1.2008	0.9300	1.3700e-003		0.0119	0.0119		0.0119	0.0119	0.0000	121.2612	121.2612	0.0297	0.0000	122.0039
Total	**0.0723**	**1.2008**	**0.9300**	**1.3700e-003**		**0.0119**	**0.0119**		**0.0119**	**0.0119**	**0.0000**	**121.2612**	**121.2612**	**0.0297**	**0.0000**	**122.0039**

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	2.1700e-003	0.0646	0.0261	6.0000e-005	8.4000e-004	1.9000e-004	1.0300e-003	2.5000e-004	1.8000e-004	4.3000e-004	0.0000	6.3488	6.3488	7.9000e-004	0.0000	6.3685
Worker	4.3900e-003	2.1500e-003	0.0275	4.0000e-005	2.9700e-003	4.0000e-005	3.0100e-003	8.0000e-004	4.0000e-005	8.3000e-004	0.0000	3.3648	3.3648	1.5000e-004	0.0000	3.3686
Total	**6.5600e-003**	**0.0667**	**0.0536**	**1.0000e-004**	**3.8100e-003**	**2.3000e-004**	**4.0400e-003**	**1.0500e-003**	**2.2000e-004**	**1.2600e-003**	**0.0000**	**9.7136**	**9.7136**	**9.4000e-004**	**0.0000**	**9.7371**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1511	1.3490	1.0985	1.7200e-003		0.0826	0.0826		0.0776	0.0776	0.0000	150.4667	150.4667	0.0367	0.0000	151.3831
Total	**0.1511**	**1.3490**	**1.0985**	**1.7200e-003**		**0.0826**	**0.0826**		**0.0776**	**0.0776**	**0.0000**	**150.4667**	**150.4667**	**0.0367**	**0.0000**	**151.3831**

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	2.4300e-003	0.0780	0.0305	8.0000e-005	1.0500e-003	2.1000e-004	1.2600e-003	3.1000e-004	2.0000e-004	5.1000e-004	0.0000	7.9031	7.9031	9.2000e-004	0.0000	7.9260
Worker	4.9200e-003	2.3400e-003	0.0305	5.0000e-005	3.7300e-003	5.0000e-005	3.7800e-003	1.0000e-003	5.0000e-005	1.0500e-003	0.0000	4.0939	4.0939	1.6000e-004	0.0000	4.0980
Total	**7.3500e-003**	**0.0803**	**0.0610**	**1.3000e-004**	**4.7800e-003**	**2.6000e-004**	**5.0400e-003**	**1.3100e-003**	**2.5000e-004**	**1.5600e-003**	**0.0000**	**11.9970**	**11.9970**	**1.0800e-003**	**0.0000**	**12.0240**

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	0.0871	1.5033	1.1638	1.7200e-003		0.0141	0.0141		0.0141	0.0141	0.0000	150.4665	150.4665	0.0367	0.0000	151.3829
Total	**0.0871**	**1.5033**	**1.1638**	**1.7200e-003**		**0.0141**	**0.0141**		**0.0141**	**0.0141**	**0.0000**	**150.4665**	**150.4665**	**0.0367**	**0.0000**	**151.3829**

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	2.4300e-003	0.0780	0.0305	8.0000e-005	1.0500e-003	2.1000e-004	1.2600e-003	3.1000e-004	2.0000e-004	5.1000e-004	0.0000	7.9031	7.9031	9.2000e-004	0.0000	7.9260
Worker	4.9200e-003	2.3400e-003	0.0305	5.0000e-005	3.7300e-003	5.0000e-005	3.7800e-003	1.0000e-003	5.0000e-005	1.0500e-003	0.0000	4.0939	4.0939	1.6000e-004	0.0000	4.0980
Total	**7.3500e-003**	**0.0803**	**0.0610**	**1.3000e-004**	**4.7800e-003**	**2.6000e-004**	**5.0400e-003**	**1.3100e-003**	**2.5000e-004**	**1.5600e-003**	**0.0000**	**11.9970**	**11.9970**	**1.0800e-003**	**0.0000**	**12.0240**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

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	1.5000e-004	7.0000e-005	9.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1215	0.1215	0.0000	0.0000	0.1216
Total	**1.5000e-004**	**7.0000e-005**	**9.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1215**	**0.1215**	**0.0000**	**0.0000**	**0.1216**

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	9.3100e-003	0.2012	0.1730	2.3000e-004		1.0000e-003	1.0000e-003		1.0000e-003	1.0000e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.3100e-003**	**0.2012**	**0.1730**	**2.3000e-004**		**1.0000e-003**	**1.0000e-003**		**1.0000e-003**	**1.0000e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

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	1.5000e-004	7.0000e-005	9.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1215	0.1215	0.0000	0.0000	0.1216
Total	**1.5000e-004**	**7.0000e-005**	**9.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1215**	**0.1215**	**0.0000**	**0.0000**	**0.1216**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5516					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0184	0.0184	3.0000e-005		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5587
Total	**0.5542**	**0.0184**	**0.0184**	**3.0000e-005**		**1.2900e-003**	**1.2900e-003**		**1.2900e-003**	**1.2900e-003**	**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5587**

