APPENDIX A

AIR QUALITY AND GREENHOUSE GAS BACKGROUND AND MODELING DATA

Air Quality and Greenhouse Gas Background and Modeling Data

1. Air Quality

Ambient air quality standards (AAQS) have been adopted at State and federal levels for criteria air pollutants. In addition, both the State and federal government regulate the release of toxic air contaminants (TACs). The City of Petaluma is in the San Francisco Bay Area Air Basin (SFBAAB) and is subject to the rules and regulations imposed by the Bay Area Air Quality Management District (BAAQMD), as well as the California AAQS adopted by the California Air Resources Board (CARB) and national AAQS adopted by the United States Environmental Protection Agency (EPA).

California is divided geographically into air basins for the purpose of managing the air resources of the State on a regional basis. An air basin generally has similar meteorological and geographic conditions throughout. The State is divided into 15 air basins. Cupertino is in the SFBAAB. Air pollutants of concern are criteria air pollutants and TACs. Federal, State, and local air districts have adopted laws and regulations intended to control and improve air quality. The regulatory framework that is potentially applicable to the proposed Project is summarized below. The discussion also identifies the natural factors in the air basin that affect air pollution.

1.1 REGULATORY FRAMEWORK

1.1.1 Ambient Air Quality Standards

The Clean Air Act (CAA) was passed in 1963 by the U.S. Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act, signed into law in 1988, requires all areas of the State to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 1. These pollutants are ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.075 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	*[a]	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	*[a]	
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarterly	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)	24 hours	25 µg/m^3	*	Industrial processes.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: California Air Resources Board (CARB), 2013. Ambient Air Quality Standards, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, June.
Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter
Standard has not been established for this pollutant/duration by this entity.
[a] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked.

1.1.2 Air Pollutants of Concern

A substance in the air that can cause harm to humans and the environment is known as an air pollutant. Pollutants can be in the form of solid particles, liquid droplets, or gases. In addition, they may be natural or man-made.

1.1.2.1 CRITERIA AIR POLLUTANTS

The pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and State law. Air pollutants are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_x), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, nitrogen dioxide (NO_2), PM_{10}, and $PM_{2.5}$ are “criteria air pollutants,” which means that AAQS have been established for them. ROG and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants.

A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

- **Carbon Monoxide (CO)** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little or no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, motor vehicles operating at slow speeds are the primary source of CO in the air basin. Emissions are highest during cold starts, hard acceleration, stop-and-go driving, and when a vehicle is moving at low speeds. New findings indicate that CO emissions per mile are lowest at about 45 miles per hour (mph) for the average light-duty motor vehicle and begin to increase again at higher speeds. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces its oxygen-carrying capacity. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death.[1] The air basin is designated under the California and National AAQS as being in attainment of CO criteria levels.[2]

- **Reactive Organic Gases (ROGs)** are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of ROGs. Other sources include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary pollutants such as O_3. There are no AAQS established for ROGs. However, because they contribute to the formation of O_3, BAAQMD has established a significance threshold for this pollutant.

- **Nitrogen Oxides (NO_x)** are a by-product of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major components of NO_x are nitric oxide (NO) and NO_2. The principal component of NO_x produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 is an acute irritant and at equal concentrations more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure.[3] The air basin is designated an attainment area for NO_2 under the National AAQS and California AAQS.[4]

- **Sulfur Dioxide (SO_2)** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from

[1] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011), Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.
[2] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.
[3] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.
[4] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.

chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When SO_2 forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_x). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue.[5] The air basin is designated an attainment area for SO_2 under the California and National AAQS.[6]

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004-inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns or less (i.e., 2.5 millionths of a meter or 0.0001 inch).

Some particulate matter, such as pollen, occurs naturally. Most particulate matter in the air basin is caused by combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Extended exposure to particulate matter can increase the risk of chronic respiratory disease. PM_{10} bypasses the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. An EPA scientific review concluded that $PM_{2.5}$ penetrates even more deeply into the lungs, and this is more likely to contribute to health effects—at concentrations well below current PM_{10} standards. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, increased respiratory symptoms (e.g. irritation of the airways, coughing, or difficulty breathing). Motor vehicles are currently responsible for about half of particulates in the air basin. Wood burning in fireplaces and stoves is another large source of fine particulates.[7]

Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individual with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms.[8] Diesel particulate matter (DPM) is classified a carcinogen by CARB. The air basin is designated nonattainment under the California AAQS for PM_{10} and nonattainment under both the California and National AAQS for $PM_{2.5}$.[9,10]

[5] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.
[6] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.
[7] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.
[8] South Coast Air Quality Management District (SCAQMD), 2005. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.
[9] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.
[10] On January 9, 2013, the EPA issued a final rule to determine that the SFBAAB has attained the 24-hour $PM_{2.5}$ National AAQS. This action suspends federal State Implementation Plan planning requirements for the Bay Area. The SFBAAB will continue to be designated nonattainment for the National 24-hour $PM_{2.5}$ standard until such time as BAAQMD elects to submit a redesignation request and a maintenance plan to EPA and EPA approves the proposed redesignation.

- **Ozone (O_3)** is commonly referred to as "smog" and is a gas that is formed when ROGs and NO_x,—both by-products of internal combustion engine exhaust—undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions to the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. O_3 levels usually build up during the day and peak in the afternoon. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. O_3 can also damage plants and trees and materials such as rubber and fabrics.[11] The air basin is designated nonattainment of the 1-hour California AAQS and 8-hour California and National AAQS for O_3.[12]

- **Lead (Pb)** is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.[13] The air basin is designated in attainment of the California and National AAQS for lead.[14] Because emissions of lead are found only in projects that are permitted by BAAQMD, lead is not an air quality of concern for the proposed Project.

1.1.2.2 TOXIC AIR CONTAMINANTS

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 U.S. Code Section 7412[b]) is a toxic air contaminant. Under State law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

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[11] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.
[12] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.
[13] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.
[14] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e. a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs that it identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

At the time of the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs.[15] Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

In 1998, CARB identified DPM as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs.

1.1.3 Bay Area Air Quality Management District

BAAQMD is the agency responsible for assuring that the National and California AAQS are attained and maintained in the SFBAAB. BAAQMD is responsible for:

- Adopting and enforcing rules and regulations concerning air pollutant sources.
- Issuing permits for stationary sources of air pollutants.
- Inspecting stationary sources of air pollutants.
- Responding to citizen complaints.
- Monitoring ambient air quality and meteorological conditions.
- Awarding grants to reduce motor vehicle emissions.
- Conducting public education campaigns.
- Air quality management planning.

[15] California Air Resources Board (CARB), 1999. Final Staff Report: Update to the Toxic Air Contaminant List.

Air quality conditions in the air basin have improved significantly since the BAAQMD was created in 1955.[16] The BAAQMD prepares air quality management plans (AQMPs) to attain ambient air quality standards in the air basin. It also prepares ozone attainment plans for the National O_3 standard and clean air plans for the California O_3 standard. The BAAQMD prepares these AQMPs in coordination with the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC). The most recent adopted comprehensive plan is the 2010 Bay Area Clean Air Plan, which was adopted by BAAQMD on September 15, 2010, and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools.

1.1.3.1 BAAQMD 2010 BAY AREA CLEAN AIR PLAN

The purpose of the 2010 Bay Area Clean Air Plan is to: 1) update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement all feasible measures to reduce O_3; 2) consider the impacts of O_3 control measures on PM, TAC, and greenhouse gases in a single, integrated plan; 3) review progress in improving air quality in recent years; and 4) establish emission control measures in the 2009 to 2012 timeframe.

1.1.3.2 BAAQMD'S COMMUNITY AIR RISK EVALUATION PROGRAM (CARE)

The BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor TACs in the Bay Area. Based on findings of the latest report, DPM was found to account for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light duty trucks were also identified as significant contributors: 1,3-butadiene contributed 4 percent of the cancer risk-weighted emissions, and benzene contributed 3 percent. Collectively, five compounds—DPM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde—were found to be responsible for more than 90 percent of the cancer risk attributed to emissions. All of these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk–weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). A 75 percent reduction in DPM was predicted between 2005 and 2015 when the inventory accounted for CARB's diesel regulations. Overall, cancer risk from TACs dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for state diesel regulations and other reductions.[17]

Modeled cancer risks from TAC in 2005 were highest near sources of DPM: near core urban areas, along major roadways and freeways, and near maritime shipping terminals. The highest modeled risks were found east of San Francisco, near West Oakland, and the Maritime Port of Oakland. BAAQMD has identified seven impacted communities in the Bay Area:

1. Western Contra Costa County and the cities of Richmond and San Pablo

[16] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.
[17] Bay Area Air Quality Management District (BAAQMD), 2014. Improving Air Quality & Health in Bay Area Communities, Community Air Risk Program (CARE) Retrospective and Path Forward (2004–2013), April.

2. Western Alameda County along the Interstate 880 (I-880) corridor and the cities of Berkeley, Alameda, Oakland, and Hayward
3. San Jose
4. Eastern side of San Francisco
5. Concord
6. Vallejo
7. Pittsburgh and Antioch

San Jose is the closest CARE program–impacted community to the city. Based on the Phase II boundaries, Cupertino lies outside this impacted community.

The major contributor to acute and chronic non-cancer health effects in the air basin is acrolein (C_3H_4O). Major sources of acrolein are on-road mobile sources and aircraft near freeways and commercial and military airports.[18] Currently CARB does not have certified emission factors or an analytical test method for acrolein. Since the appropriate tools needed to implement and enforce acrolein emission limits are not available, the BAAQMD does not conduct health risk screening analysis for acrolein emissions.[19]

1.1.3.3 SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

The Santa Clara Valley Transportation Authority (VTA) is the congestion management agency for Santa Clara County. VTA is tasked with developing a comprehensive transportation improvement program among local jurisdictions that will reduce traffic congestion and improve land use decision making and air quality. VTA's latest congestion management program (CMP) is the *2013 Congestion Management Program*. VTA's countywide transportation model must be consistent with the regional transportation model developed by the MTC with ABAG data. The countywide transportation model is used to help evaluate cumulative transportation impacts of local land use decisions on the CMP system. In addition, VTA's updated CMP includes multi-modal performance standards and trip reduction and transportation demand management strategies consistent with the goal of reducing regional VMT in accordance with Senate Bill 375 (SB 375). Strategies identified in the 2013 CMP for Santa Clara County, where local jurisdictions are responsible agencies, include:[20]

- **Traffic Level of Service:** Monitor and submit report on the level of service (LOS) on CMP roadway network intersections using CMP software and procedures.

- **Transportation Model and Database:** Certify that member agency models are consistent with the CMP model.

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[18] Bay Area Air Quality Management District (BAAQMD), 2006. Community Air Risk Evaluation Program, Phase I Findings and Policy Recommendations Related to Toxic Air Contaminants in the San Francisco Bay Area.
[19] Bay Area Air Quality Management District (BAAQMD), 2010. Air Toxics NSR Program, Health Risk Screening Analysis Guidelines.
[20] Santa Clara Valley Transportation Authority (VTA), 2013. 2013 Congestion Management Program, http://www.vta.org/sfc/servlet.shepherd/version/download/068A0000001Q7pt, October.

- **Community Form and Impact Analysis:** Prepare a transportation impact analysis (TIA) for projects that generate 100 or more peak hour trips and submit to the CMP according to TIA Guidelines schedule.

- **Community Form and Impact Analysis:** Submit relevant conditions of approval to VTA for projects generating TIAs.

- **Community Form and Impact Analysis:** Prepare and submit land use monitoring data to the CMP on all land use projects approved from July 1 to June 30 of the previous year.

- **Community Form and Impact Analysis:** Submit an annual statement certifying that the member agency has complied with the CMP Land Use Impact Analysis Program.

Monitoring and Conformance: Outline the requirements and procedures established for conducting annual traffic LOS and land use monitoring efforts. Support the Traffic Level of Service and Community Form and Impact Analysis Elements.

- **Capital Improvement Program:** Develop a list of projects intended to maintain or improve the level of service on the designated system and to maintain transit performance standards.

- **Deficiency Plan:** Prepare deficiency plans for facilities that violate CMP traffic LOS standards or that are projected to violate LOS standards using the adopted deficiency plan requirements.

- **Deficiency Plan:** Submit a deficiency plan implementation status report as part of annual monitoring.

1.2 ENVIRONMENTAL SETTING

1.2.1 San Francisco Area Air Basin

The BAAQMD is the regional air quality agency for the SFAAB, which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties; the southern portion of Sonoma County; and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions.[21]

1.2.1.1 METEOROLOGY

The air basin is characterized by complex terrain that distorts normal wind flow patterns, consisting of coastal mountain ranges, inland valleys, and bays. The Coast Range splits in the Bay Area, creating in a western coast gap, the Golden Gate, and an eastern coast gap, the Carquinez Strait, which allow air to flow in and out of the Bay Area and the Central Valley. [22]

The climate is dominated by a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological

[21] This section describing the air basin is from Bay Area Air Quality Management District, 2010 (Revised 2011), Appendix C: Sample Air Quality Setting, in *California Environmental Quality Act Air Quality Guidelines*.
[22] The Coast Ranges traverses California's west coast from Humboldt County to Santa Barbara County.

conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the California coast.