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	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1296	0.1296	1.0000e-005	0.0000	0.1297
Total	**1.6000e-004**	**7.0000e-005**	**9.7000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1296**	**0.1296**	**1.0000e-005**	**0.0000**	**0.1297**

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	0.5516					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0184	0.0184	3.0000e-005		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5586
Total	**0.5542**	**0.0184**	**0.0184**	**3.0000e-005**		**1.2900e-003**	**1.2900e-003**		**1.2900e-003**	**1.2900e-003**	**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5586**

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	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1296	0.1296	1.0000e-005	0.0000	0.1297
Total	**1.6000e-004**	**7.0000e-005**	**9.7000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1296**	**0.1296**	**1.0000e-005**	**0.0000**	**0.1297**

County Review Draft

Project Name: Cypress Point Affordable Housing

Project Size

71 Dwelling Units | 5.8 total project acres disturbed

72941 s.f. residential | s.f. retail

s.f. office/commercial | 3460 s.f. other, community room

13076 s.f. other, specify:

s.f. parking garage | spaces

65,971 s.f. parking lot | 142 spaces

Construction Hours am to pm

Complete ALL Portions in Yellow

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Comments
	Demolition	**Start Date:**	**6/1/2018**	**Total phase:**	**20**		**Overall Import/Export Volumes**
		End Date:					
1	Concrete/Industrial Saws	81	0.73	8	20	8	**Demolition Volume**
3	Excavators	162	0.38	8	20	8	Square footage of buildings to be demolished
2	Rubber-Tired Dozers	255	0.4	8	20	8	(*or* total tons to be hauled)
	Tractors/Loaders/Backhoes	97	0.37			0	**?** square feet *or*
							? Hauling volume (tons)
	Site Preperation	**Start Date:**		**Total phase:**	**10**		Any pavement demolished and hauled? **? tons**
		End Date:					**Soil Hauling Volume**
	Graders	174	0.41			0	
3	Rubber Tired Dozers	255	0.4	8	10	8	Export volume = **?** cubic yards?
4	Tractors/Loaders/Backhoes	97	0.37	8	10	8	Import volume = **?** cubic yards?
	Grading / Excavation	**Start Date:**		**Total phase:**	**30**		
		End Date:					**Soil Hauling Volume**
2	Scrapers	**361**	**0.48**	8	30	8	
2	Excavators	162	0.38	8	30	8	Export volume = cubic yards?
1	Graders	174	0.41	8	30	8	Import volume = 7,000 cubic yards?
	Rubber Tired Dozers	255	0.4			0	
2	Tractors/Loaders/Backhoes	97	0.37	8	30	8	
	Other Equipment?						
	Building - Exterior	**Start Date:**		**Total phase:**	**300**		**Cement Trucks? ? Total Round-Trips**
		End Date:					
1	Cranes	226	0.29	7	300	7	Electric? (Y/N) ___ Otherwise assumed diesel
3	Forklifts	89	0.2	8	300	8	Liquid Propane (LPG)? (Y/N) ___ Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	300	8	Or temporary line power? (Y/N) ___
3	Tractors/Loaders/Backhoes	97	0.37	7	300	7	otherwise, assume diesel generator
1	Welders	46	0.45	8	300	8	
	Other Equipment?					0	
	Building - Interior/Architectural Coating	**Start Date:**		**Total phase:**	**20**		
		End Date:					
1	Air Compressors	78	0.48	6	20	6	
	Aerial Lift	62	0.31			0	
	Other Equipment?						
	Paving	**Start Date:**		**Total phase:**	**20**		
		Start Date:					
	Cement and Mortar Mixers	9	0.56			0	
2	Pavers	125	0.42	8	20	8	**Asphalt? ___ cubic yards or ____ round trips?**
2	Paving Equipment	130	0.36	8	20	8	
2	Rollers	80	0.38	8	20	8	
	Tractors/Loaders/Backhoes	97	0.37			0	
	Other Equipment?						

Equipment listed in this sheet is to provide an example of inputs

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horepower or load factor, as appropriate

Typical Equipment Type & Load Factors

OFFROAD Equipment Type	HP	Load Factor
Aerial Lifts	62	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	205	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	226	0.29
Crawler Tractors	208	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	162	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	174	0.41
Off-Highway Tractors	122	0.44
Off-Highway Trucks	400	0.38
Other Construction Equipment	171	0.42
Other General Industrial Equipment	150	0.34
Other Material Handling Equipment	167	0.4
Pavers	125	0.42
Paving Equipment	130	0.36
Plate Compactors	8	0.43
Scrapers	361	0.48
Signal Boards	6	0.82
Skid Steer Loaders	64	0.37
Surfacing Equipment	253	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	80	0.5
Welders	46	0.45

Cypress Point, Moss Beach, California

DPM Emissions and Modeling Emission Rates

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2018	Construction	0.1246	DPM	249.2	0.07586	9.56E-03	46,302	**2.06E-07**
2019	Construction	0.0924	DPM	184.8	0.05626	7.09E-03	46,302	**1.53E-07**
Total		***0.2170***		***434.0***	***0.1321***	***0.0166***		
		Operation Hours						
		hr/day =	9	(7am - 4pm)				
		days/yr =	365					
		hours/year =	3285					
	Old:		Adj.					
	2018	0.1409	0.884315117					
	2019	0.144	0.641666667					