The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

1.2.1.2 WIND PATTERNS

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais in Marin County, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills.

Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate, or the San Bruno gap. For example, the average wind speed at San Francisco International Airport in July is about 17 knots (from 3:00 p.m. to 4:00 p.m.), compared with only 7 knots at San Jose and less than 6 knots at the Farallon Islands.

The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. Under normal atmospheric conditions, the air in the lower atmosphere is warmer than the air above it. An inversion is a change in the normal conditions that causes the temperature gradient to be reversed, or inverted. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited, and stagnant conditions are likely to result.

In the winter, the air basin frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes (i.e. condition where there is little mixing, which occurs when there is a lack of or little wind) are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the bay from the smaller valleys in the air basin.

1.2.1.3 TEMPERATURE

Summertime temperatures in the air basin are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold water from the ocean bottom along the coast. On summer afternoons, the temperatures at the coast can be 35 degrees Fahrenheit cooler than temperatures 15 to 20 miles inland; at night, this contrast usually decreases to less than 10 degrees Fahrenheit.

In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature contrast between the coast and inland areas is small, whereas at night it is large.

1.2.1.4 PRECIPITATION

The air basin is characterized by moderately wet winters and dry summers. Winter rains (November through March) account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the air basin to another, even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys.

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing (an upward and downward movement of air) are usually high, and thus pollution levels tend to be low (i.e. air pollutants are dispersed more readily into the atmosphere rather than accumulate under stagnant conditions). However, during the winter, frequent dry periods do occur, when mixing and ventilation are low and pollutant levels build up.

1.2.1.5 WIND CIRCULATION

Low wind speed contributes to the buildup of air pollution because more pollutants are emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun (fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak, namely, commuter traffic (early morning) and wood-burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants up-valley during the day, and cold air drainage flows move the air mass down-valley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthy levels.

1.2.1.6 INVERSIONS

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth (i.e. the vertical depth in the atmosphere available for diluting air contaminants near the ground). There are two types of inversions that occur regularly in the air basin. Elevation inversions are more common in the summer and fall, [23] and radiation inversions are more common during the winter.[24] The highest air pollutant concentrations in the Air Basin generally occur during inversions.

1.2.2 Existing Ambient Air Quality

1.2.2.1 ATTAINMENT STATUS OF THE SFBAAB

Areas that meet AAQS are classified attainment areas, and areas that do not meet these standards are classified nonattainment areas. Severity classifications for O_3 range from marginal, moderate, and serious to

[23] When the air blows over elevated areas, it is heated as it is compressed into the side of the hill/mountain. When that warm air comes over the top, it is warmer than the cooler air of the valley.
[24] During the night, the ground cools off, radiating the heat to the sky.

severe and extreme. The attainment status for the air basin is shown in Table 2. The air basin is currently designated a nonattainment area for California and National O_3, California and National $PM_{2.5}$, and California PM_{10} AAQS.

Table 2 Attainment Status of Criteria Pollutants in the San Francisco Bay Area Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Nonattainment	Classification revoked (2005)
Ozone – 8-hour	Nonattainment (serious)	Nonattainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Nonattainment[a]
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	Attainment	Unclassified
All others	Unclassified	Unclassified

Source: California Air Resources Board, 2014, Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.

[a] On January 9, 2013, the EPA issued a final rule to determine that the SFBAAB has attained the 24-hour $PM_{2.5}$ National AAQ This action suspends federal State Implementation Plan planning requirements for the Bay Area. The SFBAAB will continue to be designated nonattainment for the National 24-hour $PM_{2.5}$ standard until BAAQMD elects to submit a redesignation request and a maintenance plan to EPA and EPA approves the proposed redesignation.

1.2.2.2 EXISTING AMBIENT AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the vicinity of the Project site are best documented by measurements made by the BAAQMD. In addition to 24 permanent monitoring stations around the Bay Area, BAAQMD has a special monitoring station in Cupertino at the Monta Vista Park on Foothill Boulevard. This station started operating in September 2010. Therefore, for years prior to 2010, data from the San Jose Jackson Street Monitoring Station was used in this analysis. Data from these stations are summarized in Table 3. The data show occasional violations of the State and federal O_3 standards. The State and federal CO, NO_2, PM_{10}, and $PM_{2.5}$ standards have not been exceeded in the last five years in the vicinity of the City.

Table 3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2009	2010	2011	2012	2013
Ozone (O_3)[a]					
State 1-Hour ≥ 0.09 ppm	0	0	0	0	0
State 8-hour ≥ 0.07 ppm	0	3	0	0	1
Federal 8-Hour > 0.075 ppm	0	1	0	0	1
Maximum 1-Hour Conc. (ppm)	0.088	0.086	0.086	0.083	0.091
Maximum 8-Hour Conc. (ppm)	0.069	0.092	0.067	0.067	0.078
Carbon Monoxide (CO)[a]					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.0 ppm	0	0	0	0	0
Maximum 8-Hour Conc. (ppm)	2.50	0.93	0.95	0.73	*
Nitrogen Dioxide (NO_2)[a]					
State 1-Hour ≥ 0.18 (ppm)	0	0	0	0	0
Maximum 1-Hour Conc. (ppb)	69.0	48.6	42.5	44.7	41.9
Coarse Particulates (PM_{10})[a]					
State 24-Hour > 50 $\mu g/m^3$	0	0	0	0	0
Federal 24-Hour > 150 $\mu g/m^3$	0	0	0	0	0
Maximum 24-Hour Conc. ($\mu g/m^3$)	43.3	27.9	28.9	41.5	33.5
Fine Particulates ($PM_{2.5}$)[a]					
Federal 24-Hour > 35 $\mu g/m^3$	0	*	*	*	*
Maximum 24-Hour Conc. ($\mu g/m^3$)	35.0	25.0	30.5	27.5	38.9

Source: California Air Resources Board, 2014, Air Pollution Data Monitoring Cards (2009, 2010, 2011, 2012, and 2013), Accessed June 16, 2014, http://www.arb.ca.gov/adam/index.html.

Notes: ppm: parts per million; ppb: parts per billion; $\mu g/m^3$: or micrograms per cubic meter

* = insufficient data

[a] Data from Cupertino Monitoring Station for years 2010–2013. Data from the San Jose Jackson Street Monitoring Station for year 2009.

1.2.2.3 EXISTING EMISSIONS

The 2.0-acre Project site is developed with a parking lot and does not generate existing criteria air pollutant emissions.

1.2.3 Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are also considered sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, since the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the population.

The closest sensitive receptors to the Project site are approximately 200 meters (656 feet) to the west.

1.3 METHODOLOGY

The BAAQMD "CEQA Air Quality Guidelines" were prepared to assist in the evaluation of air quality impacts of projects and plans proposed in the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines. In May 2011, the updated guidelines were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD CEQA Air Quality Guidelines. The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA.

Following the court's order, the BAAQMD released revised CEQA Air Quality Guidelines in May of 2012 that include guidance on calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, and that set aside the significance thresholds. The BAAQMD recognizes that lead agencies may rely on the previously recommended thresholds of significance in its CEQA Guidelines adopted in 1999. The Alameda County Superior Court, in ordering BAAQMD to set aside the thresholds, did not address the merits of the science or evidence supporting the thresholds. The City finds, therefore, that despite the Superior Court's ruling, and in light of the subsequent case history discussed below, the science and reasoning in the BAAQMD 2011 CEQA Air Quality Guidelines provide the latest state-of-the-art guidance available. For that reason, substantial evidence supports continued use of the BAAQMD 2011 CEQA Air Quality Guidelines.

On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's CEQA Guidelines in *California Building Industry Association versus Bay Area Air Quality Management District*, Case Nos. A135335 and A136212 (Court of Appeal, First District, August 13, 2013). In addition to the City's independent determination that use of the BAAQMD's CEQA Guidelines is supported by substantial evidence, they have been found to be valid guidelines for use in the CEQA environmental review process. On November 26, 2013, the California Supreme Court granted review on the issue of whether the toxic air contaminants thresholds are consistent with CEQA; specifically, whether CEQA requires analysis of exposing project residents or users to existing environmental hazards. Briefing was completed on May 27, 2014, but the hearing has not yet been set.

Although the outcome of this case presents uncertainty for current project applicants and local agencies regarding proper evaluation of toxic air contaminants in CEQA documents, local agencies still have a duty to evaluate impacts related to air quality and greenhouse gas emissions. In addition, CEQA grants local agencies broad discretion to develop their own thresholds of significance or to rely on thresholds previously adopted or recommended by other public agencies or experts so long as they are supported by substantial evidence. Accordingly, the City of Cupertino is using the BAAQMD's 2011 thresholds to evaluate Project impacts in order to protectively evaluate the potential effects of the Project on air quality and greenhouse gas emissions.

1.3.1 Criteria Air Pollutant Emissions

The proposed Project qualifies as a project-level project under BAAQMD's criteria. For project-level analyses, BAAQMD has adopted screening criteria and significance criteria that would be applicable to the proposed Project. If a project exceeds the screening level, it would be required to conduct a full analysis using BAAQMD's significance criteria.

Regional Significance Criteria

BAAQMD's criteria for regional significance for projects that exceed the screening thresholds are shown in Table 4. Criteria for both construction and operational phases of the Project are shown.

Table 4 BAAQMD Regional (Mass Emissions) Criteria Air Pollutant Significance Thresholds

	Construction Phase	Operational Phase	
Pollutant	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (Tons/year)
ROG	54	54	10
NO_x	54	54	10
PM10	82 (Exhaust)	82	15
PM2.5	54 (Exhaust)	54	10
PM10 and PM2.5 Fugitive Dust	Best Management Practices	None	None

Source: Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.

Local CO Hotspots

Congested intersections have the potential to create elevated concentrations of CO, referred to as CO hotspots. The significance criteria for CO hotspots are based on the California AAQS for CO, which is 9.0 ppm (8-hour average) and 20.0 ppm (1-hour average). However, with the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology, the SFBAAB is in attainment of the California and National AAQS, and CO concentrations in the SFBAAB have steadily declined. Because CO concentrations have improved, BAAQMD does not require a CO hotspot analysis if the following criteria are met:

- Project is consistent with an applicable congestion management program established by the County Congestion Management Agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans

- The Project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour

- The Project traffic would not increase traffic volumes at affected intersection to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g. tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).[25]

Odors

BAAQMD's thresholds for odors are qualitative. BAAQMD does not consider odors generated by construction equipment and activities to be objectionable. For operational phase odor impacts, a project that would result in the siting of a new source of odor or exposure of a new receptor to existing or planned odor sources should consider odor impacts. BAAQMD considers potential odor impacts to be significant if there are five confirmed complaints per year from a facility, averaged over three years. BAAQMD has established odor screening thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants.[26]

1.3.2 Community Risk and Hazards

BAAQMD's significance thresholds for local community risk and hazard impacts apply to both the siting of a new source and to the siting of a new receptor. Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts at the local level. For assessing community risk and hazards, sources within a 1,000-foot radius are considered. Sources are defined as freeways, high volume roadways (with volume of 10,000 vehicles or more per day or 1,000 trucks per day), and permitted sources.[27] Neither the City of Cupertino nor Santa Clara County have a qualified risk reduction plan.

- The proposed Project would generate TACs and $PM_{2.5}$ during construction activities that could elevate concentrations of air pollutants at the surrounding residential receptors. The thresholds for construction-related local community risk and hazard impacts are the same as for Project operations. The BAAQMD has adopted screening tables for air toxics evaluation during construction.[28] Construction-related TAC

[25] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[26] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[27] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[28] Bay Area Air Quality Management District, 2010, Screening Tables for Air Toxics Evaluations during Construction.

and $PM_{2.5}$ impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site receptors, as applicable.[29]

- The proposed Project involves construction of new residential units and is therefore not a major source of operational TACs and stationary $PM_{2.5}$. BAAQMD thresholds related to siting new sources of TACs and $PM_{2.5}$ near existing or planned sensitive receptors is not applicable.

- The proposed Project is a sensitive land use that would warrant an on-site community risk and hazards evaluation. Therefore, the community risk and hazards thresholds for operation of the proposed Project are applicable.

The thresholds identified below are applied to the Project's operational phase (siting new receptors) and construction emissions.

Community Risk and Hazards – Project

Project-level emissions of TACs or $PM_{2.5}$ from individual sources within 1,000 feet of the Project that exceed any of the thresholds listed below are considered a potentially significant community health risk:

- Non-compliance with a qualified Community Risk Reduction Plan;

- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e. chronic or acute) hazard index greater than 1.0 would be a significant cumulatively considerable contribution;

- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ from a single source would be a significant, cumulatively considerable contribution.[30]

Community Risk and Hazards – Cumulative

Cumulative sources represent the combined total risk values of each of the individual sources within the 1,000-foot evaluation zone. A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source or location of a receptor, plus the contribution from the Project, exceeds the following:

- Non-compliance with a qualified Community Risk Reduction Plan; or

- An excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0; or

- 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.[31]

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[29] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[30] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[31] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.