Cypress Point, Moss Beach, California

PM2.5 Fugitive Dust Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2018	Construction	FUG	0.0846	169.2	0.05151	6.49E-03	46,302	**1.40E-07**
2019	Construction	FUG	0.0014	2.8	0.00085	1.07E-04	46,302	**2.32E-09**
Total			***0.086***	***172.0***	***0.0524***	***0.0066***		
		Operation Hours						
		hr/day =	9	(7am - 4pm)				
		days/yr =	365					
		hours/year =	3285					
		Old:		Adj.				
		2018	0.1041	0.81268				
		2019	0.0011	1.272727				

Cypress Point, Moss Beach, California
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors-1.5 meter

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

		Infant/Child - Exposure Information				Infant/Child	Adult - Exposure Information			Adult		
	Exposure		DPM Conc (ug/m3)		Age	Cancer	Modeled DPM Conc (ug/m3)		Age	Cancer		
Exposure	Duration				Sensitivity	Risk			Sensitivity	Risk	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	PM2.5	PM2.5
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-		
1	1	0 - 1	2018	0.1601	10	26.29	2018	0.1601	1	0.46	0.2498	0.410
2	1	1 - 2	2019	0.1191	10	19.57	2019	0.1191	1	0.34	0.0042	0.123
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**45.86**				**0.80**		

* Third trimester of pregnancy

Cypress Point, Moss Beach, California

Maximum Impacts at Construction MEI Location

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2018	0.1601	0.2498	26.3	0.5	0.032	0.41
2019	0.1191	0.0042	19.6	0.3	0.024	0.12
Maximum	0.1601	0.2498	45.9	0.8	0.032	0.41

Old	0.181	0.30735
	0.18566	0.00329
	Adj.	Adj.
	0.8843	0.8127
	0.6417	1.2727

County Review Draft

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.
For guidance on conducting a risk & hazard screening, including for roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Table A: Requestor Contact Information	
Contact Name:	Josh Carman
Affiliation:	Illingworth & Rodkin
Phone:	(707) 794-0400
Email:	jcarman@illingworthrodkin.com
Date of Request	11/13/2017
Project Name:	Cypress Point
Address:	Sierra St and Carlos St
City:	Moss Beach
County:	San Mateo
Type (residential, commercial, mixed use, industrial, etc.):	Residential
Project size (# of units, or building square feet):	71
Comments:	

For Air District assistance, the following steps must be completed:
Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please include a project site map.
Download and install the free program Google Earth, http://www.google.com/earth/download/ge/, and then download the county specific Google Earth stationary source application files from the District's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.
The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
Using the Google Earth ruler function, measure the distance in feet between the project's fenceline and the stationary source's fenceline for all the sources that are within 1,000 feet of the project's fenceline. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm that the source is within 1,000 feet of the project. Please report any mapping errors to the District (District contact information in Step 9).
If the stationary source is within 1,000 feet of the project's fenceline and the stationary source's information table does not list the cancer risk, hazard index, and PM2.5 concentration, and instead says to "Contact District Staff", list the stationary source information in Table B Section 1 below.
Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.
Email this completed form to District staff (Step 9). District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.
Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.
Submit forms, maps, and questions to Alison Kirk at 415-749-5169, or akirk@baaqmd.gov .

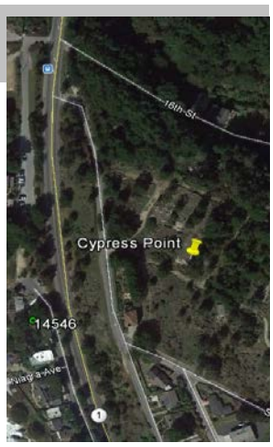

Table B: Stationary Sources within 1,000 feet of Receptor that say "Contact District Staff"

Table B Section 1: Requestor fills out these columns based on Google Earth data				Table B Section 2: BAAQMD returns form with additional information in these columns as needed								
Distance from Receptor (feet)	**Receptor**	**Plant # or Gas Dispensary #**	**Facility Name**	**Street Address**	**2012 Screening Level Cancer Risk (1)**	**2012 Screening Level Hazard Index (1)**	**2012 Screening Level PM2.5 (1)**	**Adjusted Risk**	**Adjusted HI**	**Adjusted PM**	**Distance to Threshold Cancer Risk**	**Multiplier**
?		14546	Sewer Authority Mid-Coastside	16th St & Cabrillo Hwy	14.17	0.005	0.025					
			Adjusted to 450 feet		2.9	0.000	0.000					

Footnotes:
1. These Cancer Risk, Hazard Index, and PM2.5 columns represent the rows in the Google Earth Plant Information Table that say "Contact District Staff" (Map A above). BAAQMD will return this form to you with this screening level information entered in these columns.
2. Each plant may have multiple permits and sources.
3. Fuel codes: 98 = diesel, 189 = Natural Gas.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
6. The date that the HRSA was completed.
7. Engineer who completed the HRSA. For District purposes only.
8. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
9. The HRSA "Chronic Health" number represents the Hazard Index.
10. Further information about common sources:
    a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
    b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index of 0.003 or less. To be conservative, requestor should assume the cancer risk is 1 in a million and the hazard index is 0.003 for these sources.
    c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010.
    Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
    d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but instead should reflect the number of years perc use will continue after the project's residents or other sensitive receptors (such as students, patients, etc) take occupancy.
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.