2. Greenhouse Gas Emissions

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to the atmosphere. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed in the 20th and 21st centuries. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent are nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[32,33,34] The major GHG are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global warming potential (GWP) gases.

    - ***Chlorofluorocarbons (CFCs)*** are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-

[32] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop o rather than a primary cause of change.

[33] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2014a). However, State and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

[34] Intergovernmental Panel on Climate Change, 2001. *Third Assessment Report: Climate Change 2001,* New York: Cambridge University Press.

depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced, along with HFCs, as alternatives to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

- ***Sulfur Hexafluoride (SF_6)*** is a colorless gas, soluble in alcohol and ether and slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs. [35,36]

The global warming potential of GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 5. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Second Assessment Report GWP values for CH_4, a project that generates 10 metric tons (MT) of CH_4 would be equivalent to 210 MT of CO_2.

[35] United States Environmental Protection Agency, 2012. Greenhouse Gas Emissions, http://www.epa.gov/climatechange/ghgemissions/gases.html.
[36] Intergovernmental Panel on Climate Change, 2001. Third Assessment Report: Climate Change 2001, New York: Cambridge University Press.

Table 5 GHG Emissions and their Relative Global Warming Potential Compared to CO_2

GHGs	Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	50 to 200	1	1
Methane[2] (CH_4)	12 (±3)	21	25
Nitrous Oxide (N_2O)	120	310	298
Hydrofluorocarbons:			
HFC-23	264	11,700	14,800
HFC-32	5.6	650	675
HFC-125	32.6	2,800	3,500
HFC-134a	14.6	1,300	1,430
HFC-143a	48.3	3,800	4,470
HFC-152a	1.5	140	124
HFC-227ea	36.5	2,900	3,220
HFC-236fa	209	6,300	9,810
HFC-4310mee	17.1	1,300	1,030
Perfluoromethane: CF_4	50,000	6,500	7,390
Perfluoroethane: C_2F_6	10,000	9,200	12,200
Perfluorobutane: C_4F_{10}	2,600	7,000	8,860
Perfluoro-2-methylpentane: C_6F_{14}	3,200	7,400	9,300
Sulfur Hexafluoride (SF_6)	3,200	23,900	22,800

Source: Intergovernmental Panel on Climate Change, 2007, Fourth Assessment Report: Climate Change 2001, New York: Cambridge University Press

Notes: The IPCC has published updated global warming potential (GWP) values in its Fifth Assessment Report (2013) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, GWP values identified in the Second Assessment Report are still used by BAAQMD to maintain consistency in GHG emissions modeling. In addition, the 2008 Scoping Plan and the BAAQMD CEQA Guidelines were based on the GWP values in the Second Assessment Report.

1 Based on 100-year time horizon of the GWP of the air pollutant relative to CO_2 .

2 The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

2.1 HUMAN INFLUENCE ON CLIMATE CHANGE

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and climate change pollutants that is attributable to human activities. The amount of CO_2 has increased by more than 35 percent since preindustrial times and at an average rate of 1.4 parts per million (ppm) per year since 1960, mainly due to combustion of fossil fuels and deforestation.[37] These recent changes in climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is rising at a rate that cannot be explained by natural causes alone. [38] Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants.[39]

[37] Intergovernmental Panel on Climate Change, 2007. Fourth Assessment Report: Climate Change 2007, New York: Cambridge University Press.

[38] At the end of the last ice age, the concentration of CO_2 increased by around 100 ppm (parts per million) over about 8,000 years, or approximately 1.25 ppm per century. Since the start of the industrial revolution, the rate of increase has accelerated markedly. The rate of CO_2 accumulation currently stands at around 150 ppm/century—more than 200 times faster than the background rate for the past 15,000 years.

[39] California Climate Action Team, 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature, March.

Projections of climate change depend heavily upon future human activity. Therefore, climate models are based on different emission scenarios that account for historic trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty. For example, there are varying degrees of certainty on the magnitude of the trends for:

- Warmer and fewer cold days and nights over most land areas;
- Warmer and more frequent hot days and nights over most land areas;
- An increase in frequency of warm spells/heat waves over most land areas;
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over Most areas; areas affected by drought increases;
- Intense tropical cyclone activity increases;
- Increased incidence of extreme high sea level (excluding tsunamis).

IPCC's "2007 IPCC Fourth Assessment Report" projects that the global mean temperature increase from 1990 to 2100 under different climate-change scenarios will range from 1.4 to 5.8 degrees Celsius (2.5 to 10.4 degrees Fahrenheit). In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime.[40]

2.2 CALIFORNIA'S GREENHOUSE GAS SOURCES AND RELATIVE CONTRIBUTION

California is the tenth largest GHG emitter in the world and the second largest emitter of GHG in the United States, surpassed only by the state of Texas; however, California has over 12 million more people than Texas.[41] Because of more stringent air emission regulations, in 2001 California ranked fourth lowest in carbon emissions per capita and fifth lowest among states in CO_2 emissions from fossil fuel consumption per unit of Gross State Product (total economic output of goods and services).[42]

The California Air Resources Board's (CARB) last update to the statewide GHG emissions inventory that used the Second Assessment Report GWPs was conducted in 2012 for year 2009 emissions.[43] In 2009, California produced 457 million metric tons (MMT) of CO_2e GHG emissions. In 2009, California produced

[40] Intergovernmental Panel on Climate Change, 2007. Fourth Assessment Report: Climate Change 2007, New York: Cambridge University Press.

[41] California Energy Commission, 2005. Climate Change Emissions Estimates from Bemis, Gerry and Jennifer Allen, Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2002 Update, California Energy Commission Staff Paper CEC-600-2005-025, Sacramento, California, June.

[42] California Energy Commission, 2006. *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004,* Report CEC-600-2006-013-SF, December.

[43] Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (AB 32) (2006).

457 million metric tons (MMT) of CO_2e GHG emissions. California's transportation sector is the single largest generator of GHG emissions, producing 37.9 percent of the State's total emissions. Electricity consumption is the second largest source, producing 22.7 percent. Industrial activities are California's third largest source of GHG emissions at 17.8 percent.,[44]

In 2013, the statewide GHG emissions inventory was updated for 2000 to 2012 emissions using the GWPs in IPCC's Fourth Assessment Report. Based on these GWPs, California produced 459 $MMTCO_2e$ GHG emissions in 2012. California's transportation sector remains the single largest generator of GHG emissions, producing 36.5 percent of the State's total emissions. Electricity consumption made up 20.7 percent, and industrial activities produced 19.4 percent. Other major sectors of GHG emissions include commercial and residential, recycling and waste, high global warming potential GHGs, agriculture, and forestry.[45]

2.3 POTENTIAL CLIMATE CHANGE IMPACTS FOR CALIFORNIA

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are also hard to predict. In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures, 2) a smaller fraction of precipitation falling as snow, 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones, 4) shift in the timing of snowmelt of 5 to 30 days earlier in the spring, and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms.[46] According to the California Climate Action Team—a committee of State agency secretaries and the heads of agencies, boards, and departments, led by the Secretary of the California Environmental Protection Agency—even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5), and the inertia of the Earth's climate system could produce as much as 0.6 degrees Celsius (1.1 degrees Fahrenheit) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 6 and include public health impacts, water resources impacts, agricultural impacts, coastal sea level impacts, forest and biological resource impacts, and energy impacts. Specific climate change impacts that could affect Cupertino include health impacts from deterioration of air quality, water resources impacts from a reduction in water supply, and increased energy demand.

[44] California Air Resources Board, 2012. *California Greenhouse Gas Inventory for 2000–2009: By Category as Defined by the Scoping Plan,* April.

[45] California Air Resources Board, 2014. California Greenhouse Gas Inventory for 2000–2012: By Category as Defined by the Scoping Plan, March 24.

[46] California Climate Action Team, 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature, March.

Table 6 Summary of GHG Emissions Risks to California

Impact Category	Potential Risk
Public Health Impacts	Poor air quality made worse More severe heat
Water Resources Impacts	Decreasing Sierra Nevada snow pack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pest and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species
Energy Demand Impacts	Potential reduction in hydropower Increased energy demand

Sources: California Energy Commission, 2006, Our Changing Climate: Assessing the Risks to California, 2006 Biennial Report, California Climate Change Center, CEC-500-2006-077; California Energy Commission, 2008, The Future Is Now: An Update on Climate Change Science, Impacts, and Response Options for California, CEC-500-2008-0077.

2.1 REGULATORY FRAMEWORK

This section describes the federal, State, and local regulations applicable to GHG emissions.

2.1.1 Federal Laws

The United States Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings did not in and of themselves impose any emission reduction requirements, but allowed the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.[47]

The EPA's endangerment finding covers emissions of six key GHGs that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6. The first three are applicable to Cupertino's community GHG emissions inventory because they constitute the majority of GHG emissions from land uses in the city, and per BAAQMD guidance are the GHG emissions that should be evaluated as part of a community GHG emissions inventory.

2.1.1.1 U.S. MANDATORY REPORT RULE FOR GHGS (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000.MT or more of CO_2 per year are required to submit an annual report.

2.1.1.2 UPDATE TO CORPORATE AVERAGE FUEL ECONOMY STANDARDS (2010/2012)

The current Corporate Average Fuel Economy (CAFE) standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements of the federal government and California into one uniform standard. Additionally, auto makers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon [mpg] by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow auto makers who show compliance with the national program to be considered in compliance with State requirements. The federal government issued new standards in 2012 for model years 2017–2025, which will require a fleet average of 54.5 mpg in 2025.

2.1.1.3 EPA REGULATION OF STATIONARY SOURCES UNDER THE CLEAN AIR ACT (ONGOING)

Pursuant to its authority under the CAA, the EPA has been developing regulations for new stationary sources such as power plants, refineries, and other large sources of emissions. Pursuant to the President's 2013 Climate Action Plan, the EPA will be directed to also develop regulations for existing stationary sources.

2.1.2 State Laws

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-03-05, Assembly Bill 32 (AB 32), and Senate Bill 375 (SB 375).

2.1.2.1 EXECUTIVE ORDER S-03-05

Executive Order S-3-05, signed June 1, 2005, set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

[47] United States Environmental Protection Agency (EPA), 2009. Greenhouse Gases Threaten Public Health and the Environment. Science overwhelmingly shows GHG concentrations at unprecedented levels due to human activity, December, http://yosemite.epa.gov/opa/admpress.nsf/0/08D11A451131BCA585257685005BF252.

2.1.2.2 ASSEMBLY BILL 32, THE GLOBAL WARMING SOLUTIONS ACT

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Assembly Bill 32 (AB 32), the Global Warming Solutions Act. AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-3-05.

CARB 2008 Scoping Plan

AB 32 directed the California Resources Board (CARB) to adopt discrete early action measures to reduce GHG emissions and outline additional reduction measures to meet the 2020 target. In response, CARB developed a Scoping Plan outlining California's approach to achieving the goal of reducing GHG emissions to 1990 levels by 2020. Based on the GHG emissions inventory conducted for the Scoping Plan, GHG emissions in California by 2020 are anticipated to be approximately 596 $MMTCO_2e$. In December 2007, CARB approved a 2020 emissions limit of 427 $MMTCO_2e$ (471 million tons) for the State. The 2020 target requires a total emissions reduction of 169 $MMTCO_2e$, 28.5 percent from the projected emissions of the business-as-usual (BAU) scenario for that year (i.e. 28.5 percent of 596 $MMTCO_2e$).[48] CARB defines BAU in its Scoping Plan as emissions levels if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 MT of CO_2 per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

The Scoping Plan is the State's plan to achieve the GHG reductions of AB 32. It includes strategies that state agencies must implement to achieve the 2020 target for the State. The final Scoping Plan was adopted by CARB on December 11, 2008. Key elements of CARB's GHG reduction plan that may be applicable to the proposed Project include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards (adopted and cycle updates in progress);
- Achieving a mix of 33 percent for energy generation from renewable sources (anticipated by 2020);
- A California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system for large stationary sources (adopted 2011);
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets (several Sustainable Communities Strategies have been adopted);

[48] California Air Resources Board, 2008, Climate Change Scoping Plan: A Framework for Change.

- Adopting and implementing measures pursuant to State laws and policies, including California's clean car standards (amendments to the Pavley Standards adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (LCFS) (adopted 2009);[49]

- Creating target fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation (in progress).

Table 7 shows the anticipated reductions from proposed regulations and programs outlined in the Scoping Plan. Though local government operations were not accounted for in the scoping plan, CARB estimates that land use changes implemented by local governments that integrate jobs, housing, and services result in a reduction of 5 $MMTCO_2e$, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments play in the successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of 2014 levels by 2020 to ensure that municipal and community-wide emissions match the State's reduction target.[50] Measures that local governments take to support shifts in land use patterns are anticipated to emphasize compact, low-impact growth over development in greenfields, resulting in fewer VMT.[51]

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[49] On December 29, 2011, the U.S. District Court for the Eastern District of California issued several rulings in the federal lawsuits challenging the LCFS. One of the court's rulings preliminarily enjoined the CARB from enforcing the regulation during the pendency of the litigation. In January 2012, CARB appealed the decision and on April 23, 2012, the Ninth Circuit Court granted CARB's motion for a stay of the injunction while it continued to consider CARB's appeal of the lower court's decision. On July 15, 2013, the State of California Court of Appeals held that the LCFS would remain in effect and that CARB can continue to implement and enforce the 2013 regulatory standards while it corrects certain aspects of the procedures by which the LCFS was adopted. Accordingly, CARB is continuing to implement and enforce the LCFS while addressing the court's concerns.
[50] The Scoping Plan references a goal for local governments to reduce community GHG emissions by 15 percent from current (interpreted as 2008) levels by 2020, but it does not rely on local GHG reduction targets established by local governments to meet the State's GHG reduction target of AB 32.
[51] California Air Resources Board, 2008. *Climate Change Scoping Plan: A Framework for Change.*

Table 7 Scoping Plan GHG Reduction Measures and Reductions toward 2020 Target

Recommended Reduction Measures	Reductions Counted toward 2020 Target of 169 MMT CO2e	Percentage of Statewide 2020 Target
Cap and Trade Program and Associated Measures		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets[a]	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
Total Cap and Trade Program Reductions	146.7	87%
Uncapped Sources/Sectors Measures		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%
Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
Total Uncapped Sources/Sectors Reductions	27.3	16%
Total Reductions Counted toward 2020 Target	174	100%
Other Recommended Measures – Not Counted toward 2020 Target		
State Government Operations	1.0 to 2.0	1%
Local Government Operations[b]	To Be Determined	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%
Methane Capture at Large Dairies	1	1%
Total Other Recommended Measures – Not Counted toward 2020 Target	42.8	NA

Source: California Air Resources Board, 2008, Climate Change Scoping Plan: A Framework for Change.

Notes: The percentages in the right-hand column add up to more than 100 percent because the emissions reduction goal is 169 $MMTCO_2e$ and the Scoping Plan identifies 174 $MTCO_2e$ of emissions reductions strategies.

$MMTCO_{2e}$: million metric tons of CO_2e

[a] Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.

[b] According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO_{2e} (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 target.

Scoping Plan Update

Since release of the 2008 Scoping Plan, CARB has updated the Statewide GHG emissions inventory to reflect GHG emissions in light of the economic downturn and of measures not previously considered in the 2008 Scoping Plan baseline inventory. The updated forecast predicts emissions to be 507 $MMTCO_2e$ by 2020. The new inventory identifies that an estimated 80 $MMTCO_2e$ of reductions are necessary to achieve the statewide emissions reduction of AB 32 by 2020, 15.7 percent of the projected emissions compared to BAU in year 2020 (i.e. 15.7 percent of 507 $MMTCO_2e$).[52]

CARB completed an update to the 2008 Scoping Plan, as required by AB 32, and adopted it on May 22, 2014. The Update to the Scoping Plan defines CARB's climate change priorities for the next five years and lays the groundwork to reach post-2020 goals in Executive Orders S-3-05 and B-16-2012 (which sets a declining standard for GHGs in fuel and accommodate zero-emissions vehicles, respectively). The update includes the latest scientific findings related to climate change and its impacts, including short-lived climate pollutants, such as black carbon, CH_4, and hydrofluorocarbons.

The GHG target identified in the 2008 Scoping Plan is based on IPCC's GWPs identified in the Second and Third Assessment Reports (see Table 5). IPCC's Fourth Assessment Report identified more recent GWP values based on the latest available science. CARB recalculated the 1990 GHG emission levels with these updated GWPs, and the 427 $MMTCO_2e$ 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, is slightly higher, at 431 $MMTCO_2e$.[53]

The update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals, defined in the original 2008 Scoping Plan. As identified in the Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the Update to the Scoping Plan also addresses the State's longer-term GHG goals within a post-2020 element. The post-2020 element provides a high-level view of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the State to adopt a midterm target. According to the Update to the Scoping Plan, reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit.[54]

2.1.2.3 SENATE BILL 375

SB 375, the Sustainable Communities and Climate Protection Act, was adopted in 2005 to connect the Scoping Plan's GHG emissions reductions targets for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 17 regions in California managed by a metropolitan planning organization (MPO). The Metropolitan Transportation Commission (MTC) is the MPO for the nine-county San Francisco Bay Area region. MTC's targets are a 7 percent per

[52] California Air Resources Board, 2012. Status of Scoping Plan Recommended Measures, http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf.
[53] California Air Resources Board (CARB), 2014. Proposed First Update to the Climate Change Scoping Plan: Building on the Framework, http://www.arb.ca.gov/cc/scopingplan/2013_update/draft_proposed_first_update.pdf, May 15, 2014.
[54] California Air Resources Board (CARB), 2014. Proposed First Update to the Climate Change Scoping Plan: Building on the Framework, http://www.arb.ca.gov/cc/scopingplan/2013_update/draft_proposed_first_update.pdf, May 15, 2014.

capita reduction in GHG emissions from 2005 by 2020, and 15 percent per capita reduction from 2005 levels by 2035.[55]

Plan Bay Area, Strategy for a Sustainable Region

Plan Bay Area is the Bay Area's Regional Transportation Plan (RTP)/Sustainable Community Strategy (SCS). The Plan Bay Area was adopted jointly by ABAG and MTC July 18, 2013.[56] The SCS lays out a development scenario for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement) beyond the per capita reduction targets identified by CARB. According to Plan Bay Area, the Plan meets a 16 percent per capita reduction of GHG emissions by 2035 and a 10 percent per capita reduction by 2020 from 2005 conditions.

As part of the implementing framework for Plan Bay Area, local governments have identified Priority Development Areas (PDAs) to focus growth. PDAs are transit-oriented, infill development opportunity areas in existing communities. Overall, well over two-thirds of all regional growth in the Bay Area by 2040 is allocated in PDAs. PDAs are expected to accommodate 80 percent (or over 525,570 units) of new housing and 66 percent (or 744,230) of new jobs in the region.[57] Plan Bay Area includes the following PDA in Cupertino:

Santa Clara Valley Transportation Authority: City Cores, Corridors, and Station Areas PDA. This PDA includes transit-rich areas in the cities of Campbell, Cupertino, Gilroy, Los Altos, Los Gatos, Milpitas, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, and Sunnyvale, and in unincorporated Santa Clara County. Within these cities, a mix of housing and job growth is planned. These areas have urban characteristics, including residential and commercial land uses and/or downtown center attractions combined with transit connectivity. This PDA supports Plan Bay Area's vision for pedestrian- and transit-oriented development. It would encourage residential, commercial, and recreational development in key areas that meets the smart growth practice of increasing the live-work-play balance within walking distance or within walking distance of a transit route that connects these land use types together. In Cupertino, this Mixed-Use Special Area PDA is along Stevens Creek Boulevard between State Route 85 and the City's eastern limits and along De Anza Boulevard between Stevens Creek Boulevard and the City of Sunnyvale.[58,59]

2.1.2.4 ASSEMBLY BILL 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavely I). Pavely I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by

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[55] California Air Resources Board, 2010. Staff Report, Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375, August.

[56] It should be noted that the Bay Area Citizens filed a lawsuit on MTC's and ABAG's adoption of Plan Bay Area.

[57] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2013. Plan Bay Area: Strategy for a Sustainable Region, July 18.

[58] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2013. Plan Bay Area, http://geocommons.com/maps/141979.

[59] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2012. Visions for Priority Development Areas Jobs-Housing Connection Strategy, May. http://onebayarea.org/file10010.html.

30 percent in 2016. California implements the Pavely I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles (see also the discussion on the update to the CAFE standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions..[60]

2.1.2.5 EXECUTIVE ORDER S-01-07

On January 18, 2007, the State set a new low carbon fuel standard (LCFS) for transportation fuels sold within the State. Executive Order S-1-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

2.1.2.6 EXECUTIVE ORDER B-16-2012

On March 23, 2012, the State identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directs the number of zero-emission vehicles in California's State vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero-emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions from the transportation sector 80 percent below 1990 levels.

2.1.2.7 SENATE BILLS 1078 AND 107, AND EXECUTIVE ORDER S-14-08

A major component of California's Renewable Energy Program is the renewable portfolio standard (RPS) established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. CARB has now approved an even higher goal of 33 percent by 2020. In 2011, the State legislature adopted this higher standard in SBX1-2. Executive Order S-14-08 was signed in November 2008, which expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Renewable sources of electricity include wind, small hydropower, solar,

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[60] See also the discussion on the update to the CAFE standards under federal laws, above. In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

2.1.2.8 CALIFORNIA BUILDING CODE

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2008 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On May 31, 2012, the CEC adopted the 2013 Building and Energy Efficiency Standards, which went into effect on July 1, 2014. Buildings that are constructed in accordance with the 2013 Building and Energy Efficiency Standards are 25 percent (residential) to 30 percent (non-residential) more energy efficient than the 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24, known as "CALGreen") was adopted as part of the California Building Standards Code (Title 24, CCR). CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[61] The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011.

2.1.2.9 APPLIANCE ENERGY EFFICIENCY REGULATIONS

The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business-as-usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

2.2 ENVIRONMENTAL SETTING

2.2.1 Existing Emissions

The 2.0-acre Project site is developed with a parking lot and does not generate GHG emissions.

2.3 METHODOLOGY

The BAAQMD CEQA Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air

[61] The green building standards became mandatory in the 2010 edition of the code.

quality information. They also include recommended assessment methodologies for air toxics, odors, and GHG emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines.[62]

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD CEQA Air Quality Guidelines. The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA.

Following the court's order, the BAAQMD released revised CEOA Air Quality Guidelines in May of 2012 that include guidance on calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, and set aside the significance thresholds. The BAAQMD recognizes that lead agencies may rely on the previously recommended thresholds of significance in its CEQA Guidelines, adopted in 1999. In ordering BAAQMD to set aside the thresholds, the court did not address the merits of the science or evidence supporting the thresholds. The City finds, therefore, that despite the Superior Court' ruling, and in light of the subsequent case history discussed below, the science and reasoning in the BAAQMD 2011 CEQA Air Quality Guidelines provide the latest state-of-the-art guidance available. For that reason, substantial evidence supports continued use of the BAAQMD 2011 CEQA Air Quality Guidelines.

On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's CEQA Guidelines. in *California Building Industry Association versus Bay Area Air Quality Management District*, Case Nos. A135335 and A136212 (Court of Appeal, First District, August 13, 2013). In addition to the City's independent determination that use of the BAAQMD's CEQA Guidelines is supported by substantial evidence, they have been found to be valid guidelines for use in the CEQA environmental review process.[63]

While the outcome of this case presents uncertainty for current project applicants and local agencies, local agencies still have a duty to evaluate impacts related to air quality and GHG emissions. In addition, CEQA grants local agencies broad discretion to develop their own thresholds of significance, or to rely on thresholds previously adopted or recommended by other public agencies or experts so long as they are supported by substantial evidence. Accordingly, the City of Cupertino is using the BAAQMD's 2011 thresholds to evaluate project impacts in order to protectively evaluate the potential effects of the project on air quality and GHG emissions.

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[62] In May 2011, the updated BAAQMD CEQA Air Quality Guidelines were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts.

[63] On November 26, 2013, the California Supreme Court granted review on the issue of whether the toxic air contaminants thresholds are consistent with CEQA; specifically, whether CEQA requires analysis of exposing project residents or users to existing environmental hazards. Briefing was completed on May 27, 2014, but the hearing has not yet been set.

2.3.1 Greenhouse Gas Emissions

BAAQMD has a tiered approach for assessing GHG emissions impacts of a project. If a project is within the jurisdiction of an agency that has a "qualified" GHG reduction strategy, the project can assess consistency of its GHG emissions impacts with the reduction strategy. The City of Cupertino has not prepared a community-wide GHG Emissions Reduction Plan. In the absence of an applicable qualified GHG reduction strategy, BAAQMD has adopted screening criteria and significance criteria for development projects that would be applicable for the proposed Project. If a project exceeds the Guidelines' GHG screening-level sizes, the project would be required to conduct a full GHG analysis using the following BAAQMD significance criteria:

- 1,100 MT of CO_2e per year; or
- 4.6 MT of CO_2e per service population (SP)

Land use development projects include residential, commercial, industrial, and public land use facilities. Direct sources of emissions may include on-site combustion of energy, such as natural gas used for heating and cooking, emissions from industrial processes (not applicable for most land use development projects), and fuel combustion from mobile sources. Indirect emissions are emissions produced off-site from energy production, water conveyance due to a project's energy use and water consumption, and non-biogenic emissions from waste disposal. Biogenic CO_2 emissions are not included in the quantification of a project's GHG emissions, because biogenic CO_2 is derived from living biomass (e.g. organic matter present in wood, paper, vegetable oils, animal fat, food, animal, and yard waste) as opposed to fossil fuels. Although GHG emissions from waste generation are included in the GHG inventory for the proposed Project, the efficiency threshold of 4.6 $MTCO_2e$ per service population identified above does not include the waste sector, and it is therefore not considered in the evaluation.