Date last updated:
3/12/12

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: NOV 14, 2017
DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2016)

Sewer Authority Mid-Coastside (P# 14546)

S#	SOURCE NAME / MATERIAL	SOURCE CODE / THROUGHPUT	DATE	POLLUTANT	CODE	LBS/DAY
1	Diesel Engine, Cummins model NT-855G, emergency standby	C2250098				
				Benzene	41	7.53E-04
				Formaldehyde	124	6.23E-05
				Organics (other, including	990	3.64E-02
				Arsenic (all)	1030	6.56E-07
				Beryllium (all) pollutant	1040	3.85E-07
				Cadmium	1070	1.64E-06
				Chromium (hexavalent)	1095	3.39E-08
				Lead (all) pollutant	1140	1.39E-06
				Manganese	1160	2.18E-06
				Nickel pollutant	1180	2.65E-05
				Mercury (all) pollutant	1190	4.64E-07
				Diesel Engine Exhaust Part	1350	3.79E-02
				PAH's (non-speciated)	1840	3.46E-06
				Nitrous Oxide (N2O)	2030	2.02E-04
				Nitrogen Oxides (part not	2990	5.30E-01
				Sulfur Dioxide (SO2)	3990	2.46E-04
				Carbon Monoxide (CO) pollu	4990	1.15E-01
				Carbon Dioxide, non-biogen	6960	2.52E+01
				Methane (CH4)	6970	1.01E-03

Link 41 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.091	6.712	0.008	0.036
25 ft W	0.070	5.216	0.006	0.027
50 ft W	0.054	3.996	0.005	0.020
75 ft W	0.045	3.333	0.004	0.015
100 ft W	0.039	2.910	0.003	0.012
200 ft W	0.028	2.114	0.002	0.010
300 ft W	0.023	1.762	0.002	0.010
400 ft W	0.021	1.559	0.002	0.010
500 ft W	0.019	1.421	0.001	0.011
750 ft W	0.016	1.210	0.001	0.012
1000 ft W	0.014	1.074	0.001	0.008
10 ft E	0.172	12.194	0.016	0.021
25 ft E	0.133	9.431	0.012	0.017
50 ft E	0.101	7.149	0.009	0.012
75 ft E	0.083	5.898	0.008	0.010
100 ft E	0.071	5.099	0.006	0.008
200 ft E	0.049	3.540	0.004	0.006
300 ft E	0.040	2.853	0.003	0.006
400 ft E	0.034	2.465	0.003	0.005
500 ft E	0.031	2.204	0.003	0.005
750 ft E	0.025	1.775	0.002	0.003
1000 ft E	0.020	1.478	0.002	0.003

Cypress Point Affordable Housing, Moss Beach

San Mateo County, Annual

GHG Emissions

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	142.00	Space	0.00	65,971.00	0
Condo/Townhouse	71.00	Dwelling Unit	5.80	76,401.00	203

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Acreage from 6/13/2018 worksheet

Construction Phase - default

Trips and VMT - 0.5mi trip lengths to calculate risk from on- and near-site vehicle travel

Grading - from 6/13/2018 worksheet

Construction Off-road Equipment Mitigation - Tier 2 engines w/ DPF Level 3. BAAQMD BMPs

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	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblLandUse	LandUseSquareFeet	56,800.00	65,971.00
tblLandUse	LandUseSquareFeet	71,000.00	76,401.00
tblLandUse	LotAcreage	1.28	0.00
tblLandUse	LotAcreage	4.44	5.80
tblTripsAndVMT	HaulingTripNumber	0.00	692.00

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					
2018	0.2474	2.3867	1.5976	3.1300e-003	0.2024	0.1260	0.3284	0.0959	0.1177	0.2136	0.0000	286.3061	286.3061	0.0597	0.0000	287.7988
2019	0.7413	1.6781	1.4352	2.6900e-003	0.0498	0.0934	0.1431	0.0134	0.0877	0.1011	0.0000	240.6412	240.6412	0.0469	0.0000	241.8124
Maximum	**0.7413**	**2.3867**	**1.5976**	**3.1300e-003**	**0.2024**	**0.1260**	**0.3284**	**0.0959**	**0.1177**	**0.2136**	**0.0000**	**286.3061**	**286.3061**	**0.0597**	**0.0000**	**287.7988**

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					
2018	0.1069	2.2222	1.6629	3.1300e-003	0.0816	0.0119	0.0935	0.0313	0.0118	0.0431	0.0000	286.3058	286.3058	0.0597	0.0000	287.7985
2019	0.6526	1.8904	1.5068	2.6900e-003	0.0498	0.0111	0.0609	0.0134	0.0110	0.0245	0.0000	240.6410	240.6410	0.0469	0.0000	241.8122
Maximum	**0.6526**	**2.2222**	**1.6629**	**3.1300e-003**	**0.0816**	**0.0119**	**0.0935**	**0.0313**	**0.0118**	**0.0431**	**0.0000**	**286.3058**	**286.3058**	**0.0597**	**0.0000**	**287.7985**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**23.18**	**-1.18**	**-4.51**	**0.00**	**47.90**	**89.53**	**67.27**	**59.07**	**88.89**	**78.54**	**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	**6-1-2018**	**8-31-2018**	1.3768	1.1336
2	**9-1-2018**	**11-30-2018**	0.9448	0.8982
3	**12-1-2018**	**2-28-2019**	0.8758	0.8851
4	**3-1-2019**	**5-31-2019**	0.8609	0.9002
5	**6-1-2019**	**8-31-2019**	0.9934	1.0520
		Highest	1.3768	1.1336

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	0.5379	9.9000e-003	0.7558	4.8000e-004		0.0352	0.0352		0.0352	0.0352	3.2369	2.1932	5.4301	6.0500e-003	2.1000e-004	5.6446
Energy	8.7000e-003	0.0743	0.0316	4.7000e-004		6.0100e-003	6.0100e-003		6.0100e-003	6.0100e-003	0.0000	196.0829	196.0829	6.6200e-003	2.6100e-003	197.0254

Mobile	0.1054	0.3353	1.1872	3.8500e-003	0.3435	4.2200e-003	0.3478	0.0923	3.9600e-003	0.0963	0.0000	351.8708	351.8708	0.0132	0.0000	352.2002
Waste						0.0000	0.0000		0.0000	0.0000	6.6297	0.0000	6.6297	0.3918	0.0000	16.4248
Water						0.0000	0.0000		0.0000	0.0000	1.4676	10.2512	11.7188	0.1512	3.6600e-003	16.5880
Total	**0.6520**	**0.4196**	**1.9747**	**4.8000e-003**	**0.3435**	**0.0454**	**0.3889**	**0.0923**	**0.0451**	**0.1374**	**11.3342**	**560.3981**	**571.7322**	**0.5689**	**6.4800e-003**	**587.8829**

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	0.5379	9.9000e-003	0.7558	4.8000e-004		0.0352	0.0352		0.0352	0.0352	3.2369	2.1932	5.4301	6.0500e-003	2.1000e-004	5.6446
Energy	8.7000e-003	0.0743	0.0316	4.7000e-004		6.0100e-003	6.0100e-003		6.0100e-003	6.0100e-003	0.0000	196.0829	196.0829	6.6200e-003	2.6100e-003	197.0254
Mobile	0.1054	0.3353	1.1872	3.8500e-003	0.3435	4.2200e-003	0.3478	0.0923	3.9600e-003	0.0963	0.0000	351.8708	351.8708	0.0132	0.0000	352.2002
Waste						0.0000	0.0000		0.0000	0.0000	6.6297	0.0000	6.6297	0.3918	0.0000	16.4248
Water						0.0000	0.0000		0.0000	0.0000	1.4676	10.2512	11.7188	0.1512	3.6600e-003	16.5880
Total	**0.6520**	**0.4196**	**1.9747**	**4.8000e-003**	**0.3435**	**0.0454**	**0.3889**	**0.0923**	**0.0451**	**0.1374**	**11.3342**	**560.3981**	**571.7322**	**0.5689**	**6.4800e-003**	**587.8829**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2018	6/28/2018	5	20	

2	Site Preparation	Site Preparation	6/29/2018	7/12/2018	5	10	
3	Grading	Grading	7/13/2018	8/9/2018	5	20	
4	Building Construction	Building Construction	8/10/2018	6/27/2019	5	230	
5	Paving	Paving	6/28/2019	7/25/2019	5	20	
6	Architectural Coating	Architectural Coating	7/26/2019	8/22/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 154,712; Residential Outdoor: 51,571; 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
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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

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	0.00	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	692.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	79.00	18.00	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
Architectural Coating	1	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0372	0.3832	0.2230	3.9000e-004		0.0194	0.0194		0.0181	0.0181	0.0000	35.1241	35.1241	9.6800e-003	0.0000	35.3660
Total	**0.0372**	**0.3832**	**0.2230**	**3.9000e-004**		**0.0194**	**0.0194**		**0.0181**	**0.0181**	**0.0000**	**35.1241**	**35.1241**	**9.6800e-003**	**0.0000**	**35.3660**

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	4.9000e-004	3.6000e-004	3.6000e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0482	1.0482	2.0000e-005	0.0000	1.0488
Total	**4.9000e-004**	**3.6000e-004**	**3.6000e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0482**	**1.0482**	**2.0000e-005**	**0.0000**	**1.0488**

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	0.0126	0.3266	0.2467	3.9000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	35.1240	35.1240	9.6800e-003	0.0000	35.3660
Total	**0.0126**	**0.3266**	**0.2467**	**3.9000e-004**		**1.3700e-003**	**1.3700e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**35.1240**	**35.1240**	**9.6800e-003**	**0.0000**	**35.3660**

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	4.9000e-004	3.6000e-004	3.6000e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0482	1.0482	2.0000e-005	0.0000	1.0488
Total	**4.9000e-004**	**3.6000e-004**	**3.6000e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0482**	**1.0482**	**2.0000e-005**	**0.0000**	**1.0488**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

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	2.9000e-004	2.1000e-004	2.1600e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6289	0.6289	1.0000e-005	0.0000	0.6293
Total	**2.9000e-004**	**2.1000e-004**	**2.1600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6289**	**0.6289**	**1.0000e-005**	**0.0000**	**0.6293**