BAAQMD does not have thresholds of significance for construction-related GHG emissions, but requires quantification and disclosure of construction-related GHG emissions. GHG emissions from construction activities are short term and therefore not assumed to significantly contribute to cumulative GHG emissions impacts of the proposed Project.[64]

[64] Bay Area Air Quality Management District, 2011 (revised), California Environmental Quality Act Air Quality Guidelines.

3. References

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Hyatt House Hotel at the Vallco Park

Location: Southeast Corner of North Wolfe Road and I-280, City of Cupertino
Air Basin: San Francisco Bay Area Air Basin (SFBAAB)
Air District: Bay Area Air Quality Management District
Climate Zone: 4
Operational Year 2016 (GHG modeled in 2020 - consistent with BAAQMD Guidance)

PROPOSED PROJECT[1]

	SQFT	ACRES
Site Acreage:	87,123	2.00

Hotel	**148**	**ROOMS**
Restaurant Bar	*2,400*	*SQFT (included in Hotel total below)*
Fitness Center	*770*	*SQFT (included in Hotel total below)*
Meeting Room	*2,300*	*SQFT (included in Hotel total below)*
Board Room	*400*	*SQFT (included in Hotel total below)*

	SQFT	**Coverage**	
Hotel	102,200	1.17	acres
Parking Garage	35,400	NA	NA
Surface Parking Lot	161 spaces	0.77	acres
Open Space		0.06	acres

	Employees/Shift[2]
Shift 1	12
Shift 2	12
Shift 3	4
Total Employees	28

Source
1 Hyatt House Project Summary dated May 28, 2014
2 Provided by the City of Cupertino and Hyatt House.

Trip Generation

	Weekday Trips[1]	Weekday Trip Rate	ITE Saturday Trip Rate[2]	Saturday Trips	ITE Sunday Trip Rate[2]	Sunday Trips
Hotel (ITE Code 310)	1,209	8.17	8.19	1,212	5.95	881

Source
1 Hexagon Engineers
2 Institute of Transportation Engineers (ITE). Trip Generation Manual, 9th Edition.

For Hotel land use, the ITE trip generation manual states that, "Some properties contained in this land use provide guest transportation services such as airport shuttles, limousine service, or golf course shuttle service, which might have an impact on the overall trip generation rates."

Fleet Mix[1]

Passenger Vehicles: Includes employees, hotel guests, and shuttle buses (e.g., vans) 99.34%

Trucks:[2] Includes garbage trucks, recycling trucks, and vendor deliveries (maintenance trucks, food deliveries, other commercial deliveries). 0.66%

Garbage/Recycling:	2-3 times/week	4	HT Trips/day	0.33%
Restaurant Truck Deliveries:	3 times/week	2	HT trips/day	0.17%
Hyatt Vendor Deliveries:	2-4 times/week	2	MT trips/day	0.17%

Source
1 Hexagon Engineers, based on shuttle bus and commercial deliveries provided by Hyatt based on Hyatt House hotel operations.
2 Provided by the City of Cupertino and Hyatt House.

	Source
Water/Wastewater	CalEEMod Default
Waste	CalEEMod Default
Electricity	CalEEMod Default

Buildings constructed after July 1, 2014 are required to meet the 2013 Building and Energy Efficiency Standards. The 2013 Standards are 30% more energy efficient for non-residential buildings and 25% more energy efficient for residential buildings than the 2008 Building and Energy Efficiency Standards.

Utility Company: PG&E

	CalEEMod Default (lbs/Mwh)	Revised (lbs/Mwh)
CO2 Intensity Factor	641.35	453
CH4 Intensity Factor	0.029	
N2O Intensity Factor	0.006	

Electricity Emissions Factor

Usage Year	Emission factor	Units
2003	0.6200	lbs CO2 per kWh
2004	0.5660	lbs CO2 per kWh
2005	0.4890	lbs CO2 per kWh
2006	0.4560	lbs CO2 per kWh
2007	0.6357	lbs CO2 per kWh
2008	0.6410	lbs CO2 per kWh
2009	0.5750	lbs CO2 per kWh
2010	0.445	lbs CO2 per kWh
2011	0.393	lbs CO2 per kWh
2012	0.4530	lbs CO2 per kWh

Source

PG&E’s third-party-verified GHG inventory submitted to the California Climate Action Registry (CCAR)6 (2003-2008) or The Climate Registry (TCR) (2009-12)

Changes to the CalEEMod Defaults - Fleet Mix (2020 Fleet Mix): Hyatt House Hotel

Countywide fleet mix not applicable at a project level:
Fleet mix adjusted based on truck deliveries and shuttle bus information provide by Hyatt House. Assumes no buses or motor homes.

Default	**LDA**	**LDT1**	**LDT2**	**MDV**	**LHD1**	**LHD2**	**MHD**	**HHD**	**OBUS**	**UBUS**	**MCY**	**SBUS**	**MH**	
FleetMix	0.551785	0.05874	0.185183	0.122735	0.029388	0.004432	0.012603	0.023662	0.001776	0.001268	0.006159	0.000502	0.001767	100%
Percent	80.2%			12.3%				7.5%						100.0%
Trips	667	71	224	148	36	5	15	29	2	2	7	1	2	1,209
DEFAULT MODEL ASSUMES TOO MANY TRUCKS:				**247**										
Proportion	0.688125	0.073254	0.230940	1.000000	0.389772	0.058781	0.167153	0.313828	0.023555	0.016817	0.007681	0.006658	0.023436	
Assumed Mix	99.3%			0.2%				0.5%						100.0%
adjusted with														
Assumed Mix	0.683573	0.072769	0.229412	0.001654	0.001934	0.000292	0.000829	0.001557	0.000117	0.000083	0.007630	0.000033	0.000116	1
Trips	827	88	277	2	2	0	1	2	0	0	9	0	0	1209
Calibrated so no motorhomes or Buses	0.683573	0.072769	0.229412	0.001654	0.00193	0.00029	0.00083	0.00156	0	0	0.007630	0	0	100.0%
Modified	**0.683812**	**0.072795**	**0.229492**	**0.001655**	**0.001935**	**0.000292**	**0.000830**	**0.001558**	**0.000000**	**0.000000**	**0.007633**	**0.000000**	**0.000000**	**100.0%**
Trips	827	88	277	2	2	0	1	2	0	0	9	0	0	1209

Trips **1,209** **Daily Truck Trips:** **8** **Percent Truck Trips:** **0.6%**

Current Phasing Assumptions

Total Time Frame	September 2014 to February 2016: 17 months
Demolition	*September 2014 - 10 days*
Grading	*September 2014 to October 2014 - 1.5 months*
(haul)	*(5 days)*
Trenching	*October 2014 - 1 month*
Building	*November 2014 - 12 months*
Paving	*January 2016 - 1 month*
Painting	*October 2015 - 4 months*
Work Hours:	*8AM-5PM, 5 days/week, 1 hour lunch break*
	8 hours/day

Current Haul Volumes

	Demolition		Grading Export	
	Duration (days)	22	Duration (days):	5
Asphalt	Tons removed:	2,550	Clean Soil Export (CY):	12,952
AC/Concrete	Tons removed:	119		
Buildings	Tons demolished:	249		
	Total Tons:	2,918	Total CY:	12,952
Debris truck capacity:	Tons/Truck	9.88	CYs/Truck:	9.5
	Truck Loads Total:	295	Truck Loads Total:	1,363
	Truck Trips Total:	591	Truck Trips Total:	2,727
	Truck Loads/Day	13	Truck Loads/Day:	144

Location of debris dumpsite:	*Zanker Materials Recovery and Landfill*	*Zanker Materials Recovery and Landfill*
One way haul distance:	14.7 miles	14.7 miles

APPLICANT PROVIDED EQUIPMENT

* CalEEMod defaults will be used where preliminary information is not available

Equipment	Preliminary Construction Information #	hp	hrs/ day	
Demolition				
Tractor/Loader/Backhoe	1	*	4	
Workers	3			
Water Trucks	1			Note: CalEEMod treats these as Vendor Trips
Street Sweeper	1			Added to CalEEMod default as a Vendor Delivery
Pick UP Truck	1			Added to CalEEMod default as a Vendor Delivery
Vendors	*			CalEEMod Default
Grading				
Grader	1	*	5	
Rubber Tired Dozers				
Excavator	1	*	8	
Workers	4			
Water Trucks	1			Note: CalEEMod treats these as Vendor Trips
Vendors	*			CalEEMod Default
Trenching				
Excavator	1	*	5	
Tractor/Loader/Backhoe	1	*	8	
Workers	3			
Vendors	*			Assumes same as Grading
Building				
Crane	1	*	6	
Forklifts	2	*	6	
Generator Set	1	*	8	CalEEMod Default
Welders	2	*	8	
Workers	*			
Vendors	*			CalEEMod Default
Paving				
Cement and Mortar Mixers	1	*	8	CalEEMod Default
Paver	1	*	8	CalEEMod Default
Paving Equipment	1	*	8	CalEEMod Default
Roller	2	*	8	CalEEMod Default
Tractor/Loader/Backhoe	1	*	8	
Workers	10			CalEEMod Default
Vendors	1			CalEEMod Default
Painting				
Air Compressor	1	*	6	
Workers	5			
Vendors	*			CalEEMod Default

GHG EMISSIONS

CONSTRUCTION

2014	173
2015	314
2016	24
TOTAL	510
30-Yr Amortization	17

OPERATION

	MTCO2e	Percent
Area	0.003	0.00%
Energy	395	38%
Mobile	604	58%
Waste	37	4%
Water	5	1%
Total	1,041	100%

AVERAGE DAILY CONSTRUCTION EMISSIONS

Average Annual

Active Construction Days (no weekend days)

Demolition	10	
Grading	33	
Trenching	22	
Building Construction	260	
Coating + Painting	66	(minus month of overlap, 22 days, with building construction)
Total Active Days	391	

Mitigated Construction

		ROG	NOx	Fugitive PM10	Exhaust PM10	Fugitive PM2.5	Exhaust PM2.5
Year	tons/yr						
2014		0.15	1.30	0.06	0.06	0.01	0.05
2015		0.94	2.51	0.09	0.15	0.03	0.14
2016		0.21	0.23	0.00	0.01	0.00	0.01
Total		1.30	4.04	0.16	0.22	0.04	0.21

Average Daily

	ROG	NOx	Fugitive PM10	Exhaust PM10	Fugitive PM2.5	Exhaust PM2.5
Total	7	21	1	1	0	1

Draft Construction Health Risk Screening Table

1 foot = 0.3048 meters

	DPM		PM2.5	Acrolein (2)		
	Cancer Risk w/ASF (3)	Chronic Hazard Index	Annual Average Concentration (µg/m3)	Acute Hazard Index	Chronic Hazard Index	Offest Required for Combined Risk w/ ASF (3)
Project Acreage 2	100	8	82	55	1	100
Distance in feet	328	28	269	180	3	328

Project Scenario			Minimum offset distance (meters) from the project fence line to ensure that a sensitive receptor would have a less than significant impact (1)					
			DPM		PM2.5	Acrolein (2)		
Type	# of Units/ Square Feet	Project Site Acres	Cancer Risk w/ASF (3)	Chronic Hazard Index	Annual Average Concentration (µg/m3)	Acute Hazard Index	Chronic Hazard Index	Offest Required for Combined Risk w/ ASF (3)
Residential	5	1.7	85	7	75	55	1	95
	10	3.3	100	7	75	55	1	100
	25	8.3	125	16	100	85	6	125
	50	16.7	150	18	125	90	8	150
	100	33.3	175	20	150	90	11	175
	250	83.3	300	25	250	150	12	300
	500	166.7	400	35	300	150	20	400
	1,000	333.3	500	40	600	175	25	600
	2,000	666.7	700	45	900	225	25	900
	5,000	1666.7	1000	40	800	225	25	1000
Commercial	5,000	0.2	100	8	75	55	1	100
	10,000	0.5	100	8	75	55	1	100
	30,000	1.4	100	8	80	55	1	100
	60,000	2.8	100	9	85	55	1	100
	100,000	4.6	150	19	125	85	8	150
	300,000	13.8	200	25	150	85	13	200
	500,000	23	225	19	175	85	8	225
	1,000,000	45.9	300	25	200	90	14	300
	3,000,000	137.7	500	35	400	150	20	500
	7,000,000	321.4	600	35	400	175	20	600
Industrial	5,000	0.2	100	10	85	55	2	100
	10,000	0.5	100	10	85	55	2	100
	30,000	1.4	100	10	90	55	2	100
	60,000	2.8	100	11	95	55	2	100
	100,000	4.6	175	20	125	85	10	175
	300,000	13.8	200	25	175	85	15	200
	500,000	23	250	20	175	85	9	250
	1,000,000	45.9	300	25	200	90	15	300
	3,000,000	137.7	500	35	400	150	20	500
	6,000,000	275.5	600	35	400	150	19	600

Source: Bay Area Air Quality Management District (BAAQMD). 2010, May. Screening Tables for Air Toxics Evaluation During Construction, Version 1.0.

Notes:

1. The BAAQMD thresholds are an increased cancer risk of 10 in a million, a hazard index of 1, and a PM2.5 annual average concentration of 0.3 µg/m3.

2. The OEHHA proposes weighting cancer risk by a factor of 10 for exposures that occur from the third trimester of pregnanacy to 2 years of age, and by a factor of 3 for exposures that occur from 2 years through 15 years of age. These factors are call Age Sensitivity Factors (ASF). The methodology for applying ASF to cancer risk is discussed in BAAQMD's CEQA Construction Screening Approach.

3. Acrolein was chosen because it has the greatest non-cancer health risks for toxic air contaminants contained in diesel exhaust.

HyattHouseHotel_VallcoPark

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	35.40	1000sqft	0.00	35,400.00	0
Other Non-Asphalt Surfaces	0.06	Acre	0.06	0.00	0
Parking Lot	0.77	Acre	0.77	33,541.20	0
Hotel	148.00	Room	1.17	102,200.00	0

1.2 Other Project Characteristics

Urbanization Urban

Wind Speed (m/s) 2.2

Precipitation Freq (Days) 58

Climate Zone 4

Operational Year 2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 453

CH4 Intensity (lb/MWhr) 0.029

N2O Intensity (lb/MWhr) 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2012 Electricity Emissions Factor

Land Use - Hyatt House Project Summary dated May 28, 2014

Construction Phase - Hyatt House Construction Request Response dated May 26, 2014

Off-road Equipment - Provided by the Applicant. Hyatt House Construction Request Response dated May 26, 2014

Off-road Equipment - Provided by the Applicant. Hyatt House Construction Request Response dated May 26, 2014

Off-road Equipment - Provided by the Applicant. Hyatt House Construction Request Response dated May 26, 2014

Off-road Equipment - Haul - no equipment

Off-road Equipment - Provided by the Applicant. Hyatt House Construction Request Response dated May 26, 2014

Off-road Equipment - Haul - no equipment

Off-road Equipment -

Off-road Equipment - Provided by the Applicant. Hyatt House Construction Request Response dated May 26, 2014

Trips and VMT - Where higher, worker and vendor trips modified based on the Hyatt House Construction Request Response dated May 26, 2014. Hual

Demolition - Hyatt House Construction Request Response dated May 26, 2014

Grading - Hyatt House Construction Request Response dated May 26, 2014

Vechicle Emission Factors - Adjusted Fleet mix based on Hyatt House shuttle and vendor trips provided by Hyatt.

Vechicle Emission Factors - Adjusted Fleet mix based on Hyatt House shuttle and vendor trips provided by Hyatt.

Vechicle Emission Factors - Adjusted Fleet mix based on Hyatt House shuttle and vendor trips provided by Hyatt.

Energy Use - PG&E Carbon intensity

Water And Wastewater - 100% Treated Wastewater

Construction Off-road Equipment Mitigation - BAAQMD's Basic Control Measures for Fugitive Dust Control

Energy Mitigation - Non-Residential Buildings after July 1, 2014 are 30% more energy efficient under the new 2013 Standards (compared to 2008

Water Mitigation - CALGreen and Cupertino WELO require water efficient fixtures and landscaping.

Architectural Coating -

Area Coating -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstructionPhase	NumDays	10.00	88.00
tblConstructionPhase	NumDays	200.00	260.00

HyattHouseHotel_VallcoPark

Santa Clara County, Annual

tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	4.00	33.00
tblConstructionPhase	NumDays	4.00	5.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	PhaseEndDate	3/2/2016	2/1/2016
tblConstructionPhase	PhaseEndDate	10/29/2015	10/30/2015
tblConstructionPhase	PhaseEndDate	9/30/2014	9/16/2014
tblConstructionPhase	PhaseEndDate	11/7/2014	9/23/2014
tblConstructionPhase	PhaseEndDate	3/2/2016	2/1/2016
tblConstructionPhase	PhaseEndDate	10/23/2014	10/30/2014
tblConstructionPhase	PhaseStartDate	10/31/2015	10/1/2015
tblConstructionPhase	PhaseStartDate	10/31/2014	11/1/2014
tblConstructionPhase	PhaseStartDate	9/17/2014	9/3/2014
tblConstructionPhase	PhaseStartDate	11/1/2014	9/17/2014
tblConstructionPhase	PhaseStartDate	2/2/2016	1/1/2016
tblConstructionPhase	PhaseStartDate	9/24/2014	10/1/2014
tblGrading	MaterialExported	0.00	12,952.00
tblLandUse	LandUseSquareFeet	2,613.60	0.00
tblLandUse	LandUseSquareFeet	214,896.00	102,200.00
tblLandUse	LotAcreage	0.81	0.00
tblLandUse	LotAcreage	4.93	1.17
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	453
tblProjectCharacteristics	OperationalYear	2014	2020
tblTripsAndVMT	HaulingTripLength	20.00	14.70
tblTripsAndVMT	HaulingTripLength	20.00	14.70
tblTripsAndVMT	HaulingTripNumber	289.00	591.00
tblTripsAndVMT	HaulingTripNumber	1,619.00	2,727.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00

HyattHouseHotel_VallcoPark

Santa Clara County, Annual

tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	3.00	6.00
tblTripsAndVMT	WorkerTripNumber	5.00	8.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00
tblTripsAndVMT	WorkerTripNumber	72.00	73.00
tblTripsAndVMT	WorkerTripNumber	14.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblVehicleEF	HHD	0.02	1.5580e-003
tblVehicleEF	HHD	0.02	1.5580e-003
tblVehicleEF	HHD	0.02	1.5580e-003
tblVehicleEF	LDA	0.55	0.68
tblVehicleEF	LDA	0.55	0.68
tblVehicleEF	LDA	0.55	0.68
tblVehicleEF	LDT1	0.06	0.07
tblVehicleEF	LDT1	0.06	0.07
tblVehicleEF	LDT1	0.06	0.07
tblVehicleEF	LDT2	0.19	0.23
tblVehicleEF	LDT2	0.19	0.23
tblVehicleEF	LDT2	0.19	0.23
tblVehicleEF	LHD1	0.03	1.9350e-003
tblVehicleEF	LHD1	0.03	1.9350e-003
tblVehicleEF	LHD1	0.03	1.9350e-003
tblVehicleEF	LHD2	4.4320e-003	2.9200e-004
tblVehicleEF	LHD2	4.4320e-003	2.9200e-004
tblVehicleEF	LHD2	4.4320e-003	2.9200e-004
tblVehicleEF	MCY	6.1590e-003	7.6330e-003
tblVehicleEF	MCY	6.1590e-003	7.6330e-003
tblVehicleEF	MCY	6.1590e-003	7.6330e-003
tblVehicleEF	MDV	0.12	1.6550e-003
tblVehicleEF	MDV	0.12	1.6550e-003
tblVehicleEF	MDV	0.12	1.6550e-003
tblVehicleEF	MH	1.7670e-003	0.00
tblVehicleEF	MH	1.7670e-003	0.00
tblVehicleEF	MH	1.7670e-003	0.00
tblVehicleEF	MHD	0.01	8.3000e-004
tblVehicleEF	MHD	0.01	8.3000e-004
tblVehicleEF	MHD	0.01	8.3000e-004
tblVehicleEF	OBUS	1.7760e-003	0.00
tblVehicleEF	OBUS	1.7760e-003	0.00
tblVehicleEF	OBUS	1.7760e-003	0.00
tblVehicleEF	SBUS	5.0200e-004	0.00
tblVehicleEF	SBUS	5.0200e-004	0.00
tblVehicleEF	SBUS	5.0200e-004	0.00
tblVehicleEF	UBUS	1.2680e-003	0.00
tblVehicleEF	UBUS	1.2680e-003	0.00
tblVehicleEF	UBUS	1.2680e-003	0.00

HyattHouseHotel_VallcoPark

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tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

HyattHouseHotel_VallcoPark

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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					
2014	0.1535	1.3030	1.0724	1.9000e-003	0.0787	0.0555	0.1342	0.0167	0.0524	0.0691	0.0000	172.5072	172.5072	0.0163	0.0000	172.8493
2015	0.9428	2.5084	2.2826	3.6700e-003	0.0947	0.1500	0.2448	0.0256	0.1446	0.1702	0.0000	313.0226	313.0226	0.0430	0.0000	313.9262
2016	0.2066	0.2251	0.1711	2.6000e-004	3.0000e-003	0.0146	0.0176	8.0000e-004	0.0136	0.0144	0.0000	23.4667	23.4667	5.8100e-003	0.0000	23.5886
Total	**1.3029**	**4.0364**	**3.5261**	**5.8300e-003**	**0.1764**	**0.2201**	**0.3965**	**0.0431**	**0.2106**	**0.2536**	**0.0000**	**508.9965**	**508.9965**	**0.0651**	**0.0000**	**510.3641**

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					
2014	0.1535	1.3030	1.0724	1.9000e-003	0.0573	0.0555	0.1128	0.0136	0.0524	0.0659	0.0000	172.5072	172.5072	0.0163	0.0000	172.8492
2015	0.9428	2.5084	2.2826	3.6700e-003	0.0947	0.1500	0.2448	0.0256	0.1446	0.1702	0.0000	313.0223	313.0223	0.0430	0.0000	313.9260
2016	0.2066	0.2251	0.1711	2.6000e-004	3.0000e-003	0.0146	0.0176	8.0000e-004	0.0136	0.0144	0.0000	23.4667	23.4667	5.8100e-003	0.0000	23.5886
Total	**1.3029**	**4.0364**	**3.5261**	**5.8300e-003**	**0.1550**	**0.2201**	**0.3751**	**0.0400**	**0.2106**	**0.2505**	**0.0000**	**508.9962**	**508.9962**	**0.0651**	**0.0000**	**510.3638**

	ROG	**NOx**	**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**	**12.14**	**0.00**	**5.40**	**7.20**	**0.00**	**1.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7408	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2900e-003	3.2900e-003	1.0000e-005	0.0000	3.4800e-003
Energy	0.0256	0.2324	0.1952	1.3900e-003		0.0177	0.0177		0.0177	0.0177	0.0000	485.2756	485.2756	0.0197	7.7100e-003	488.0812
Mobile	0.4094	0.3367	3.4314	9.3100e-003	0.8105	6.4100e-003	0.8169	0.2155	5.9400e-003	0.2214	0.0000	603.3892	603.3892	0.0251	0.0000	603.9160
Waste						0.0000	0.0000		0.0000	0.0000	16.4484	0.0000	16.4484	0.9721	0.0000	36.8618
Water						0.0000	0.0000		0.0000	0.0000	1.3283	4.4742	5.8024	4.8600e-003	2.9500e-003	6.8183
Total	**1.1758**	**0.5691**	**3.6283**	**0.0107**	**0.8105**	**0.0241**	**0.8346**	**0.2155**	**0.0236**	**0.2391**	**17.7766**	**1,093.1421**	**1,110.9188**	**1.0218**	**0.0107**	**1,135.6808**

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	0.7408	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2900e-003	3.2900e-003	1.0000e-005	0.0000	3.4800e-003
Energy	0.0187	0.1698	0.1426	1.0200e-003		0.0129	0.0129		0.0129	0.0129	0.0000	392.8593	392.8593	0.0169	6.1400e-003	395.1180
Mobile	0.4094	0.3367	3.4314	9.3100e-003	0.8105	6.4100e-003	0.8169	0.2155	5.9400e-003	0.2214	0.0000	603.3892	603.3892	0.0251	0.0000	603.9160
Waste						0.0000	0.0000		0.0000	0.0000	16.4484	0.0000	16.4484	0.9721	0.0000	36.8618
Water						0.0000	0.0000		0.0000	0.0000	1.0626	3.6210	4.6836	3.8700e-003	2.3500e-003	5.4948
Total	**1.1689**	**0.5065**	**3.5757**	**0.0103**	**0.8105**	**0.0193**	**0.8298**	**0.2155**	**0.0189**	**0.2343**	**17.5110**	**999.8728**	**1,017.3838**	**1.0179**	**8.4900e-003**	**1,041.3942**

	ROG	NOx	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	**0.59**	**10.99**	**1.45**	**3.46**	**0.00**	**19.77**	**0.57**	**0.00**	**20.16**	**1.99**	**1.49**	**8.53**	**8.42**	**0.38**	**20.36**	**8.30**

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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	9/3/2014	9/16/2014	5	10	
2	Demolition Haul	Demolition	9/3/2014	9/16/2014	5	10	
3	Grading	Grading	9/17/2014	10/31/2014	5	33	
4	Grading Haul	Grading	9/17/2014	9/23/2014	5	5	
5	Trenching	Trenching	10/1/2014	10/30/2014	5	22	
6	Building Construction	Building Construction	11/1/2014	10/30/2015	5	260	
7	Architectural Coating	Architectural Coating	10/1/2015	2/1/2016	5	88	
8	Paving	Paving	1/1/2016	2/1/2016	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10.31

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 207,909; Non-Residential Outdoor: 69,303 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Demolition Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition Haul	Rubber Tired Dozers	0	8.00	255	0.40
Demolition Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	5.00	174	0.41
Grading	Rubber Tired Dozers	0	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading Haul	Graders	0	8.00	174	0.41
Grading Haul	Rubber Tired Dozers	0	8.00	255	0.40
Grading Haul	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Trenching	Excavators	1	5.00	162	0.38
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	1	6.00	6.00	591.00	12.40	7.30	14.70	LD_Mix	HDT_Mix	HHDT
Demolition Haul	0	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	8.00	2.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading Haul	0	0.00	0.00	2,727.00	12.40	7.30	14.70	LD_Mix	HDT_Mix	HHDT
Trenching	2	6.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	73.00	28.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	20.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2014

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					0.0312	0.0000	0.0312	4.7300e-003	0.0000	4.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2000e-004	8.8300e-003	6.0600e-003	1.0000e-005		6.9000e-004	6.9000e-004		6.4000e-004	6.4000e-004	0.0000	0.7508	0.7508	2.2000e-004	0.0000	0.7555
Total	**9.2000e-004**	**8.8300e-003**	**6.0600e-003**	**1.0000e-005**	**0.0312**	**6.9000e-004**	**0.0319**	**4.7300e-003**	**6.4000e-004**	**5.3700e-003**	**0.0000**	**0.7508**	**0.7508**	**2.2000e-004**	**0.0000**	**0.7555**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.4100e-003	0.0896	0.0751	1.7000e-004	3.6700e-003	1.5500e-003	5.2200e-003	1.0100e-003	1.4300e-003	2.4400e-003	0.0000	15.3915	15.3915	1.5000e-004	0.0000	15.3946
Vendor	4.7000e-004	4.0200e-003	4.8000e-003	1.0000e-005	1.9000e-004	8.0000e-005	2.7000e-004	6.0000e-005	7.0000e-005	1.3000e-004	0.0000	0.6651	0.6651	1.0000e-005	0.0000	0.6653
Worker	1.4000e-004	2.0000e-004	1.9100e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2578	0.2578	2.0000e-005	0.0000	0.2581
Total	**8.0200e-003**	**0.0938**	**0.0819**	**1.8000e-004**	**4.1300e-003**	**1.6300e-003**	**5.7700e-003**	**1.1400e-003**	**1.5000e-003**	**2.6400e-003**	**0.0000**	**16.3144**	**16.3144**	**1.8000e-004**	**0.0000**	**16.3180**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0134	0.0000	0.0134	2.0200e-003	0.0000	2.0200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2000e-004	8.8300e-003	6.0600e-003	1.0000e-005		6.9000e-004	6.9000e-004		6.4000e-004	6.4000e-004	0.0000	0.7508	0.7508	2.2000e-004	0.0000	0.7555
Total	**9.2000e-004**	**8.8300e-003**	**6.0600e-003**	**1.0000e-005**	**0.0134**	**6.9000e-004**	**0.0140**	**2.0200e-003**	**6.4000e-004**	**2.6600e-003**	**0.0000**	**0.7508**	**0.7508**	**2.2000e-004**	**0.0000**	**0.7555**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.4100e-003	0.0896	0.0751	1.7000e-004	3.6700e-003	1.5500e-003	5.2200e-003	1.0100e-003	1.4300e-003	2.4400e-003	0.0000	15.3915	15.3915	1.5000e-004	0.0000	15.3946
Vendor	4.7000e-004	4.0200e-003	4.8000e-003	1.0000e-005	1.9000e-004	8.0000e-005	2.7000e-004	6.0000e-005	7.0000e-005	1.3000e-004	0.0000	0.6651	0.6651	1.0000e-005	0.0000	0.6653
Worker	1.4000e-004	2.0000e-004	1.9100e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2578	0.2578	2.0000e-005	0.0000	0.2581
Total	**8.0200e-003**	**0.0938**	**0.0819**	**1.8000e-004**	**4.1300e-003**	**1.6300e-003**	**5.7700e-003**	**1.1400e-003**	**1.5000e-003**	**2.6400e-003**	**0.0000**	**16.3144**	**16.3144**	**1.8000e-004**	**0.0000**	**16.3180**

3.3 Demolition Haul - 2014

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	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Unmitigated Construction Off-Site

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

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	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

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

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.4700e-003	0.0000	5.4700e-003	5.9000e-004	0.0000	5.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0180	0.1963	0.1078	1.5000e-004		0.0104	0.0104		9.6000e-003	9.6000e-003	0.0000	14.6139	14.6139	4.3200e-003	0.0000	14.7046
Total	**0.0180**	**0.1963**	**0.1078**	**1.5000e-004**	**5.4700e-003**	**0.0104**	**0.0159**	**5.9000e-004**	**9.6000e-003**	**0.0102**	**0.0000**	**14.6139**	**14.6139**	**4.3200e-003**	**0.0000**	**14.7046**

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	5.2000e-004	4.4200e-003	5.2800e-003	1.0000e-005	2.1000e-004	9.0000e-005	3.0000e-004	6.0000e-005	8.0000e-005	1.4000e-004	0.0000	0.7317	0.7317	1.0000e-005	0.0000	0.7318
Worker	6.1000e-004	8.6000e-004	8.4100e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1342	1.1342	7.0000e-005	0.0000	1.1356
Total	**1.1300e-003**	**5.2800e-003**	**0.0137**	**2.0000e-005**	**1.4100e-003**	**1.0000e-004**	**1.5100e-003**	**3.8000e-004**	**9.0000e-005**	**4.7000e-004**	**0.0000**	**1.8658**	**1.8658**	**8.0000e-005**	**0.0000**	**1.8674**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3400e-003	0.0000	2.3400e-003	2.5000e-004	0.0000	2.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0180	0.1963	0.1078	1.5000e-004		0.0104	0.0104		9.6000e-003	9.6000e-003	0.0000	14.6139	14.6139	4.3200e-003	0.0000	14.7045
Total	**0.0180**	**0.1963**	**0.1078**	**1.5000e-004**	**2.3400e-003**	**0.0104**	**0.0128**	**2.5000e-004**	**9.6000e-003**	**9.8500e-003**	**0.0000**	**14.6139**	**14.6139**	**4.3200e-003**	**0.0000**	**14.7045**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.2000e-004	4.4200e-003	5.2800e-003	1.0000e-005	2.1000e-004	9.0000e-005	3.0000e-004	6.0000e-005	8.0000e-005	1.4000e-004	0.0000	0.7317	0.7317	1.0000e-005	0.0000	0.7318
Worker	6.1000e-004	8.6000e-004	8.4100e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1342	1.1342	7.0000e-005	0.0000	1.1356
Total	**1.1300e-003**	**5.2800e-003**	**0.0137**	**2.0000e-005**	**1.4100e-003**	**1.0000e-004**	**1.5100e-003**	**3.8000e-004**	**9.0000e-005**	**4.7000e-004**	**0.0000**	**1.8658**	**1.8658**	**8.0000e-005**	**0.0000**	**1.8674**

3.5 Grading Haul - 2014

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					7.3000e-004	0.0000	7.3000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0342	0.4132	0.3467	7.6000e-004	0.0169	7.1700e-003	0.0241	4.6500e-003	6.5900e-003	0.0113	0.0000	71.0197	71.0197	6.9000e-004	0.0000	71.0341
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	**0.0342**	**0.4132**	**0.3467**	**7.6000e-004**	**0.0169**	**7.1700e-003**	**0.0241**	**4.6500e-003**	**6.5900e-003**	**0.0113**	**0.0000**	**71.0197**	**71.0197**	**6.9000e-004**	**0.0000**	**71.0341**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.1000e-004	0.0000	3.1000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.1000e-004**	**0.0000**	**3.1000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0342	0.4132	0.3467	7.6000e-004	0.0169	7.1700e-003	0.0241	4.6500e-003	6.5900e-003	0.0113	0.0000	71.0197	71.0197	6.9000e-004	0.0000	71.0341
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	**0.0342**	**0.4132**	**0.3467**	**7.6000e-004**	**0.0169**	**7.1700e-003**	**0.0241**	**4.6500e-003**	**6.5900e-003**	**0.0113**	**0.0000**	**71.0197**	**71.0197**	**6.9000e-004**	**0.0000**	**71.0341**

3.6 Trenching - 2014

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	6.9600e-003	0.0736	0.0502	7.0000e-005		4.7600e-003	4.7600e-003		4.3800e-003	4.3800e-003	0.0000	6.8040	6.8040	2.0100e-003	0.0000	6.8462
Total	**6.9600e-003**	**0.0736**	**0.0502**	**7.0000e-005**		**4.7600e-003**	**4.7600e-003**		**4.3800e-003**	**4.3800e-003**	**0.0000**	**6.8040**	**6.8040**	**2.0100e-003**	**0.0000**	**6.8462**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	4.3000e-004	4.2100e-003	1.0000e-005	6.0000e-004	1.0000e-005	6.1000e-004	1.6000e-004	1.0000e-005	1.6000e-004	0.0000	0.5671	0.5671	3.0000e-005	0.0000	0.5678
Total	**3.1000e-004**	**4.3000e-004**	**4.2100e-003**	**1.0000e-005**	**6.0000e-004**	**1.0000e-005**	**6.1000e-004**	**1.6000e-004**	**1.0000e-005**	**1.6000e-004**	**0.0000**	**0.5671**	**0.5671**	**3.0000e-005**	**0.0000**	**0.5678**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9600e-003	0.0736	0.0502	7.0000e-005		4.7600e-003	4.7600e-003		4.3800e-003	4.3800e-003	0.0000	6.8040	6.8040	2.0100e-003	0.0000	6.8462
Total	**6.9600e-003**	**0.0736**	**0.0502**	**7.0000e-005**		**4.7600e-003**	**4.7600e-003**		**4.3800e-003**	**4.3800e-003**	**0.0000**	**6.8040**	**6.8040**	**2.0100e-003**	**0.0000**	**6.8462**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	4.3000e-004	4.2100e-003	1.0000e-005	6.0000e-004	1.0000e-005	6.1000e-004	1.6000e-004	1.0000e-005	1.6000e-004	0.0000	0.5671	0.5671	3.0000e-005	0.0000	0.5678
Total	**3.1000e-004**	**4.3000e-004**	**4.2100e-003**	**1.0000e-005**	**6.0000e-004**	**1.0000e-005**	**6.1000e-004**	**1.6000e-004**	**1.0000e-005**	**1.6000e-004**	**0.0000**	**0.5671**	**0.5671**	**3.0000e-005**	**0.0000**	**0.5678**

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3.7 Building Construction - 2014

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	0.0672	0.4205	0.2656	3.9000e-004		0.0290	0.0290		0.0280	0.0280	0.0000	33.7391	33.7391	7.8100e-003	0.0000	33.9031
Total	**0.0672**	**0.4205**	**0.2656**	**3.9000e-004**		**0.0290**	**0.0290**		**0.0280**	**0.0280**	**0.0000**	**33.7391**	**33.7391**	**7.8100e-003**	**0.0000**	**33.9031**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.5100e-003	0.0807	0.0962	1.4000e-004	3.8900e-003	1.5500e-003	5.4400e-003	1.1200e-003	1.4300e-003	2.5400e-003	0.0000	13.3470	13.3470	1.4000e-004	0.0000	13.3500
Worker	7.2600e-003	0.0103	0.1000	1.7000e-004	0.0143	1.3000e-004	0.0144	3.8000e-003	1.2000e-004	3.9200e-003	0.0000	13.4854	13.4854	8.2000e-004	0.0000	13.5026
Total	**0.0168**	**0.0910**	**0.1963**	**3.1000e-004**	**0.0182**	**1.6800e-003**	**0.0199**	**4.9200e-003**	**1.5500e-003**	**6.4600e-003**	**0.0000**	**26.8325**	**26.8325**	**9.6000e-004**	**0.0000**	**26.8525**

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	0.0672	0.4205	0.2656	3.9000e-004		0.0290	0.0290		0.0280	0.0280	0.0000	33.7390	33.7390	7.8100e-003	0.0000	33.9031
Total	**0.0672**	**0.4205**	**0.2656**	**3.9000e-004**		**0.0290**	**0.0290**		**0.0280**	**0.0280**	**0.0000**	**33.7390**	**33.7390**	**7.8100e-003**	**0.0000**	**33.9031**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.5100e-003	0.0807	0.0962	1.4000e-004	3.8900e-003	1.5500e-003	5.4400e-003	1.1200e-003	1.4300e-003	2.5400e-003	0.0000	13.3470	13.3470	1.4000e-004	0.0000	13.3500
Worker	7.2600e-003	0.0103	0.1000	1.7000e-004	0.0143	1.3000e-004	0.0144	3.8000e-003	1.2000e-004	3.9200e-003	0.0000	13.4854	13.4854	8.2000e-004	0.0000	13.5026
Total	**0.0168**	**0.0910**	**0.1963**	**3.1000e-004**	**0.0182**	**1.6800e-003**	**0.0199**	**4.9200e-003**	**1.5500e-003**	**6.4600e-003**	**0.0000**	**26.8325**	**26.8325**	**9.6000e-004**	**0.0000**	**26.8525**

3.7 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3130	2.0265	1.3141	1.9800e-003		0.1364	0.1364		0.1315	0.1315	0.0000	169.5750	169.5750	0.0375	0.0000	170.3615
Total	**0.3130**	**2.0265**	**1.3141**	**1.9800e-003**		**0.1364**	**0.1364**		**0.1315**	**0.1315**	**0.0000**	**169.5750**	**169.5750**	**0.0375**	**0.0000**	**170.3615**

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	0.0402	0.3489	0.4368	7.2000e-004	0.0196	5.6800e-003	0.0253	5.6300e-003	5.2200e-003	0.0109	0.0000	66.4627	66.4627	6.0000e-004	0.0000	66.4753
Worker	0.0328	0.0463	0.4502	8.4000e-004	0.0721	6.1000e-004	0.0727	0.0192	5.6000e-004	0.0197	0.0000	65.8169	65.8169	3.7300e-003	0.0000	65.8953
Total	**0.0730**	**0.3952**	**0.8871**	**1.5600e-003**	**0.0917**	**6.2900e-003**	**0.0980**	**0.0248**	**5.7800e-003**	**0.0306**	**0.0000**	**132.2796**	**132.2796**	**4.3300e-003**	**0.0000**	**132.3705**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3130	2.0265	1.3140	1.9800e-003		0.1364	0.1364		0.1315	0.1315	0.0000	169.5748	169.5748	0.0375	0.0000	170.3613
Total	**0.3130**	**2.0265**	**1.3140**	**1.9800e-003**		**0.1364**	**0.1364**		**0.1315**	**0.1315**	**0.0000**	**169.5748**	**169.5748**	**0.0375**	**0.0000**	**170.3613**

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	0.0402	0.3489	0.4368	7.2000e-004	0.0196	5.6800e-003	0.0253	5.6300e-003	5.2200e-003	0.0109	0.0000	66.4627	66.4627	6.0000e-004	0.0000	66.4753
Worker	0.0328	0.0463	0.4502	8.4000e-004	0.0721	6.1000e-004	0.0727	0.0192	5.6000e-004	0.0197	0.0000	65.8169	65.8169	3.7300e-003	0.0000	65.8953
Total	**0.0730**	**0.3952**	**0.8871**	**1.5600e-003**	**0.0917**	**6.2900e-003**	**0.0980**	**0.0248**	**5.7800e-003**	**0.0306**	**0.0000**	**132.2796**	**132.2796**	**4.3300e-003**	**0.0000**	**132.3705**

3.8 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5421					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0134	0.0848	0.0628	1.0000e-004		7.2900e-003	7.2900e-003		7.2900e-003	7.2900e-003	0.0000	8.4257	8.4257	1.1000e-003	0.0000	8.4488
Total	**0.5555**	**0.0848**	**0.0628**	**1.0000e-004**		**7.2900e-003**	**7.2900e-003**		**7.2900e-003**	**7.2900e-003**	**0.0000**	**8.4257**	**8.4257**	**1.1000e-003**	**0.0000**	**8.4488**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3700e-003	1.9300e-003	0.0188	3.0000e-005	3.0000e-003	3.0000e-005	3.0300e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.7422	2.7422	1.6000e-004	0.0000	2.7455
Total	**1.3700e-003**	**1.9300e-003**	**0.0188**	**3.0000e-005**	**3.0000e-003**	**3.0000e-005**	**3.0300e-003**	**8.0000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.7422**	**2.7422**	**1.6000e-004**	**0.0000**	**2.7455**

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	0.5421					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0134	0.0848	0.0628	1.0000e-004		7.2900e-003	7.2900e-003		7.2900e-003	7.2900e-003	0.0000	8.4257	8.4257	1.1000e-003	0.0000	8.4488
Total	**0.5555**	**0.0848**	**0.0628**	**1.0000e-004**		**7.2900e-003**	**7.2900e-003**		**7.2900e-003**	**7.2900e-003**	**0.0000**	**8.4257**	**8.4257**	**1.1000e-003**	**0.0000**	**8.4488**

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	1.3700e-003	1.9300e-003	0.0188	3.0000e-005	3.0000e-003	3.0000e-005	3.0300e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.7422	2.7422	1.6000e-004	0.0000	2.7455
Total	**1.3700e-003**	**1.9300e-003**	**0.0188**	**3.0000e-005**	**3.0000e-003**	**3.0000e-005**	**3.0300e-003**	**8.0000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.7422**	**2.7422**	**1.6000e-004**	**0.0000**	**2.7455**

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3.8 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0500e-003	0.0261	0.0207	3.0000e-005		2.1600e-003	2.1600e-003		2.1600e-003	2.1600e-003	0.0000	2.8086	2.8086	3.3000e-004	0.0000	2.8155
Total	**0.1847**	**0.0261**	**0.0207**	**3.0000e-005**		**2.1600e-003**	**2.1600e-003**		**2.1600e-003**	**2.1600e-003**	**0.0000**	**2.8086**	**2.8086**	**3.3000e-004**	**0.0000**	**2.8155**

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	4.1000e-004	5.8000e-004	5.5900e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8825	0.8825	5.0000e-005	0.0000	0.8835
Total	**4.1000e-004**	**5.8000e-004**	**5.5900e-003**	**1.0000e-005**	**1.0000e-003**	**1.0000e-005**	**1.0100e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8825**	**0.8825**	**5.0000e-005**	**0.0000**	**0.8835**

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	0.1807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0500e-003	0.0261	0.0207	3.0000e-005		2.1600e-003	2.1600e-003		2.1600e-003	2.1600e-003	0.0000	2.8086	2.8086	3.3000e-004	0.0000	2.8155
Total	**0.1847**	**0.0261**	**0.0207**	**3.0000e-005**		**2.1600e-003**	**2.1600e-003**		**2.1600e-003**	**2.1600e-003**	**0.0000**	**2.8086**	**2.8086**	**3.3000e-004**	**0.0000**	**2.8155**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	5.8000e-004	5.5900e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8825	0.8825	5.0000e-005	0.0000	0.8835
Total	**4.1000e-004**	**5.8000e-004**	**5.5900e-003**	**1.0000e-005**	**1.0000e-003**	**1.0000e-005**	**1.0100e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8825**	**0.8825**	**5.0000e-005**	**0.0000**	**0.8835**

3.9 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0196	0.1972	0.1336	1.9000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	18.0108	18.0108	5.3300e-003	0.0000	18.1228
Paving	1.0100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0206**	**0.1972**	**0.1336**	**1.9000e-004**		**0.0124**	**0.0124**		**0.0114**	**0.0114**	**0.0000**	**18.0108**	**18.0108**	**5.3300e-003**	**0.0000**	**18.1228**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	1.1500e-003	0.0112	2.0000e-005	2.0000e-003	2.0000e-005	2.0200e-003	5.3000e-004	1.0000e-005	5.5000e-004	0.0000	1.7649	1.7649	9.0000e-005	0.0000	1.7669
Total	**8.2000e-004**	**1.1500e-003**	**0.0112**	**2.0000e-005**	**2.0000e-003**	**2.0000e-005**	**2.0200e-003**	**5.3000e-004**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**1.7649**	**1.7649**	**9.0000e-005**	**0.0000**	**1.7669**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0196	0.1972	0.1336	1.9000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	18.0107	18.0107	5.3300e-003	0.0000	18.1227
Paving	1.0100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0206**	**0.1972**	**0.1336**	**1.9000e-004**		**0.0124**	**0.0124**		**0.0114**	**0.0114**	**0.0000**	**18.0107**	**18.0107**	**5.3300e-003**	**0.0000**	**18.1227**

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	8.2000e-004	1.1500e-003	0.0112	2.0000e-005	2.0000e-003	2.0000e-005	2.0200e-003	5.3000e-004	1.0000e-005	5.5000e-004	0.0000	1.7649	1.7649	9.0000e-005	0.0000	1.7669
Total	**8.2000e-004**	**1.1500e-003**	**0.0112**	**2.0000e-005**	**2.0000e-003**	**2.0000e-005**	**2.0200e-003**	**5.3000e-004**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**1.7649**	**1.7649**	**9.0000e-005**	**0.0000**	**1.7669**

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	0.4094	0.3367	3.4314	9.3100e-003	0.8105	6.4100e-003	0.8169	0.2155	5.9400e-003	0.2214	0.0000	603.3892	603.3892	0.0251	0.0000	603.9160
Unmitigated	0.4094	0.3367	3.4314	9.3100e-003	0.8105	6.4100e-003	0.8169	0.2155	5.9400e-003	0.2214	0.0000	603.3892	603.3892	0.0251	0.0000	603.9160

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hotel	1,209.16	1,212.12	880.60	2,208,946	2,208,946
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,209.16	1,212.12	880.60	2,208,946	2,208,946

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.683812	0.072795	0.229492	0.001655	0.001935	0.000292	0.000830	0.001558	0.000000	0.000000	0.007633	0.000000	0.000000

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5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	208.0252	208.0252	0.0133	2.7600e-003	209.1590
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	232.3292	232.3292	0.0149	3.0800e-003	233.5955
NaturalGas Mitigated	0.0187	0.1698	0.1426	1.0200e-003		0.0129	0.0129		0.0129	0.0129	0.0000	184.8341	184.8341	3.5400e-003	3.3900e-003	185.9590
NaturalGas Unmitigated	0.0256	0.2324	0.1952	1.3900e-003		0.0177	0.0177		0.0177	0.0177	0.0000	252.9464	252.9464	4.8500e-003	4.6400e-003	254.4858

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	4.74004e+006	0.0256	0.2324	0.1952	1.3900e-003		0.0177	0.0177		0.0177	0.0177	0.0000	252.9464	252.9464	4.8500e-003	4.6400e-003	254.4858
Other Non-Asphalt Surfaces	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
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
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0256**	**0.2324**	**0.1952**	**1.3900e-003**		**0.0177**	**0.0177**		**0.0177**	**0.0177**	**0.0000**	**252.9464**	**252.9464**	**4.8500e-003**	**4.6400e-003**	**254.4858**

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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					
Other Non-Asphalt Surfaces	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
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
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	3.46366e+006	0.0187	0.1698	0.1426	1.0200e-003		0.0129	0.0129		0.0129	0.0129	0.0000	184.8341	184.8341	3.5400e-003	3.3900e-003	185.9590
Total		**0.0187**	**0.1698**	**0.1426**	**1.0200e-003**		**0.0129**	**0.0129**		**0.0129**	**0.0129**	**0.0000**	**184.8341**	**184.8341**	**3.5400e-003**	**3.3900e-003**	**185.9590**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	238596	49.0261	3.1400e-003	6.5000e-004	49.2933
Hotel	862568	177.2382	0.0114	2.3500e-003	178.2042
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	29516.3	6.0649	3.9000e-004	8.0000e-005	6.0980
Total		**232.3292**	**0.0149**	**3.0800e-003**	**233.5955**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	196966	40.4720	2.5900e-003	5.4000e-004	40.6926
Hotel	785918	161.4883	0.0103	2.1400e-003	162.3685
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	29516.3	6.0649	3.9000e-004	8.0000e-005	6.0980
Total		**208.0252**	**0.0133**	**2.7600e-003**	**209.1590**

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7408	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2900e-003	3.2900e-003	1.0000e-005	0.0000	3.4800e-003
Unmitigated	0.7408	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2900e-003	3.2900e-003	1.0000e-005	0.0000	3.4800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2900e-003	3.2900e-003	1.0000e-005	0.0000	3.4800e-003
Total	**0.7408**	**2.0000e-005**	**1.7000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2900e-003**	**3.2900e-003**	**1.0000e-005**	**0.0000**	**3.4800e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2900e-003	3.2900e-003	1.0000e-005	0.0000	3.4800e-003
Total	**0.7408**	**2.0000e-005**	**1.7000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2900e-003**	**3.2900e-003**	**1.0000e-005**	**0.0000**	**3.4800e-003**

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7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.6836	3.8700e-003	2.3500e-003	5.4948
Unmitigated	5.8024	4.8600e-003	2.9500e-003	6.8183

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	3.75428 / 0.417142	5.8024	4.8600e-003	2.9500e-003	6.8183
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.8024**	**4.8600e-003**	**2.9500e-003**	**6.8183**

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Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	3.00343 / 0.391697	4.6836	3.8700e-003	2.3500e-003	5.4948
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.6836**	**3.8700e-003**	**2.3500e-003**	**5.4948**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	16.4484	0.9721	0.0000	36.8618
Unmitigated	16.4484	0.9721	0.0000	36.8618

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hotel	81.03	16.4484	0.9721	0.0000	36.8618
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**16.4484**	**0.9721**	**0.0000**	**36.8618**

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Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hotel	81.03	16.4484	0.9721	0.0000	36.8618
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**16.4484**	**0.9721**	**0.0000**	**36.8618**

9.0 Operational Offroad

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

10.0 Vegetation

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