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					0.0203	0.0000	0.0203	0.0112	0.0000	0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0203**	**7.1000e-004**	**0.0210**	**0.0112**	**7.1000e-004**	**0.0119**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

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	2.9000e-004	2.1000e-004	2.1600e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6289	0.6289	1.0000e-005	0.0000	0.6293
Total	**2.9000e-004**	**2.1000e-004**	**2.1600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6289**	**0.6289**	**1.0000e-005**	**0.0000**	**0.6293**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0277	0.3067	0.1658	3.0000e-004		0.0155	0.0155		0.0143	0.0143	0.0000	27.1069	27.1069	8.4400e-003	0.0000	27.3178
Total	**0.0277**	**0.3067**	**0.1658**	**3.0000e-004**	**0.0655**	**0.0155**	**0.0810**	**0.0337**	**0.0143**	**0.0479**	**0.0000**	**27.1069**	**27.1069**	**8.4400e-003**	**0.0000**	**27.3178**

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	3.6800e-003	0.1277	0.0462	2.9000e-004	5.7900e-003	5.3000e-004	6.3100e-003	1.5900e-003	5.0000e-004	2.0900e-003	0.0000	29.7401	29.7401	3.5400e-003	0.0000	29.8285
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	4.9000e-004	3.6000e-004	3.6000e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0482	1.0482	2.0000e-005	0.0000	1.0488
Total	**4.1700e-003**	**0.1281**	**0.0498**	**3.0000e-004**	**6.9700e-003**	**5.4000e-004**	**7.5000e-003**	**1.9000e-003**	**5.1000e-004**	**2.4100e-003**	**0.0000**	**30.7883**	**30.7883**	**3.5600e-003**	**0.0000**	**30.8773**

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					0.0147	0.0000	0.0147	7.5800e-003	0.0000	7.5800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.2628	0.1899	3.0000e-004		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	27.1068	27.1068	8.4400e-003	0.0000	27.3178
Total	**0.0101**	**0.2628**	**0.1899**	**3.0000e-004**	**0.0147**	**1.1600e-003**	**0.0159**	**7.5800e-003**	**1.1600e-003**	**8.7400e-003**	**0.0000**	**27.1068**	**27.1068**	**8.4400e-003**	**0.0000**	**27.3178**

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	3.6800e-003	0.1277	0.0462	2.9000e-004	5.7900e-003	5.3000e-004	6.3100e-003	1.5900e-003	5.0000e-004	2.0900e-003	0.0000	29.7401	29.7401	3.5400e-003	0.0000	29.8285
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	4.9000e-004	3.6000e-004	3.6000e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0482	1.0482	2.0000e-005	0.0000	1.0488
Total	**4.1700e-003**	**0.1281**	**0.0498**	**3.0000e-004**	**6.9700e-003**	**5.4000e-004**	**7.5000e-003**	**1.9000e-003**	**5.1000e-004**	**2.4100e-003**	**0.0000**	**30.7883**	**30.7883**	**3.5600e-003**	**0.0000**	**30.8773**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1367	1.1929	0.8966	1.3700e-003		0.0765	0.0765		0.0719	0.0719	0.0000	121.2613	121.2613	0.0297	0.0000	122.0040
Total	**0.1367**	**1.1929**	**0.8966**	**1.3700e-003**		**0.0765**	**0.0765**		**0.0719**	**0.0719**	**0.0000**	**121.2613**	**121.2613**	**0.0297**	**0.0000**	**122.0040**

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	4.8900e-003	0.1247	0.0476	2.5000e-004	5.9800e-003	9.6000e-004	6.9400e-003	1.7300e-003	9.2000e-004	2.6500e-003	0.0000	24.8144	24.8144	2.2100e-003	0.0000	24.8696
Worker	0.0132	9.5600e-003	0.0967	3.1000e-004	0.0317	2.0000e-004	0.0319	8.4400e-003	1.9000e-004	8.6300e-003	0.0000	28.1541	28.1541	6.6000e-004	0.0000	28.1707
Total	**0.0180**	**0.1343**	**0.1443**	**5.6000e-004**	**0.0377**	**1.1600e-003**	**0.0389**	**0.0102**	**1.1100e-003**	**0.0113**	**0.0000**	**52.9685**	**52.9685**	**2.8700e-003**	**0.0000**	**53.0403**

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	0.0551	1.2013	0.9116	1.3700e-003		6.9100e-003	6.9100e-003		6.9100e-003	6.9100e-003	0.0000	121.2612	121.2612	0.0297	0.0000	122.0039
Total	**0.0551**	**1.2013**	**0.9116**	**1.3700e-003**		**6.9100e-003**	**6.9100e-003**		**6.9100e-003**	**6.9100e-003**	**0.0000**	**121.2612**	**121.2612**	**0.0297**	**0.0000**	**122.0039**

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	4.8900e-003	0.1247	0.0476	2.5000e-004	5.9800e-003	9.6000e-004	6.9400e-003	1.7300e-003	9.2000e-004	2.6500e-003	0.0000	24.8144	24.8144	2.2100e-003	0.0000	24.8696
Worker	0.0132	9.5600e-003	0.0967	3.1000e-004	0.0317	2.0000e-004	0.0319	8.4400e-003	1.9000e-004	8.6300e-003	0.0000	28.1541	28.1541	6.6000e-004	0.0000	28.1707
Total	**0.0180**	**0.1343**	**0.1443**	**5.6000e-004**	**0.0377**	**1.1600e-003**	**0.0389**	**0.0102**	**1.1100e-003**	**0.0113**	**0.0000**	**52.9685**	**52.9685**	**2.8700e-003**	**0.0000**	**53.0403**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1511	1.3490	1.0985	1.7200e-003		0.0826	0.0826		0.0776	0.0776	0.0000	150.4667	150.4667	0.0367	0.0000	151.3831
Total	**0.1511**	**1.3490**	**1.0985**	**1.7200e-003**		**0.0826**	**0.0826**		**0.0776**	**0.0776**	**0.0000**	**150.4667**	**150.4667**	**0.0367**	**0.0000**	**151.3831**

Unmitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.4700e-003	0.1471	0.0565	3.1000e-004	7.5100e-003	1.0200e-003	8.5200e-003	2.1700e-003	9.7000e-004	3.1400e-003	0.0000	30.8166	30.8166	2.7200e-003	0.0000	30.8846
Worker	0.0150	0.0105	0.1085	3.8000e-004	0.0398	2.6000e-004	0.0401	0.0106	2.4000e-004	0.0108	0.0000	34.2308	34.2308	7.3000e-004	0.0000	34.2491
Total	**0.0204**	**0.1576**	**0.1650**	**6.9000e-004**	**0.0473**	**1.2800e-003**	**0.0486**	**0.0128**	**1.2100e-003**	**0.0140**	**0.0000**	**65.0473**	**65.0473**	**3.4500e-003**	**0.0000**	**65.1337**

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	0.0692	1.5075	1.1439	1.7200e-003		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003	0.0000	150.4665	150.4665	0.0367	0.0000	151.3829
Total	**0.0692**	**1.5075**	**1.1439**	**1.7200e-003**		**8.6700e-003**	**8.6700e-003**		**8.6700e-003**	**8.6700e-003**	**0.0000**	**150.4665**	**150.4665**	**0.0367**	**0.0000**	**151.3829**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.4700e-003	0.1471	0.0565	3.1000e-004	7.5100e-003	1.0200e-003	8.5200e-003	2.1700e-003	9.7000e-004	3.1400e-003	0.0000	30.8166	30.8166	2.7200e-003	0.0000	30.8846
Worker	0.0150	0.0105	0.1085	3.8000e-004	0.0398	2.6000e-004	0.0401	0.0106	2.4000e-004	0.0108	0.0000	34.2308	34.2308	7.3000e-004	0.0000	34.2491
Total	**0.0204**	**0.1576**	**0.1650**	**6.9000e-004**	**0.0473**	**1.2800e-003**	**0.0486**	**0.0128**	**1.2100e-003**	**0.0140**	**0.0000**	**65.0473**	**65.0473**	**3.4500e-003**	**0.0000**	**65.1337**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161
Total	**4.4000e-004**	**3.1000e-004**	**3.2200e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0156**	**1.0156**	**2.0000e-005**	**0.0000**	**1.0161**

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	9.3100e-003	0.2012	0.1730	2.3000e-004		1.0000e-003	1.0000e-003		1.0000e-003	1.0000e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.3100e-003**	**0.2012**	**0.1730**	**2.3000e-004**		**1.0000e-003**	**1.0000e-003**		**1.0000e-003**	**1.0000e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161
Total	**4.4000e-004**	**3.1000e-004**	**3.2200e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0156**	**1.0156**	**2.0000e-005**	**0.0000**	**1.0161**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5516					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	2.6600e-003	0.0184	0.0184	3.0000e-005		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5587
Total	**0.5542**	**0.0184**	**0.0184**	**3.0000e-005**		**1.2900e-003**	**1.2900e-003**		**1.2900e-003**	**1.2900e-003**	**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5587**

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	4.7000e-004	3.3000e-004	3.4300e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.4000e-004	0.0000	1.0833	1.0833	2.0000e-005	0.0000	1.0838
Total	**4.7000e-004**	**3.3000e-004**	**3.4300e-003**	**1.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2700e-003**	**3.4000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0833**	**1.0833**	**2.0000e-005**	**0.0000**	**1.0838**

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	0.5516					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1400e-003	0.0235	0.0183	3.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5586
Total	**0.5527**	**0.0235**	**0.0183**	**3.0000e-005**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5586**

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	4.7000e-004	3.3000e-004	3.4300e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.4000e-004	0.0000	1.0833	1.0833	2.0000e-005	0.0000	1.0838
Total	**4.7000e-004**	**3.3000e-004**	**3.4300e-003**	**1.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2700e-003**	**3.4000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0833**	**1.0833**	**2.0000e-005**	**0.0000**	**1.0838**

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	0.1054	0.3353	1.1872	3.8500e-003	0.3435	4.2200e-003	0.3478	0.0923	3.9600e-003	0.0963	0.0000	351.8708	351.8708	0.0132	0.0000	352.2002
Unmitigated	0.1054	0.3353	1.1872	3.8500e-003	0.3435	4.2200e-003	0.3478	0.0923	3.9600e-003	0.0963	0.0000	351.8708	351.8708	0.0132	0.0000	352.2002

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

Condo/Townhouse	412.51	402.57	343.64	926,733	926,733
Parking Lot	0.00	0.00	0.00		
Total	412.51	402.57	343.64	926,733	926,733

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741
Parking Lot	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

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	110.0037	110.0037	4.9700e-003	1.0300e-003	110.4347
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	110.0037	110.0037	4.9700e-003	1.0300e-003	110.4347
NaturalGas Mitigated	8.7000e-003	0.0743	0.0316	4.7000e-004		6.0100e-003	6.0100e-003		6.0100e-003	6.0100e-003	0.0000	86.0792	86.0792	1.6500e-003	1.5800e-003	86.5907
NaturalGas Unmitigated	8.7000e-003	0.0743	0.0316	4.7000e-004		6.0100e-003	6.0100e-003		6.0100e-003	6.0100e-003	0.0000	86.0792	86.0792	1.6500e-003	1.5800e-003	86.5907

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					
Condo/Townhouse	1.61306e+006	8.7000e-003	0.0743	0.0316	4.7000e-004		6.0100e-003	6.0100e-003		6.0100e-003	6.0100e-003	0.0000	86.0792	86.0792	1.6500e-003	1.5800e-003	86.5907
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
Total		**8.7000e-003**	**0.0743**	**0.0316**	**4.7000e-004**		**6.0100e-003**	**6.0100e-003**		**6.0100e-003**	**6.0100e-003**	**0.0000**	**86.0792**	**86.0792**	**1.6500e-003**	**1.5800e-003**	**86.5907**

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					
Condo/Townhouse	1.61306e+006	8.7000e-003	0.0743	0.0316	4.7000e-004		6.0100e-003	6.0100e-003		6.0100e-003	6.0100e-003	0.0000	86.0792	86.0792	1.6500e-003	1.5800e-003	86.5907
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
Total		**8.7000e-003**	**0.0743**	**0.0316**	**4.7000e-004**		**6.0100e-003**	**6.0100e-003**		**6.0100e-003**	**6.0100e-003**	**0.0000**	**86.0792**	**86.0792**	**1.6500e-003**	**1.5800e-003**	**86.5907**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
Condo/Townhouse	355045	103.2866	4.6700e-003	9.7000e-004	103.6913
Parking Lot	23089.8	6.7171	3.0000e-004	6.0000e-005	6.7434
Total		**110.0037**	**4.9700e-003**	**1.0300e-003**	**110.4347**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	355045	103.2866	4.6700e-003	9.7000e-004	103.6913
Parking Lot	23089.8	6.7171	3.0000e-004	6.0000e-005	6.7434
Total		**110.0037**	**4.9700e-003**	**1.0300e-003**	**110.4347**

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	0.5379	9.9000e-003	0.7558	4.8000e-004		0.0352	0.0352		0.0352	0.0352	3.2369	2.1932	5.4301	6.0500e-003	2.1000e-004	5.6446

Unmitigated	0.5379	9.9000e-003	0.7558	4.8000e-004		0.0352	0.0352		0.0352	0.0352	3.2369	2.1932	5.4301	6.0500e-003	2.1000e-004	5.6446

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	0.0552					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3027					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1638	3.7700e-003	0.2256	4.5000e-004		0.0323	0.0323		0.0323	0.0323	3.2369	1.3295	4.5664	5.2000e-003	2.1000e-004	4.7597
Landscaping	0.0162	6.1300e-003	0.5303	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8637	0.8637	8.5000e-004	0.0000	0.8848
Total	**0.5379**	**9.9000e-003**	**0.7558**	**4.8000e-004**		**0.0352**	**0.0352**		**0.0352**	**0.0352**	**3.2369**	**2.1932**	**5.4301**	**6.0500e-003**	**2.1000e-004**	**5.6446**

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	0.0552					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3027					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1638	3.7700e-003	0.2256	4.5000e-004		0.0323	0.0323		0.0323	0.0323	3.2369	1.3295	4.5664	5.2000e-003	2.1000e-004	4.7597
Landscaping	0.0162	6.1300e-003	0.5303	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8637	0.8637	8.5000e-004	0.0000	0.8848

Total	**0.5379**	**9.9000e-003**	**0.7558**	**4.8000e-004**		**0.0352**	**0.0352**		**0.0352**	**0.0352**	**3.2369**	**2.1932**	**5.4301**	**6.0500e-003**	**2.1000e-004**	**5.6446**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.7188	0.1512	3.6600e-003	16.5880
Unmitigated	11.7188	0.1512	3.6600e-003	16.5880

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	4.62594 / 2.91635	11.7188	0.1512	3.6600e-003	16.5880
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**11.7188**	**0.1512**	**3.6600e-003**	**16.5880**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	4.62594 / 2.91635	11.7188	0.1512	3.6600e-003	16.5880
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**11.7188**	**0.1512**	**3.6600e-003**	**16.5880**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.6297	0.3918	0.0000	16.4248
Unmitigated	6.6297	0.3918	0.0000	16.4248

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e

Land Use	tons	MT/yr			
Condo/Townhouse	32.66	6.6297	0.3918	0.0000	16.4248
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**6.6297**	**0.3918**	**0.0000**	**16.4248**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	32.66	6.6297	0.3918	0.0000	16.4248
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**6.6297**	**0.3918**	**0.0000**	**16.4248**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation