ATTACHMENT I
AIR QUALITY ANALYSIS
PREPARED BY DUDEK

Air Quality Analysis Technical Report for the Northwest Passage Project Pasadena, California

Prepared for:

The City of Pasadena
175 North Garfield Avenue
Pasadena, California 91101
Contact: Beilin Yu

Prepared by:

DUDEK
38 North Marengo Avenue
Pasadena, California 91101
Contact: Nicholas Lorenzen

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for the Northwest Passage Project

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
°C	degrees Celsius
°F	degrees Fahrenheit
μg/m³	micrograms per cubic meter
AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
City	City of Pasadena
CO	carbon monoxide
CY	cubic yard
DPM	diesel particulate matter
EPA	U.S. Environmental Protection Agency
Fuller Seminary	Fuller Theological Seminary
HAP	hazardous air pollutant
LOS	level of service
LST	localized significance thresholds
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	Ozone
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
ppb	parts per billion
ppm	parts per million
RCP	Regional Comprehensive Plan
RTP	Regional Transportation Plan
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRA	source-receptor area
TAC	toxic air contaminants
TIS	traffic impact study
VOC	volatile organic compound

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EXECUTIVE SUMMARY

The purpose of this technical report is to assess the potential air quality impacts associated with implementation of the proposed Northwest Passage Project (project). This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

The project involves a mixed-use development at 233 North Hudson Avenue, in the City of Pasadena (City) in Los Angeles County, California. Currently, the project site is utilized as a surface parking lot. A mixture of commercial and residential use buildings surround the project site, with residential uses to the east and north, and commercial uses to the west and south. The project site is approximately 0.37 acres or 16,304 square feet. The proposed project is within an area designated under the General Plan (City of Pasadena 2015) as Medium Mixed-Use (0.0-2.25 FAR) and zoned CD-3 (Central District Specific Plan, Walnut Housing Subdistrict).

The proposed mixed-use development would remove the existing surface parking. The project would consist of residential and commercial land uses, as well as parking. The entire project would be built into one structure with three levels of subterranean parking which would provide 78 parking spaces. The first floor (ground floor) of the proposed structure would be a mixture of commercial space, approximately 5,835 square feet and a lobby area to service the residential component of the project. The next four floors would consist of 42 residential units. The structure would total 47,670 square feet of development within the five stories. The project's residential density is approximately 113.5 dwelling units per acre.

The project site is located within the South Coast Air Basin (SCAB) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Construction and operational criteria air pollutant emissions were estimated using the California Emissions Estimator Model (CalEEMod) software version 2016.3.1.

This air quality impact analysis evaluated the potential for project-generated construction and operational emissions to result in an adverse impact to air quality. Impacts were evaluated for their significance based on the SCAQMD mass daily criteria air pollutant thresholds of significance (SCAQMD 2015). Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated include volatile organic compounds (VOCs) (also referred to as reactive organic gases), oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. VOCs and NO_x are evaluated because they are precursors to O_3. A summary of the impact analysis conclusions is provided in the following text.

Air Quality Plan Consistency

Implementation of the project would not exceed the demographic growth forecasts in the Southern California Association of Governments (SCAG) *2016 Regional Transportation Plan/Sustainable Communities Strategy* (2016 RTP/SCS); therefore, the project would also be consistent with the SCAQMD *2016 Air Quality Management Plan* (AQMP), which based future emission estimates on the SCAG 2016 RTP/SCS. In addition, the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations. Based on these considerations, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

Construction Criteria Air Pollutant Emissions

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Maximum daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction in both construction years (2018 and 2019).

Operational Criteria Air Pollutant Emissions

An operational year of 2019 was assumed to reflect the first year of operation consistent with the construction schedule. Operation of the project would generate operational criteria air pollutants from mobile sources (vehicles), area sources (consumer product use, architectural coatings, and landscape maintenance equipment), and energy (natural gas). Maximum operational emissions would not exceed the SCAQMD operational significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$.

Exposure of Sensitive Receptors

Construction activities would not generate emissions in excess of the SCAQMD site-specific localized significance thresholds (LSTs); therefore, site-specific construction impacts would be less than significant. In addition, operation of diesel equipment during project construction would be subject to the California Air Resources Board (CARB) air toxic control measures for in-use off-road diesel fleets, which would minimize diesel particulate matter (DPM) emissions. No residual toxic air contaminants (TAC) emissions and corresponding cancer risk are anticipated after construction, and no long-term sources of TAC emissions are anticipated during operation of the project. Therefore, the exposure of project-related TAC emission impacts to sensitive receptors would be less than significant. The project is not anticipated to significantly contribute to a CO hotspot when compared with similar intersections in the immediate vicinity. As such, potential project-generated impacts associated with CO hotspots would be less than significant.

Odors

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application, which would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Impacts associated with odors during construction would be less than significant. The project is a mixed-use development that would not include land uses with sources that have the potential to generate substantial odors, and impacts associated with odors during operation would be considered less than significant.

Cumulative Impacts

The potential for the project to result in a cumulatively considerable impact, per the SCAQMD guidance and thresholds, is based on the project's potential to exceed the project-specific daily thresholds. As discussed previously, maximum construction and operational emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Therefore, the project would not result in a cumulatively considerable increase in criteria air pollutants.

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Air Quality Analysis Technical Report for the Northwest Passage Project

1 INTRODUCTION

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential air quality impacts associated with implementation of the project. Consistent with the City's Environmental Administrative Procedures, this assessment uses the significance thresholds in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and is based on the emissions-based significance thresholds recommended by the South Coast Air Quality Management District (SCAQMD) and other applicable thresholds of significance.

This analysis incorporates project information provided on the site plans prepared DC Hudson Holdings and Tyler Gonzales Architects (Tyler Gonzales Architects 2017), and the traffic impact analysis (TIA) prepared by the City (City of Pasadena 2017).

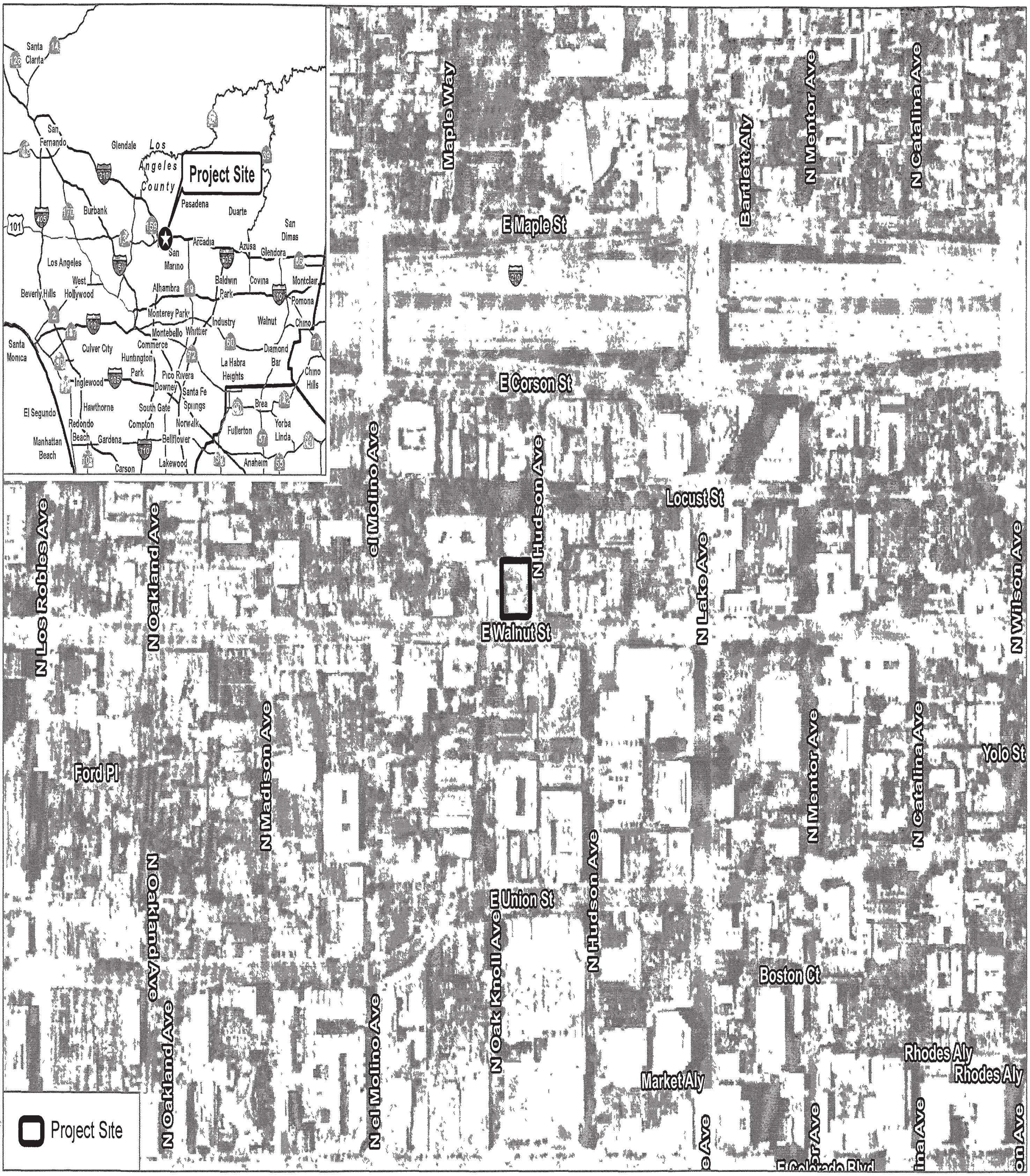
1.2 Regional and Local Setting

The project consists of a mixed-use development located at 233 North Hudson Avenue, Pasadena California, which is on the corner of Hudson Avenue and E Walnut Avenue (Figure 1, Project Location). The property is located approximately 500 feet south of Interstate 134. The properties are east of the Pasadena Civic Center District and Fuller Seminary. South of the project site is the Pasadena Playhouse District.

Residential uses are located to the north and east of the project site, across North Hudson Avenue; immediately to the west and south of the project site are commercial uses. The project site is approximately 0.37 acres in size and utilized as a surface parking lot. The proposed project is within an area designated and zoned under the General Plan (City of Pasadena 2015) as CD-3 (Central District Specific Plan, Walnut Housing Subdistrict) and Medium Mixed-Use (0.0-2.25 FAR), respectively. The project site is located within the SCAB, which includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties.

1.3 Project Description

The proposed mixed-use development would remove the existing surface parking and replace it with a single five-story mixed use building. The project would consist of residential and commercial land uses, as well as underground parking. The entire project would be built into one structure with three levels of subterranean parking which would provide 78 parking spaces. The first floor (ground floor) of the proposed structure would be a mixture of approximately 5,835 square feet of commercial space and a lobby area to service the residential component of the project. The upper four floors would consist of 42 residential units. The structure would total 47,670 square feet of development divided among the five above ground stories. The project's residential density is approximately 113.5 dwelling units per acre (Tyler Gonzalez Architects 2017).



SOURCE NAIP 2016

DUDEK

0 210 420 Feet

FIGURE 1

Project Location

233 N Hudson Avenue

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2 ENVIRONMENTAL SETTING

As stated previously, the project site is located within the SCAB. The SCAB is characterized as having a Mediterranean climate (typified as semiarid with mild winters, warm summers, and moderate rainfall). The SCAB is a 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east.

2.1 Climate and Topography

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted. Meteorological and topographical conditions, however, are also important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of air pollutants. The SCAB's air pollution problems are a consequence of the combination of emissions from the nation's second largest urban area, meteorological conditions adverse to the dispersion of those emissions, and mountainous terrain surrounding the SCAB that traps pollutants as they are pushed inland with the sea breeze (SCAQMD 2017). Meteorological and topographical factors that affect air quality in the SCAB are described in the following text.[1]

Climate

The SCAB is characterized as having a Mediterranean climate (typified as semiarid with mild winters, warm summers, and moderate rainfall). The general region lies in the semipermanent high-pressure zone of the eastern Pacific; as a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SCAB is a function of the area's natural physical characteristics (e.g., weather and topography) and of manufactured influences (e.g., development patterns and lifestyle). Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the SCAB, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have recorded temperatures over 100°F in recent years. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent,

1 The discussion of meteorological and topographical conditions of the SCAB is based on information provided in the *Final 2016 Air Quality Management Plan* (SCAQMD 2017).

and low stratus clouds, occasionally referred to as “high fog,” are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the SCAB. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail because of typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the SCAB.

The average low in the City is 43°F in January, and the average high is 89°F in August. In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable, although almost all rain occurs from November to April. Rainfall averages around 19.4 inches per year in the City (City of Pasadena 2016).

Sunlight

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain “primary” pollutants (mainly reactive hydrocarbons and oxides of nitrogen (NO_x)[2]) react to form “secondary” pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind of the emission sources. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Temperature Inversions

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air mix and disperse into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in coastal Southern California. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air, which acts as a lid through which the cooler marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above mean sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet above mean sea level, the terrain prevents the pollutants from entering the upper atmosphere, resulting in the pollutants settling in the foothill communities. Below 1,200 feet above mean sea level, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Typically, inversions are lower before sunrise than

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[2] NO_x is a general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen.

during the daylight hours. Mixing heights for inversions are lower in the summer and inversions are more persistent, being partly responsible for the high levels of ozone observed during summer months in the SCAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. The SCAB has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

As with other cities within the SCAB, the City is susceptible to air inversions. This traps a layer of stagnant air near the ground where pollutants are further concentrated. These inversions produce haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources. Elevated particles less than 10 microns in diameter (PM_{10}) and $PM_{2.5}$ concentrations can occur in the SCAB throughout the year, but occur most frequently in fall and winter. Although there are some changes in emissions by day-of-week and season, the observed variations in pollutant concentrations are primarily the result of seasonal differences in weather conditions.

2.2 Pollutants and Effects

2.2.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter equal to or less than 10 microns (PM_{10}), particulate matter with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$), and lead. These pollutants, as well as TACs, are discussed in the following text.[3] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors, such as hydrocarbons and NO_x. These precursors are mainly NO_x and VOCs. The maximum effects of precursor emissions on O_3 concentrations

[3] The descriptions of each of the criteria air pollutants and associated health effects are based on the EPA's Criteria Air Pollutants (2016a) and the CARB Glossary of Air Pollutant Terms (2016a)

usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere ozone layer as well as at the Earth's surface in the troposphere. The O_3 that the U.S. Environmental Protection Agency (EPA) and CARB regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level ozone is a harmful air pollutant that causes numerous adverse health effects and is thus, considered "bad" ozone. Stratospheric ozone, or "good" ozone, occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the earth's atmosphere. Without the protection of the beneficial stratospheric ozone layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016a).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_x, NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

2.2.2 Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air quality management districts and air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. DPM is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2016a). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016a). The CARB) classified "particulate emissions from diesel-fueled engines" (i.e., DPM; 17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016a). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

2.3 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The SCAQMD identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993).

The project site is located in the Central District Specific Plan of Pasadena. The immediate vicinity is occupied by commercial uses including an insurance firm and hotel uses, as well as single-family and multi-family residential units. The closest off-site sensitive receptors to the project site are residences located adjacent to the north and approximately 60 feet to the east.

3 REGULATORY SETTING

3.1 Federal Regulations

3.1.1 Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

3.1.2 Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

3.2 State Regulations

3.2.1 Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 1.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³
Lead[j,k]	30-day Average	1.5 μg/m³	—	—
	Calendar Quarter	—	1.5 μg/m³ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 μg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m³)	—	—

Table 1
Ambient Air Quality Standards

		California Standards[a]	National Standards[b]	
Pollutant	**Averaging Time**	*Concentration[c]*	*Primary[c,d]*	*Secondary[c,e]*
Sulfates	24 hours	25 μg/m³	—	—
Visibility reducing particles	8 hour (10 00 a.m. to 6·00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016b

Notes: μg/m³ = micrograms per cubic meter, CO = carbon monoxide, mg/m³= milligrams per cubic meter, NO_2 = nitrogen dioxide, O_3 = ozone, PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns, $PM_{2\,5}$ = particulate matter with an aerodynamic diameter less than or equal to 2 5 microns, ppm = parts per million by volume, SO_2 = sulfur dioxide

a California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2\,5}$), and visibility-reducing particles are values that are not to be exceeded All others are not to be equaled or exceeded CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than 1 For $PM_{2\,5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard

c Concentration expressed first in units in which it was promulgated Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr, ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas

d National Primary Standards The levels of air quality necessary, with an adequate margin of safety, to protect the public health

e National Secondary Standards The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f On October 1, 2015, the EPA Administrator signed the notice for the final rule to revise the primary and secondary NAAQS for O_3 The EPA is revising the levels of both standards from 0 075 ppm to 0 070 ppm and retaining their indicators (O_3), forms (fourth-highest daily maximum, averaged across 3 consecutive years) and averaging times (8 hours) The EPA is in the process of submitting the rule for publication in the Federal Register The final rule will be effective 60 days after the date of publication in the Federal Register The lowered national 8-hour standards are reflected in the table.

g To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb) Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm In this case, the national standard of 100 ppb is identical to 0 100 ppm

h On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved

i On December 14, 2012, the national annual $PM_{2\,5}$ primary standard was lowered from 15 μg/m³ to 12 0 μg/m³ The existing national 24-hour $PM_{2\,5}$ standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m³ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years

j CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

k The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1 5 μg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved

3.2.2 Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under Assembly Bill 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with Assembly Bill 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Assembly Bill 2588) seeks to identify and evaluate risk from air toxics sources; however, Assembly Bill 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "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 in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment. Several Airborne Toxic Control Measures that reduce diesel emissions including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

Section 41700 of the California Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

3.3 Local Regulations

3.3.1 South Coast Air Quality Management District

The SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the project is located. The

SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD's AQMPs include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The most recent adopted AQMP is the 2016 AQMP (SCAQMD 2017), which was adopted by the SCAQMD governing board in March 2017. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air. The 2016 AQMP represents a new approach, focusing on available, proven, and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gases and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017). Because mobile sources are the principal contributor to the SCAB's air quality challenges, the SCAQMD has been and will continue to be closely engaged with CARB and the EPA, who have primary responsibility for these sources. The 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality but also local businesses and the regional economy. These "win-win" scenarios are key to implementation of this 2016 AQMP with broad support from a wide range of stakeholders.

Applicable Rules

Emissions that would result from mobile, area, and stationary sources during construction and operation of the project are subject to the rules and regulations of the SCAQMD. The SCAQMD rules applicable to the project may include the following:

- **Rule 401 – Visible Emissions:** This rule establishes the limit for visible emissions from stationary sources.
- **Rule 402 – Nuisance:** This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403 – Fugitive Dust:** This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.

- **Rule 431.2 – Sulfur Content of Liquid Fuels:** The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of SO_x and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.
- **Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines:** This rule applies to stationary and portable engines rated at greater than 50 horsepower. The purpose of Rule 1110.2 is to reduce NO_x, VOCs, and CO emissions from engines. Emergency engines, including those powering standby generators, are generally exempt from the emissions and monitoring requirements of this rule because they have permit conditions that limit operation to 200 hours or less per year as determined by an elapsed operating time meter.
- **Rule 1113 – Architectural Coatings:** This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

3.3.2 Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States. With respect to air quality planning and other regional issues, SCAG has prepared the *2008 Regional Comprehensive Plan: Helping Communities Achieve a Sustainable Future* (2008 RCP) for the region (SCAG 2008). The 2008 RCP is a problem-solving guidance document that directly responds to what SCAG has learned about Southern California's challenges through the annual State of the Region report card. It responds to SCAG's Regional Council directive in the 2002 Strategic Plan to develop a strategic plan for defining and solving our interrelated housing, traffic, water, air quality, and other regional challenges (SCAG 2008).

In regards to air quality, the 2008 RCP sets the policy context in which SCAG participates in and responds to the SCAQMD air quality plans and builds off the SCAMQD AQMP processes that are designed to meet health-based criteria pollutant standards in several ways (SCAG 2008). First, it complements AQMPs by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in AQMPs. Second, the 2008 RCP emphasizes the need for local initiatives that can reduce the region's greenhouse gas emissions that contribute to climate change, an issue that is largely outside the focus of local attainment plans. Third, the 2008 RCP emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On April 7, 2016, SCAG's Regional Council adopted the 2016–2040 RTP/SCS (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The 2016 RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The 2016 RTP/SCS was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders within the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In June 2016, SCAG received its conformity determination from the Federal Highway Administration and the Federal Transit Administration indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 Federal Transportation Improvement Program Consistency Amendment through Amendment 15–12 have been met (SCAG 2016). As previously noted, the SCAQMD 2016 AQMP applies the updated SCAG growth forecasts assumed in the 2016 RTP/SCS.

3.3.3 City of Pasadena

The City's General Plan (2015) includes various goals and policies designed to help improve air quality within the City. In regards to reducing mobile source emissions, the City has adopted a Transportation Management Program Ordinance (Municipal Code, Chapter 10.64) to incentivize walking, cycling, use of public transit, and carpooling to work and comply with the Los Angeles County Metropolitan Transportation Authority's Congestion Management Program. Trip reduction strategies are addressed in the Land Use and Mobility Elements. The Land Use Element includes policies to encourage site design that is conducive to walking. To reduce vehicle traffic and congestion within the City, the Mobility Element includes policies to encourage the use of alternative forms of transportation and strategies to be implemented by employers, developers, and merchants within the City.

As discussed in the General Plan, policies pertaining to improving air quality are addressed in multiple chapters of the General Plan. Key policies from the Land Use Element include the following (City of Pasadena 2015):

- **Policy 4.1 Sustainable Urban Form**. Provide an overall pattern of land uses and densities that encourages sustainable development; offers convenient alternatives to auto travel;

ensures compatibility among uses; enhances livability and public health; sustains economic vitality; and reduces air pollution, greenhouse gas emissions, and energy consumption.

- **Policy 10.1 Environmental Quality and Conservation**. Establish Pasadena as a leader on environmental stewardship efforts, including air quality protection, energy and water efficiency, renewable energy standards, natural resource conservation, and greenhouse gas emission standards in the areas of energy, water, air and land.
- **Policy 10.2 Land Uses Supporting Sustainability**. Encourage land uses and improvements that reduce energy and water consumption, waste and noise generation, air quality impacts and support other comparable resource strategies for a sustainable Pasadena; including alternative energy generation, electric vehicle parking and charging, recycling, and similar facilities.

4 REGIONAL AND LOCAL AIR QUALITY CONDITIONS

4.1 South Coast Air Basin Attainment Classification

Pursuant to the 1990 federal Clean Air Act amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 2 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS.

Table 2
South Coast Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Ozone (O_3) – 1 hour	No Federal Standard	**Nonattainment**
Ozone (O_3) – 8 hour	**Extreme Nonattainment**	**Nonattainment**
Nitrogen Dioxide (NO_2)	Unclassifiable/Attainment	Attainment
Carbon Monoxide (CO)	Attainment/Maintenance	Attainment
Sulfur Dioxide (SO_2)	Not Designated[a]	Attainment
Coarse Particulate Matter (PM_{10})	Attainment/Maintenance	**Nonattainment**
Fine Particulate Matter ($PM_{2.5}$)	**Serious Nonattainment**	**Nonattainment**
Lead	Nonattainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	No designation

Sources: EPA 2016b (federal), CARB 2016a (state)
Notes: Attainment = meets the standards, Attainment/Maintenance = achieve the standards after a nonattainment designation, Nonattainment = does not meet the standards, Unclassified or Unclassifiable = insufficient data to classify, Unclassifiable/Attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data
[a] Federal designations for SO_2 are on hold by EPA, EPA expects to make the designations by December 2017 (EPA 2016c)

In summary, the SCAB is designated as a nonattainment area for federal and state O_3 standards and federal and state $PM_{2.5}$ standards. The SCAB is designated as a nonattainment area for state

PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state CO standards, federal and state NO_2 standards, and federal and state SO_2 standards. While the SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard, it is designated attainment for the state lead standard (SCAQMD 2016).

4.2 Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Local ambient air quality is monitored by the SCAQMD. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2013 to 2015 are presented in Table 3. The Pasadena South Wilson Avenue monitoring station, located at 752 South Wilson Avenue, Pasadena, California 91106, is the nearest air quality monitoring station to the project site, located approximately 1.2 miles southeast from the project site. The data collected at this station are considered representative of the air quality experienced in the project vicinity. Air quality data for O_3, NO_2, CO, and $PM_{2.5}$ from the Pasadena South Wilson Avenue monitoring station are provided in Table 3. Because PM_{10} and SO_2 are not monitored at the South Wilson Avenue monitoring station, PM_{10} and SO_2 measurements were taken from the Los Angeles-North Main Street monitoring station (1630 N. Main St, Los Angeles, California 90012, 7.6 miles southwest from the project site). The number of days exceeding the ambient air quality standards is also shown in Table 3.

Table 3
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2014	*2015*	*2016*	*2014*	*2015*	*2016*
Ozone (O_3)										
Pasadena South Wilson Avenue	ppm	Maximum 1-hour concentration	State	0.09	0.124	0.111	0.126	6	12	12
	ppm	Maximum 8-hour concentration	State	0.070	—	—	—	—	—	—
			Federal	0.070	0.096	0.085	0.091	13	18	19
Nitrogen Dioxide (NO_2)										
Pasadena South Wilson	ppm	Maximum 1-hour concentration	State	0.18	75	74	71	0	0	0
			Federal	0.100	75.2	74.9	71.9	0	0	0

Table 3
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2014	*2015*	*2016*	*2014*	*2015*	*2016*
Avenue	ppm	Annual concentration	State	0.030	—	—	—	—	—	—
			Federal	0.053	—	—	—	—	—	—
Carbon Monoxide (CO)										
Pasadena South Wilson Avenue	ppm	Maximum 1-hour concentration	State	20	—	—	—	—	—	—
			Federal	35	3.1	2.6	1.5	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	—	—	—	—	—	—
			Federal	9	1.8	1.6	1.0	0	0	0
Coarse Particulate Matter (PM_{10})[a]										
Los Angeles-North Main Street	μg/m³	Maximum 24-hour concentration	State	50	86.8	88.5	74.6	18.7 (4)	13.8 (3)	ND (ND)
			Federal	150	66.0	73.0	64.0	0	0	0
	μg/m³	Annual concentration	State	20	30.2	27.0	ND	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a]										
Pasadena South Wilson Avenue	μg/m³	Maximum 24-hour concentration	Federal	35	32.5	48.5	29.2	0 (0)	6.2 (2)	0 (0)
	μg/m³	Annual concentration	State	12	—	—	—	—	—	—
			Federal	12.0	—	—	—	—	—	—
Sulfur Dioxide (SO_2)										
Los Angeles-North Main Street	ppm	Maximum 1-hour concentration	Federal	0.075	0.054	0.0126	0.0134	0	0	0
	ppm	Maximum 24-hour concentration	Federal	0.14	0.014	0.011	0.014	0	0	0
	ppm	Annual concentration	Federal	0.030	0.029	ND	0.003	0	0	0

Sources: CARB 2016c, EPA 2017

Notes: — = not available, μg/m3 = micrograms per cubic meter, ND = insufficient data available to determine the value, ppm = parts per million Data taken from CARB iADAM (http //www.arb ca gov/adam) and EPA AirData (http //www.epa.gov/airdata) represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily All other criteria pollutants did not exceed federal or state standards during the years shown There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

a Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored The numbers in parentheses are the measured number of samples that exceeded the standard

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5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 Thresholds of Significance

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance for evaluating whether a development project may result in significant impacts. Based on Appendix G of the CEQA Guidelines, the project would have a significant impact on air quality if the project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the project would have a significant impact on air quality. The SCAQMD *CEQA Air Quality Handbook* (2015), as revised in March 2015, sets forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4, SCAQMD Air Quality Significance Thresholds, are exceeded.

A project would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O_3 (see Table 1), which is a nonattainment pollutant, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 4. These emission-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly (see the discussion of O_3 and its sources in Section 2), and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table 4
SCAQMD Air Quality Significance Thresholds

Pollutant	Construction (pounds per day)	Operation (pounds per day)
Criteria Pollutants Mass Daily Thresholds		
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥ 10 in 1 million Chronic and acute hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants[c]		
NO_2 1-hour average NO_2 annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.030 ppm (state) and 0.0534 ppm (federal)	
CO 1-hour average CO 8-hour average	SCAQMD is in attainment, project is significant if it causes or contributes to an exceedance of the following attainment standards. 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
PM_{10} 24-hour average PM_{10} annual average	10.4 $\mu g/m^3$ (construction)[d] 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$	
$PM_{2.5}$ 24-hour average	10 4 $\mu g/m^3$ (construction)[d] 2.5 $\mu g/m^3$ (operation)	

Source: SCAQMD 2015

Notes: $\mu g/m^3$ = micrograms per cubic meter, CO = carbon monoxide, NO_2 = nitrogen dioxide, NO_x = oxides of nitrogen, PM_{10} = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, ppm = parts per million, SCAQMD = South Coast Air Quality Management District, SO_x = sulfur oxides, TAC = toxic air contaminant, VOC = volatile organic compounds

Greenhouse gas emissions thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included in Table 5 as they are not addressed in this air quality study

a The phaseout of leaded gasoline started in 1976 Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead, therefore, it is not discussed in this analysis.

b TACs include carcinogens and noncarcinogens

c Ambient air quality standards for criteria pollutants are based on SCAQMD Rule 1303, Table A-2, unless otherwise stated

d Ambient air quality threshold are based on SCAQMD Rule 403.

In addition to the emission-based thresholds listed in Table 4, the SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of construction activities. Such an evaluation is referred to as an LST analysis. For project sites of 5 acres or less, the SCAQMD LST Methodology (2009) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling. The area of the project site is less than one acre in size, and therefore, a LST evaluation is utilized for this analysis.

The LST screening thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, while the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The LST screening threshold for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. The allowable emission rates depend on the following parameters:

- Source-receptor area (SRA) in which the project is located
- Size of the project site
- Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals)

The project sites are located in SRA 8 (West San Gabriel Valley). The SCAQMD provides guidance for applying the California Emission Estimator Model (CalEEMod) to the LSTs. LST pollutant screening level concentration data is currently published for 1-, 2-, and 5-acre sites for varying distances. The maximum number of acres disturbed on the peak day was estimated using the "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (SCAQMD 2011), which provides estimated acres per 8-hour day for crawler tractors, graders, rubber tired dozers, and scrapers. Based on the SCAQMD guidance, it was estimated that the maximum acres on the project site that would be disturbed by off-road equipment would be 1 acre per day (1 grader and 1 dozer operating during the grading phase).[4] Additionally, the SCAQMD does not provide lookup table values for sites less than 1 acre, therefore the LST values for a 1 acre within SRA 8 were used.

4 The LST mass rate look-up tables were developed based upon the ambient air quality in each SRA in which the emission source is located, the size or total area of the emissions source, and the distance to the sensitive receptor. It is conservative to assume a smaller acreage and a shorter distance when determining LST emission levels for the appropriate SRA because the LST mass rate look-up table thresholds are more stringent for smaller sites and shorter distances (i.e., thresholds are lower for 1-acre sites than 2-acre and 5-acre sites and thresholds are lower for 25-meter distances than 50-meter and greater distances).

The nearest sensitive-receptor land uses (a residence) is located adjacent to the north of the project site. As such, the LST receptor distance was assumed to be 82 feet (25 meters), which is the shortest distance provided by the SCAQMD lookup tables. The LST values from the SCAQMD lookup tables for SRA 8 (West San Gabriel Valley) for a 1-acre project site and a receptor distance of 25 meters are shown in Table 5.

Table 5
LST Screening Thresholds for Source Receptor Area 8
(West San Gabriel Valley)

Pollutant	Threshold (pounds per day)
NO_2	69
CO	535
PM_{10}	4
$PM_{2.5}$	3

Source: SCAQMD 2009.
Notes: CO = carbon monoxide, NO_2 = nitrogen dioxide, PM_{10} = coarse particulate matter, $PM_{2.5}$ = fine particulate matter
LST thresholds were determined based on the values for 1-acre site at a distance of 25 meters from the nearest sensitive receptor

5.2 Approach and Methodology

5.2.1 Construction

Emissions from the construction phase of the project were estimated using CalEEMod, version 2016.3.1. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the project applicant and CalEEMod default values when project specifics were not known.

To estimate project emissions, and based on information provided by the project applicant, it is assumed that construction of the project would begin in April 2018 and would last approximately 18 months, ending in October 2019. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Grading: 2 months (April 2018–May 2018)
- Paving: 3 months (June 2018–August 2018)
- Building construction: 13 months (September 2018–October 2019)
- Architectural coating: 3 Months (August 2019–October 2019)

Installation of utilities was assumed to occur during the grading phase. Both the parking garage and the residential development would be painted during the 3-month architectural coating phase. For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week (22 days per month), during project construction.

Construction worker estimates and vendor truck trips by construction phase were based on CalEEMod default values. Haul truck trips during the grading phase were based on project applicant–provided earthwork quantities. Grading is currently estimated to involve 13,500 cubic yards (CY) of cut; the excess soil will be exported off site. Earth-moving activities would result in approximately 846 round trips (423 one-way truck trips) during the grading phase. CalEEMod default trip length values were used for the distances for all construction-related trips.

The construction equipment mix and vehicle trips used for estimating the project-generated construction emissions are shown in Table 6.

Table 6
Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Grading	12	0	845	Rubber tired dozers	1	4
				Bore Rig	1	4
Building construction	40	12	0	Cranes	2	6
				Forklifts	2	6
				Tractors/loaders/backhoes	2	6
				Welders	6	8
Paving	30	2	0	Cement and mortar mixers	2	6
				Pavers	2	6
Architectural coating	30	0	0	Air compressors	2	6

5.2.2 Operation

Emissions from the operational phase of the project were estimated using CalEEMod, Version 2016.3.1. An operational year of 2019 was assumed consistent with the construction schedule presented in Section 5.2.1, Construction.

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment.

Emissions associated with natural gas usage in space heating, water heating, and stoves are calculated in the building energy use module of CalEEMod, as described in the following text.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2016). Consumer product VOC emissions are estimated in CalEEMod based on the floor area of residential and nonresidential buildings and on the default factor of pounds of VOC per building square foot per day. For parking lot land uses, CalEEMod estimates VOC emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of VOC per square foot per day.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as paints and primers used during building maintenance. CalEEMod calculates the VOC evaporative emissions from application of residential and nonresidential surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emission factor is based on the VOC content of the surface coatings, and SCAQMD's Rule 1113 (Architectural Coatings) governs the VOC content for interior and exterior coatings. The model default reapplication rate of 10% of area per year is assumed. Consistent with CalEEMod defaults, it is assumed that the residential surface area for painting equals 2.7 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating. For nonresidential land uses (e.g., community and fitness rooms), it is assumed that the surface area for painting equals 2.0 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating. For the parking garage, the architectural coating area is assumed to be 6% of the total square footage, which is consistent with the supporting CalEEMod studies provided as an appendix to the CalEEMod User's Guide (CAPCOA 2016).

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers. The emissions associated from landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per residential dwelling unit per day and grams per square foot of nonresidential building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days. For Los Angeles County, the average annual "summer" days are estimated to 365 days; however, it is assumed that landscaping equipment would likely only operate during the week (not weekends), so operational days were assumed to be 260 days per year in CalEEMod (CAPCOA 2016). By design, the project would not include turf, and the proposed landscaped area would be minimal. Nonetheless, emissions associated with potential landscape maintenance equipment were included to conservatively capture potential project operational emission sources; however, it was assumed that all landscape equipment would be powered by electricity.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth).[5]

CalEEMod default values for energy consumption for each land use were applied for the project analysis. The energy use from residential land uses (natural gas usage per unit per year) is calculated in CalEEMod based on the California Residential Appliance Saturation Study (CAPCOA 2016). For nonresidential land uses, CalEEMod energy intensity values (natural gas usage per square foot per year) assumptions were based on the California Commercial End-Use Survey database (CAPCOA 2016).

Mobile Sources

Mobile sources for the project would primarily be motor vehicles (automobiles and light-duty trucks) traveling to and from the project site. Motor vehicles may be fueled with gasoline, diesel, or alternative fuels. Based on the TIA (City of Pasadena 2017) prepared for the project, the proposed development is anticipated to generate 5.81 trips per dwelling unit for Residential Condominium/Townhouse, and 40.00 trips per 1,000 square feet for the retail land use. Accordingly, the entire development would have an average of 477 trips per day. CalEEMod default data, including temperature, trip characteristics, variable start information, emissions factors, and trip distances, were conservatively used for the model inputs to estimate daily emissions from proposed vehicular sources. Project-related traffic was assumed to include a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2019 were used to estimate emissions associated with full buildout of the project.

The California Air Pollution Control Officers Association has developed methodologies for quantifying the emission reductions associated with numerous mitigation measures (CAPCOA 2010). Several of the measures would also reduce air pollutant emissions, which are related to land use, transportation planning that would reduce vehicle trips and/or trip lengths, enhance

5 Electricity use would contribute indirectly to criteria air pollutant emissions, however, the emissions from electricity use are only quantified for greenhouse gases in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site

walking, and bicycles as alternative modes of transportation, enhance availability of transit, and incorporate other approaches. Regarding mobile source emission reduction features relating to land use, it was assumed that the project would involve an increase in typical density, access to transit, and include below market rate housing. The project's density of 113.5 dwelling units per acre is greater than the assumed blended average density of residential development of 7.6 dwelling units per acre (CAPCOA 2010), which results in a reduction in vehicle miles traveled. The project is approximately 0.3 miles from the Lake Station Metro Gold Line light rail station and provides 3 below market rate housing units (which equates to 7% of the project dwelling units). Both of these measures, in support of each other in providing access to transit and housing to persons who are less likely to own vehicles, increase transit ridership, and therefore, decrease vehicle miles traveled (CAPCOA 2010).

Regarding neighborhood enhancements, it was assumed that the project would improve the pedestrian network on the project site, which results in minor reductions to motor vehicle emissions associated with a minor reduction in vehicle miles traveled. Pedestrian network improvements include providing access and links to pedestrian facilities contiguous with the project site and minimizing barriers to pedestrian access and interconnectivity, which would encourage pedestrian travel. Pedestrian network improvements would result in a minor vehicle miles traveled reduction and an associated reduction in mobile source emissions (CAPCOA 2010).

6 IMPACT ANALYSIS

6.1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

As previously discussed, the project site is located within the SCAB under the jurisdiction of the SCAQMD, which is the local agency responsible for administration and enforcement of air quality regulations for the area. The SCAQMD has established criteria for determining consistency with the 2016 AQMP in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993). The criteria are as follows (SCAQMD 1993):

- **Consistency Criterion No. 1:** The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP.
- **Consistency Criterion No. 2:** The proposed project will not exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Consistency Criterion No. 1

Section 6.2 evaluates the project's potential impacts in regards to CEQA Guidelines Appendix G Threshold 2 (the project's potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation impact analysis). As discussed in Section 6.2, the project would not result in a significant and unavoidable impact associated with the violation of an air quality standard. Because the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, the project would not conflict with Consistency Criterion No. 1 of the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993).

Consistency Criterion No. 2

While striving to achieve the NAAQS for O_3 and $PM_{2.5}$ and the CAAQS for O_3, PM_{10}, and $PM_{2.5}$ through a variety of air quality control measures, the 2016 AQMP also accommodates planned growth in the SCAB. Projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors (e.g., population, employment) is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993)).

The SCAQMD primarily uses demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by the SCAG for its RTP/SCS (SCAG 2016), which is based on general plans for cities and counties in the SCAB, for the development of the AQMP emissions inventory (SCAQMD 2017). The SCAG 2016 RTP/SCS, and associated Regional Growth Forecast, are generally consistent with the local plans; therefore, the 2016 AQMP is generally consistent with local government plans.

As discussed in Section 1.2, Regional and Local Setting, the project site is designated in the General Plan for medium mixed-use land use, and the project is zoned as CD-3 as governed by the Central District Specific Plan (City of Pasadena 2004). Since the project would not change the site land use or zoning designations, the project would result in population growth that is consistent with the City's General Plan and zoning, as well as the anticipated SCAG's growth projections assumed in the 2016 Final AQMP. Additionally, vehicle trip generation and planned development for the site are concluded to have been anticipated in the SCAG growth projections because the land use designation and zoning would remain the same.

The Final SCAG 2016 RTP/SCS provides population estimates for the years 2012 and 2040. To provide an interim year comparison, this analysis interpolates the City's projected population in the project's operational year (2019) based on the average growth rate to compare with the estimated increase in population generated by the project. The SCAG 2016 RTP/SCS estimates that the City's population will increase by approximately 10,400 people between 2012 and 2040, or approximately 372 people annually. The SCAG 2016 RTP/SCS interpolated 2019 population for the City is presented in Table 7.

Table 7
SCAG 2016 RTP/SCS Regional Growth Forecast

Year	Population Estimate
2012	140,300
2019	142,160[a]
2040	150,700

Source: SCAG 2016

a The population estimate for 2019 was interpolated based on the population forecast values for 2012 and 2040 provided in the SCAG 2016 RTP/SCS.

Pursuant to the household estimates provided in the SCAG 2016 RTP/SCS, the average household size in the City in the year 2040 is 2.42 persons per household (SCAG 2016). Based on this assumption, the proposed 42 residential units would generate 102 persons when it is built out in 2019. The addition of 102 persons in 2019 would not exceed the SCAG 2016 RTP/SCS 2019 interpolated annual population increase estimate of 372 persons. Therefore, implementation of the project would not result in a conflict with, or obstruct implementation of, the applicable air quality plan (i.e., the 2016 AQMP). Accordingly, the project would meet Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook.

Summary

As described previously, the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, and would not conflict with Consistency Criterion No. 1. Implementation of the project would be not exceed the demographic growth forecasts in the SCAG 2016 RTP/SCS; therefore, the project would also be consistent with the SCAQMD 2016 AQMP, which based future emission estimates on the SCAG 2016 RTP/SCS. Thus, the project would not conflict with Consistency Criterion No. 2. Based on these considerations, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

6.2 Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction Emissions

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

As discussed in Section 5.2.1, criteria air pollutant emissions associated with temporary construction activity were quantified using CalEEMod. Construction emissions were calculated for the estimated worst-case day over the construction period associated with each phase and reported as the maximum daily emissions estimated during each year of construction (2018 and

2019). Construction schedule assumptions, including phase type, duration, and sequencing, were based on information provided by the project applicant and is intended to represent a reasonable scenario based on the best information available. Default values provided in CalEEMod were used where detailed project information was not available.

Implementation of the project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, architectural coatings, and asphalt pavement application. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The project would be required to comply with SCAQMD Rule 403 to control dust emissions generated during the grading activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites three times per day depending on weather conditions. Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and asphalt pavement would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SCAQMD's Rule 1113 (Architectural Coatings).

Table 8 presents the estimated maximum daily construction emissions generated during construction of the project. The values shown are the maximum summer or winter daily emissions results from CalEEMod. Details of the emission calculations are provided in Appendix A.

Table 8
Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2018	2.56	16.02	13.69	0.03	2.05	1.13
2019	7.36	16.54	16.01	0.03	1.80	1.13
Maximum Daily Emissions	**7.36**	**16.54**	**16.21**	**0.03**	**2.05**	**1.13**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound, NOx = oxides of nitrogen, CO = carbon monoxide, SOx = sulfur oxides, PM_{10} = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, SCAQMD = South Coast Air Quality Management District
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect CalEEMod "mitigated" output, which accounts for compliance with SCAQMD Rule 403 (Fugitive Dust) and Rule 1113 (Architectural Coatings).

All maximum daily emissions would occur during the Building Construction and Architectural Coating phases in 2019 as a result of off-road equipment operation and on-road vendor trucks.

As shown in Table 8, daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction in all construction years. Construction-generated emissions would be temporary and would not represent a long-term source of criteria air pollutant emissions. As such, impacts would be less than significant.

Operational Emissions

The project involves development of 42 multifamily residential units and 5,835 square feet of commercial land use and subterranean parking garage with 78 parking spaces. Operation of the project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips from future residents; area sources, including the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment; and energy sources. As discussed in Section 5.2.2, Operation, pollutant emissions associated with long-term operations were quantified using CalEEMod. Project-generated mobile source emissions were estimated in CalEEMod based on project-specific trip rates. CalEEMod default values were used to estimate emissions from the project area and energy sources.

Table 9 presents the maximum daily area, energy, and mobile source emissions associated with operation (year 2019) of the project. The values shown are the maximum summer or winter daily emissions results from CalEEMod. Details of the emission calculations are provided in Appendix A.

Table 9
Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Area	12.16	0.91	24.85	0.05	3.23	3.23
Energy	0.02	0.14	0.06	0.00	0.01	0.01
Mobile	0.91	4.66	10.99	0.03	2.75	0.77
Total	**13.09**	**5.71**	**35.90**	**0.09**	**6.00**	**4.00**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound, NOx = oxides of nitrogen, CO = carbon monoxide, SOx = sulfur oxides, PM_{10} = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, SCAQMD = South Coast Air Quality Management District
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod These emissions reflect CalEEMod "mitigated" output, which accounts for compliance with SCAQMD Rule 403 (Fugitive Dust) and Rule 1113 (Architectural Coatings)

As shown in Table 9, the combined daily area, energy, and mobile source emissions would not exceed the SCAQMD operational thresholds for VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. Impacts associated with project-generated operational criteria air pollutant emissions would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

6.3 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

When considering cumulative impacts from the proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SCAB is designated as nonattainment for the CAAQS and NAAQS. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution to nonattainment status in the SCAB. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (SCAQMD 2003).

As discussed in Section 4.1, South Coast Air Basin Attainment Classification, the SCAB has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$ and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction and operation of the project would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Tables 9 and 10, project-generated construction and operational emissions, respectively, would not exceed the SCAQMD emission-based significance thresholds for VOC, NO_x, PM_{10}, or $PM_{2.5}$.

Cumulative localized impacts would potentially occur if a construction project were to occur concurrently with another off-site project. Construction schedules for potential future projects near the project site are currently unknown; therefore, potential construction impacts associated with two or more simultaneous projects would be considered speculative.[6] However, future projects would be subject to CEQA and would require air quality analysis, and where necessary, mitigation if the project would exceed SCAQMD thresholds. Criteria air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by the SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites in the SCAQMD.

Based on the previous considerations, the project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Impacts would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

6.4 Would the project expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Thresholds Analysis

As discussed in Section 2.3, Sensitive Receptors, sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). Residential land uses are located to the south, and east of the project. The closest off-site sensitive receptors to the project site are residences located adjacent to the north and approximately 60 feet to the east of the project site.

An LST analysis has been prepared to determine potential impacts to nearby sensitive receptors during construction of the project. As indicated in the discussion of the thresholds of significance

6 The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145). This discussion is nonetheless provided in an effort to show good-faith analysis and comply with CEQA's information disclosure requirements.

(Section 5.1), the SCAQMD recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of the project site. The impacts were analyzed using methods consistent with those in the SCAQMD's *Final Localized Significance Threshold Methodology* (2009). According to the *Final Localized Significance Threshold Methodology*, "off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2009). Hauling of soils and construction materials associated with project construction are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways. Emissions from the trucks would be relatively brief in nature and would cease once the trucks pass through the main streets.

Construction activities associated with the project would result in temporary sources of on-site fugitive dust and construction equipment emissions. Off-site emissions from vendor trucks, haul trucks, and worker vehicle trips are not included in the LST analysis. The maximum allowable daily emissions that would satisfy the SCAQMD localized significance criteria for SRA 8 are presented in Table 10 and compared with the maximum daily on-site construction emissions generated during the project.

Table 10
Localized Significance Thresholds Analysis for Project Construction

Pollutant	Project Construction Emissions (pounds/day)	LST Criteria (pounds/day)	Exceeds LST?
NO_2	14.40	69	No
CO	11.7	535	No
PM_{10}	1.55	4	No
$PM_{2.5}$	0.98	3	No

Source: SCAQMD 2009.
Notes: NO_2 = nitrogen dioxide, CO = carbon monoxide, PM_{10} = particulate matter, $PM_{2.5}$ = fine particulate matter, LST = localized significance threshold
See Appendix A for detailed results
Localized significance thresholds are shown for 1-acre project sites corresponding to a distance to a sensitive receptor of 25 meters.
These estimates reflect control of fugitive dust required by Rule 403
Greatest on-site PM_{10} and $PM_{2.5}$ emissions are associated with the grading phase Greatest on-site NO_x, and CO emissions are associated with building construction in 2018

As shown in Table 10, construction activities would not generate emissions in excess of site-specific LSTs; therefore, site-specific construction impacts during construction of the project would be less than significant. In addition, diesel equipment would also be subject to the CARB air toxic control measures for in-use off-road diesel fleets, which would minimize d DPM emissions.

Health Impacts of Toxic Air Contaminants

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as TACs or HAPs. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal HAPs, and is adopting appropriate control measures for sources of these TACs. The following measures are required by state law to reduce diesel particulate emissions:

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-Use Off-road Diesel Vehicles (Title 13 California Code of Regulations, Chapter 9, Section 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.
- All commercial diesel vehicles are subject to Title 13, Section 2485, of the California Code of Regulations, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to 5 minutes; electric auxiliary power units should be used whenever possible.

The greatest potential for TAC emissions during construction would be diesel particulate emissions from heavy equipment operations and heavy-duty trucks during construction of the project and the associated health impacts to sensitive receptors. The closest sensitive receptors are existing residences located adjacent to the north and approximately 60 feet east of the project site. As shown in Table 9, maximum daily particulate matter (PM_{10} or $PM_{2.5}$) emissions generated by construction equipment operation and from hauling of soil during grading (exhaust particulate matter, or DPM), combined with fugitive dust generated by equipment operation and vehicle travel, would be well below the SCAQMD significance thresholds. Moreover, total construction of the project would last approximately 18 months, after which project-related TAC emissions would cease.

There are no existing TAC producing facilities within the recommended screening distance as defined in the CARB *Air Quality and Land Use Handbook: A Community Health Perspective* (2005). As such, no residual TAC emissions and corresponding cancer risk are anticipated after construction, and no long-term sources of TAC emissions are anticipated during operation of the project. Thus, the project would not result in a long-term (i.e., 9-year, 30-year, or 70-year) source of TAC emissions. Therefore, the exposure of project-related TAC emission impacts to sensitive receptors would be less than significant.

Health Impacts of Carbon Monoxide

Mobile source impacts occur on two scales of motion. Regionally, project-related travel would add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SCAB. Locally, project generated traffic would be added to the City's roadway system near the project site. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and operates on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The TIA (City of Pasadena 2017) evaluated whether there would be a decrease in the level of service (LOS) (i.e., increased congestion) at the intersections affected by the project. The potential for CO hotspots was evaluated based on the results of the TIA. The California Department of Transportation Institute of Transportation Studies *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol; Caltrans 2010) was followed. CO hotspots are typically evaluated when (1) the LOS of an intersection decreases to LOS E or worse; (2) signalization and/or channelization is added to an intersection; and (3) sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or roadway segment. The project's TIA evaluated 2 intersections and 3 roadway segments. As determined by the TIA, intersections under the existing and existing plus project operate at acceptable LOS (LOS A or B) and do not exceed the identified threshold. Therefore, further analysis is not required and impacts would be less than significant.

Health Impacts of Other Criteria Air Pollutants

Construction and operation of the project would result in emissions that would not exceed the SCAQMD thresholds for any criteria air pollutants, including VOC, NO_x, CO, SO_x, $PM_{10,}$ and $PM_{2.5}$. VOCs would be associated with motor vehicles, construction equipment, and architectural coatings; however, project-generated VOC emissions would not result in the exceedances of the SCAQMD thresholds as shown in Table 9 and 10. Generally, the VOCs in architectural coatings are of relatively low toxicity. Additionally, SCAQMD Rule 1113 restricts the VOC content of coatings for construction and operational applications.

VOCs and NO_x are precursors to O_3, which the SCAB is designated as nonattainment for with respect to the NAAQS and CAAQS. The health effects associated with O_3 are generally associated with reduced lung function. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SCAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur because exceedances of the O_3 AAQS tend to occur between April and October when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the VOC and NO_x emissions associated with project construction and operation could minimally contribute to regional O_3 concentrations and the associated health impacts. Because of the minimal contribution during construction and operation, health impacts would be considered less than significant.

Construction and operation of the project would also not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter or would obstruct the SCAB from coming into attainment for these pollutants. The project would also not result in substantial DPM emissions during construction and operation, and therefore, would not result in significant health effects related to DPM exposure. Additionally, the project would be required to comply with SCAQMD Rule 403, which limits the amount of fugitive dust generated during construction. Due to the minimal contribution of particulate matter during construction and operation, health impacts would be considered less than significant.

Construction and operation of the project would not contribute to exceedances of the NAAQS and CAAQS for NO_2. Health impacts that result from NO_2 and NO_x include respiratory irritation, which could be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, project construction would be relatively short term, and off-road construction equipment would be operating at various portions of the site and would not be concentrated in one portion of the site at any one time. In addition, existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Construction and operation of the project would not require use of any stationary sources (e.g., diesel generators, boilers) that would create substantial, localized NO_x impacts. Therefore, potential health impacts associated with NO_2 and NO_x would be considered less than significant.

CO tends to be a localized impact associated with congested intersections. The associated potential for CO hotspots were discussed previously and are determined to be a less-than-significant impact. Thus, the project's CO emissions would not contribute to significant health effects associated with this pollutant.

In summary, construction and operation of the project would not result in exceedances of the SCAQMD significance thresholds for criteria pollutants and potential health impacts associated with criteria air pollutants would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

6.5 Would the project create objectionable odors affecting a substantial number of people?

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The project entails operation of a residential and commercial development and would not result in the creation of a land use that is commonly associated with odors. Therefore, project operations would result in an odor impact that is less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

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13 CCR 2025. Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles.

13 CCR 2449–2449.3 and Appendix A. General Requirements for In-Use Off-Road Diesel-Fueled Fleets.14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.17 CCR 93000. Substances Identified as Toxic Air Contaminants. In Subchapter 7, Toxic Air Contaminants.

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8 LIST OF PREPARERS

Adam Poll, Senior Air Quality Specialist
Nicholas Lorenzen, Environmental Analyst
Steve Taffolla, Senior Technical Editor

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APPENDIX A

CalEEMod Output Files

233 North Hudson Avenue, Pasadena

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	78 00	Space	0 00	37,279 00	0
Apartments Mid Rise	42 00	Dwelling Unit	0 37	41,816 00	120
Strip Mall	5 83	1000sqft	0 13	5,830 00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2 2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2019
Utility Company	Pasadena Water & Power				
CO2 Intensity (lb/MWhr)	1664 14	**CH4 Intensity (lb/MWhr)**	0 029	**N2O Intensity (lb/MWhr)**	0 006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod defaults were utilized

Land Use - Lot Area (16,304 square feet) 0.37 acres Residential sqft 41,816 Commercial sqft 5,823 Underground parking structure 78 parking spaces

Construction Phase - The default construction schedule was modified based on information provided by the project applicant.

Off-road Equipment -Construction equipment information was modified based information provided by the applicant

Trips and VMT - odd numbered trip values were rounded up the higher even value to ensure complete two way trips.

Grading - 13,500 cubic yards of cut/export.

Vehicle Emission Factors - None

Vehicle Emission Factors - None.

Vehicle Emission Factors - None.

Construction Off-road Equipment Mitigation - In compliance with SCAQMD rule 403 (Fugitive Dust) it was assumed that the project site would be watered 3 times daily and off-road vehicle speed would be limited to 15 miles per hour

Mobile Land Use Mitigation - Mobile Land Use Mitigation - None

Off-road Equipment -Construction equipment information was modified based information provided by the applicant.

Off-road Equipment -Construction equipment information was modified based information provided by the applicant

Off-road Equipment -Construction equipment information was modified based information provided by the applicant

Energy Use - CalEEMod defaults were utilized.

Water And Wastewater - CalEEMod defaults were utilized.

Vehicle Trips - Estimated average daily trips were provided by the traffic report (City of Pasadena 2017)

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	5 00	66 00
tblConstructionPhase	NumDays	100 00	304 00
tblConstructionPhase	NumDays	2 00	44 00
tblConstructionPhase	NumDays	5 00	66 00
tblConstructionPhase	PhaseEndDate	5/17/2021	10/31/2019
tblConstructionPhase	PhaseEndDate	12/16/2019	10/31/2019
tblConstructionPhase	PhaseEndDate	5/30/2018	5/31/2018
tblConstructionPhase	PhaseEndDate	3/16/2020	8/31/2018
tblConstructionPhase	PhaseStartDate	3/17/2020	8/1/2019
tblConstructionPhase	PhaseStartDate	5/31/2018	9/3/2018
tblConstructionPhase	PhaseStartDate	12/17/2019	6/1/2018
tblGrading	MaterialExported	0 00	13,500 00
tblLandUse	BuildingSpaceSquareFeet	31,200 00	37,279 00
tblLandUse	BuildingSpaceSquareFeet	42,000 00	41,816 00
tblLandUse	LandUseSquareFeet	31,200 00	37,279 00
tblLandUse	LandUseSquareFeet	42,000 00	41,816 00
tblLandUse	LotAcreage	0 70	0 00
tblLandUse	LotAcreage	1 11	0 37

tblOffRoadEquipment	LoadFactor	0 50	0 50
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1 00	0 00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2 00	0 00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1 00	0 00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1 00	0 00
tblOffRoadEquipment	UsageHours	8 00	0 00
tblOffRoadEquipment	UsageHours	1 00	4 00
tblOffRoadEquipment	UsageHours	6 00	0 00
tblOffRoadEquipment	UsageHours	7 00	0 00
tblOffRoadEquipment	UsageHours	7 00	0 00
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	HaulingTripNumber	1,688 00	845 00
tblTripsAndVMT	VendorTripNumber	0 00	2 00
tblTripsAndVMT	WorkerTripNumber	5 00	12 00
tblTripsAndVMT	WorkerTripNumber	48 00	40 00
tblTripsAndVMT	WorkerTripNumber	13 00	30 00
tblTripsAndVMT	WorkerTripNumber	10 00	30 00
tblVehicleTrips	ST_TR	6 39	5 81
tblVehicleTrips	ST_TR	42 04	40 00
tblVehicleTrips	SU_TR	5 86	5 81
tblVehicleTrips	SU_TR	20 43	40 00
tblVehicleTrips	WD_TR	6 65	5 81
tblVehicleTrips	WD_TR	44 32	40 00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2018	2 2349	16 0042	13 8384	0 0257	3 5155	0 9500	3 9041	1 7879	0 8925	2 1463	0 0000	2,696 3654	2,696 3654	0 4759	0 0000	2,706 3441
2019	7 3238	16 5163	16 4761	0 0309	0 8592	0 9487	1 8079	0 2296	0 8994	1 1290	0 0000	2,982 2291	2,982 2291	0 4977	0 0000	2,994 6718
Maximum	**7.3238**	**16.5163**	**16.4761**	**0.0309**	**3.5155**	**0.9500**	**3.9041**	**1.7879**	**0.8994**	**2.1463**	**0.0000**	**2,982.2291**	**2,982.2291**	**0.4977**	**0.0000**	**2,994.6718**

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	lb/day										lb/day					
2018	2 2349	16 0042	13 8384	0 0257	1 6576	0 9500	2 0462	0 7751	0 8925	1 1335	0 0000	2,696 3654	2,696 3654	0 4759	0 0000	2,706 3441
2019	7 3238	16 5163	16 4761	0 0309	0 8592	0 9487	1 8079	0 2296	0 8994	1 1290	0 0000	2,982 2291	2,982 2291	0 4977	0 0000	2,994 6718
Maximum	**7.3238**	**16.5163**	**16.4761**	**0.0309**	**1.6576**	**0.9500**	**2.0462**	**0.7751**	**0.8994**	**1.1335**	**0.0000**	**2,982.2291**	**2,982.2291**	**0.4977**	**0.0000**	**2,994.6718**

	ROG	**NOx**	**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**	**42.47**	**0.00**	**32.53**	**50.20**	**0.00**	**30.92**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2 5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12 1589	0 9118	24 8500	0 0547		3 2274	3 2274		3 2274	3 2274	393 4106	762 2575	1,155 6681	1 1794	0 0267	1,193 1103
Energy	0 0165	0 1411	0 0611	9 0000e-004		0 0114	0 0114		0 0114	0 0114		179 8869	179 8869	3 4500e-003	3 3000e-003	180 9559
Mobile	0 9572	4 5648	11 5973	0 0363	2 7165	0 0404	2 7570	0 7269	0 0381	0 7650		3,686 2120	3,686 2120	0 1981		3,691 1642
Total	**13.1325**	**5.6177**	**36.5084**	**0.0919**	**2.7165**	**3.2793**	**5.9958**	**0.7269**	**3.2769**	**4.0038**	**393.4106**	**4,628.3565**	**5,021.7671**	**1.3809**	**0.0300**	**5,065.2304**

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	lb/day										lb/day					
Area	12 1589	0 9118	24 8500	0 0547		3 2274	3 2274		3 2274	3 2274	393 4106	762 2575	1,155 6681	1 1794	0 0267	1,193 1103
Energy	0 0165	0 1411	0 0611	9 0000e-004		0 0114	0 0114		0 0114	0 0114		179 8869	179 8869	3 4500e-003	3 3000e-003	180 9559
Mobile	0 9572	4 5648	11 5973	0 0363	2 7165	0 0404	2 7570	0 7269	0 0381	0 7650		3,686 2120	3,686 2120	0 1981		3,691 1642
Total	**13.1325**	**5.6177**	**36.5084**	**0.0919**	**2.7165**	**3.2793**	**5.9958**	**0.7269**	**3.2769**	**4.0038**	**393.4106**	**4,628.3565**	**5,021.7671**	**1.3809**	**0.0300**	**5,065.2304**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description

1	Grading	Grading	4/2/2018	5/31/2018	5	44	
2	Paving	Paving	6/1/2018	8/31/2018	5	66	
3	Building Construction	Building Construction	9/3/2018	10/31/2019	5	304	
4	Architectural Coating	Architectural Coating	8/1/2019	10/31/2019	5	66	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 84,677; Residential Outdoor: 28,226; Non-Residential Indoor: 8,745; Non-Residential Outdoor: 2,915; Striped Parking

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8 00	187	0 41
Site Preparation	Tractors/Loaders/Backhoes	1	8 00	97	0 37
Grading	Concrete/Industrial Saws	0	0 00	81	0 73
Grading	Rubber Tired Dozers	1	4 00	247	0 40
Grading	Tractors/Loaders/Backhoes	0	0 00	97	0 37
Building Construction	Cranes	1	4 00	231	0 29
Building Construction	Forklifts	2	6 00	89	0 20
Building Construction	Tractors/Loaders/Backhoes	2	8 00	97	0 37
Paving	Cement and Mortar Mixers	4	6 00	9	0 56
Paving	Pavers	1	7 00	130	0 42
Paving	Rollers	0	0 00	80	0 38
Paving	Tractors/Loaders/Backhoes	0	0 00	97	0 37
Architectural Coating	Air Compressors	1	6 00	78	0 48
Grading	Bore/Drill Rigs	1	4 00	221	0 50
Building Construction	Welders	2	8 00	46	0 45

<u>Trips and VMT</u>

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
Grading	2	12 00	0 00	845 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	40 00	12 00	0 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT
Paving	5	30 00	2 00	0 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30 00	0 00	0 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2 5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3 0457	0 0000	3 0457	1 6604	0 0000	1 6604			0 0000			0 0000
Off-Road	0 7344	8 3885	3 2393	8 9900e-003		0 3649	0 3649		0 3357	0 3357		904 6243	904 6243	0 2816		911 6648
Total	**0.7344**	**8.3885**	**3.2393**	**8.9900e-003**	**3.0457**	**0.3649**	**3.4106**	**1.6604**	**0.3357**	**1.9961**		**904.6243**	**904.6243**	**0.2816**		**911.6648**

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	lb/day										lb/day					

Hauling	0 1665	5 9131	1 0950	0 0153	0 3356	0 0227	0 3583	0 0920	0 0218	0 1137		1,645 4189	1,645 4189	0 1125		1,648 2324
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
Worker	0 0647	0 0464	0 6021	1 4700e-003	0 1341	1 0700e-003	0 1352	0 0356	9 9000e-004	0 0366		146 3222	146 3222	4 9900e-003		146 4469
Total	**0.2312**	**5.9594**	**1.6971**	**0.0167**	**0.4697**	**0.0238**	**0.4935**	**0.1275**	**0.0227**	**0.1503**		**1,791.7411**	**1,791.7411**	**0.1175**		**1,794.6793**

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	lb/day										lb/day					
Fugitive Dust					1 1878	0 0000	1 1878	0 6475	0 0000	0 6475			0 0000			0 0000
Off-Road	0 7344	8 3885	3 2393	8 9900e-003		0 3649	0 3649		0 3357	0 3357	0 0000	904 6243	904 6243	0 2816		911 6648
Total	**0.7344**	**8.3885**	**3.2393**	**8.9900e-003**	**1.1878**	**0.3649**	**1.5527**	**0.6475**	**0.3357**	**0.9832**	**0.0000**	**904.6243**	**904.6243**	**0.2816**		**911.6648**

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	lb/day										lb/day					
Hauling	0 1665	5 9131	1 0950	0 0153	0 3356	0 0227	0 3583	0 0920	0 0218	0 1137		1,645 4189	1,645 4189	0 1125		1,648 2324
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
Worker	0 0647	0 0464	0 6021	1 4700e-003	0 1341	1 0700e-003	0 1352	0 0356	9 9000e-004	0 0366		146 3222	146 3222	4 9900e-003		146 4469
Total	**0.2312**	**5.9594**	**1.6971**	**0.0167**	**0.4697**	**0.0238**	**0.4935**	**0.1275**	**0.0227**	**0.1503**		**1,791.7411**	**1,791.7411**	**0.1175**		**1,794.6793**

3.3 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4617	4.2620	3.4859	6.2500e-003		0.1977	0.1977		0.1854	0.1854		565.5402	565.5402	0.1446		569.1556
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4617**	**4.2620**	**3.4859**	**6.2500e-003**		**0.1977**	**0.1977**		**0.1854**	**0.1854**		**565.5402**	**565.5402**	**0.1446**		**569.1556**

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	lb/day										lb/day					
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
Vendor	8.5100e-003	0.2424	0.0604	5.2000e-004	0.0128	1.7700e-003	0.0146	3.6900e-003	1.6900e-003	5.3800e-003		55.7316	55.7316	3.7900e-003		55.8264
Worker	0.1617	0.1159	1.5053	3.6800e-003	0.3353	2.6700e-003	0.3380	0.0889	2.4600e-003	0.0914		365.8055	365.8055	0.0125		366.1173
Total	**0.1702**	**0.3583**	**1.5656**	**4.2000e-003**	**0.3481**	**4.4400e-003**	**0.3526**	**0.0926**	**4.1500e-003**	**0.0968**		**421.5371**	**421.5371**	**0.0163**		**421.9438**

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	lb/day										lb/day					
Off-Road	0 4617	4 2620	3 4859	6 2500e-003		0 1977	0 1977		0 1854	0 1854	0 0000	565 5402	565 5402	0 1446		569 1556
Paving	0 0000					0 0000	0 0000		0 0000	0 0000			0 0000			0 0000
Total	**0.4617**	**4.2620**	**3.4859**	**6.2500e-003**		**0.1977**	**0.1977**		**0.1854**	**0.1854**	**0.0000**	**565.5402**	**565.5402**	**0.1446**		**569.1556**

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	lb/day										lb/day					
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
Vendor	8 5100e-003	0 2424	0 0604	5 2000e-004	0 0128	1 7700e-003	0 0146	3 6900e-003	1 6900e-003	5 3800e-003		55 7316	55 7316	3 7900e-003		55 8264
Worker	0 1617	0 1159	1 5053	3 6800e-003	0 3353	2 6700e-003	0 3380	0 0889	2 4600e-003	0 0914		365 8055	365 8055	0 0125		366 1173
Total	**0.1702**	**0.3583**	**1.5656**	**4.2000e-003**	**0.3481**	**4.4400e-003**	**0.3526**	**0.0926**	**4.1500e-003**	**0.0968**		**421.5371**	**421.5371**	**0.0163**		**421.9438**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1 9683	14 3955	11 4692	0 0165		0 9358	0 9358		0 8791	0 8791		1,561 4877	1,561 4877	0 4365		1,572 4007

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Total	**1.9683**	**14.3955**	**11.4692**	**0.0165**		**0.9358**	**0.9358**		**0.8791**	**0.8791**		**1,561.4877**	**1,561.4877**	**0.4365**		**1,572.4007**

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	lb/day										lb/day					
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
Vendor	0.0511	1.4542	0.3622	3.1400e-003	0.0768	0.0106	0.0874	0.0221	0.0102	0.0323		334.3896	334.3896	0.0228		334.9586
Worker	0.2155	0.1545	2.0070	4.9000e-003	0.4471	3.5600e-003	0.4507	0.1186	3.2900e-003	0.1219		487.7407	487.7407	0.0166		488.1564
Total	**0.2666**	**1.6087**	**2.3692**	**8.0400e-003**	**0.5239**	**0.0142**	**0.5381**	**0.1407**	**0.0135**	**0.1541**		**822.1303**	**822.1303**	**0.0394**		**823.1150**

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	lb/day										lb/day					
Off-Road	1.9683	14.3955	11.4692	0.0165		0.9358	0.9358		0.8791	0.8791	0.0000	1,561.4877	1,561.4877	0.4365		1,572.4007
Total	**1.9683**	**14.3955**	**11.4692**	**0.0165**		**0.9358**	**0.9358**		**0.8791**	**0.8791**	**0.0000**	**1,561.4877**	**1,561.4877**	**0.4365**		**1,572.4007**

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	lb/day										lb/day					
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
Vendor	0.0511	1.4542	0.3622	3.1400e-003	0.0768	0.0106	0.0874	0.0221	0.0102	0.0323		334.3896	334.3896	0.0228		334.9586
Worker	0.2155	0.1545	2.0070	4.9000e-003	0.4471	3.5600e-003	0.4507	0.1186	3.2900e-003	0.1219		487.7407	487.7407	0.0166		488.1564
Total	**0.2666**	**1.6087**	**2.3692**	**8.0400e-003**	**0.5239**	**0.0142**	**0.5381**	**0.1407**	**0.0135**	**0.1541**		**822.1303**	**822.1303**	**0.0394**		**823.1150**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7279	13.0692	11.1575	0.0165		0.8047	0.8047		0.7563	0.7563		1,542.6251	1,542.6251	0.4262		1,553.2788
Total	**1.7279**	**13.0692**	**11.1575**	**0.0165**		**0.8047**	**0.8047**		**0.7563**	**0.7563**		**1,542.6251**	**1,542.6251**	**0.4262**		**1,553.2788**

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	lb/day										lb/day					

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
Vendor	0 0463	1 3731	0 3319	3 1100e-003	0 0768	9 0900e-003	0 0859	0 0221	8 7000e-003	0 0308		331 4636	331 4636	0 0219		332 0119
Worker	0 1959	0 1363	1 7973	4 7400e-003	0 4471	3 4800e-003	0 4506	0 1186	3 2100e-003	0 1218		472 3956	472 3956	0 0148		472 7650
Total	**0.2422**	**1.5094**	**2.1293**	**7.8500e-003**	**0.5239**	**0.0126**	**0.5365**	**0.1407**	**0.0119**	**0.1526**		**803.8593**	**803.8593**	**0.0367**		**804.7769**

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	lb/day										lb/day					
Off-Road	1 7279	13 0692	11 1575	0 0165		0 8047	0 8047		0 7563	0 7563	0 0000	1,542 625 1	1,542 6251	0 4262		1,553 278 8
Total	**1.7279**	**13.0692**	**11.1575**	**0.0165**		**0.8047**	**0.8047**		**0.7563**	**0.7563**	**0.0000**	**1,542.625 1**	**1,542.6251**	**0.4262**		**1,553.278 8**

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	lb/day										lb/day					
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
Vendor	0 0463	1 3731	0 3319	3 1100e-003	0 0768	9 0900e-003	0 0859	0 0221	8 7000e-003	0 0308		331 4636	331 4636	0 0219		332 0119
Worker	0 1959	0 1363	1 7973	4 7400e-003	0 4471	3 4800e-003	0 4506	0 1186	3 2100e-003	0 1218		472 3956	472 3956	0 0148		472 7650
Total	**0.2422**	**1.5094**	**2.1293**	**7.8500e-003**	**0.5239**	**0.0126**	**0.5365**	**0.1407**	**0.0119**	**0.1526**		**803.8593**	**803.8593**	**0.0367**		**804.7769**

3.5 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2 5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit Coating	4 9404					0 0000	0 0000		0 0000	0 0000			0 0000			0 0000
Off-Road	0 2664	1 8354	1 8413	2 9700e-003		0 1288	0 1288		0 1288	0 1288		281 4481	281 4481	0 0238		282 0423
Total	**5.2068**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

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	lb/day										lb/day					
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
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
Worker	0 1469	0 1022	1 3480	3 5600e-003	0 3353	2 6100e-003	0 3379	0 0889	2 4000e-003	0 0913		354 2967	354 2967	0 0111		354 5737
Total	**0.1469**	**0.1022**	**1.3480**	**3.5600e-003**	**0.3353**	**2.6100e-003**	**0.3379**	**0.0889**	**2.4000e-003**	**0.0913**		**354.2967**	**354.2967**	**0.0111**		**354.5737**

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	lb/day										lb/day					
Archit Coating	4 9404					0 0000	0 0000		0 0000	0 0000			0 0000			0 0000
Off-Road	0 2664	1 8354	1 8413	2 9700e-003		0 1288	0 1288		0 1288	0 1288	0 0000	281 4481	281 4481	0 0238		282 0423
Total	**5.2068**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

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	lb/day										lb/day					
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
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
Worker	0 1469	0 1022	1 3480	3 5600e-003	0 3353	2 6100e-003	0 3379	0 0889	2 4000e-003	0 0913		354 2967	354 2967	0 0111		354 5737
Total	**0.1469**	**0.1022**	**1.3480**	**3.5600e-003**	**0.3353**	**2.6100e-003**	**0.3379**	**0.0889**	**2.4000e-003**	**0.0913**		**354.2967**	**354.2967**	**0.0111**		**354.5737**

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	lb/day										lb/day					
Mitigated	0 9572	4 5648	11 5973	0 0363	2 7165	0 0404	2 7570	0 7269	0 0381	0 7650		3,686 212 0	3,686 2120	0 1981		3,691 164 2
Unmitigated	0 9572	4 5648	11 5973	0 0363	2 7165	0 0404	2 7570	0 7269	0 0381	0 7650		3,686 212 0	3,686 2120	0 1981		3,691 164 2

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	244 02	244 02	244 02	833,853	833,853
Strip Mall	233 20	233 20	233 20	443,685	443,685
Enclosed Parking with Elevator	0 00	0 00	0 00		
Total	477 22	477 22	477 22	1,277,539	1,277,539

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14 70	5 90	8 70	40 20	19 20	40 60	86	11	3
Strip Mall	16 60	8 40	6 90	16 60	64 40	19 00	45	40	15
Enclosed Parking with Elevator	16 60	8 40	6 90	0 00	0 00	0 00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0 546418	0 044132	0 199182	0 124467	0 017484	0 005870	0 020172	0 031831	0 001999	0 002027	0 004724	0 000704	0 000991
Apartments Mid Rise	0 546418	0 044132	0 199182	0 124467	0 017484	0 005870	0 020172	0 031831	0 001999	0 002027	0 004724	0 000704	0 000991
Strip Mall	0 546418	0 044132	0 199182	0 124467	0 017484	0 005870	0 020172	0 031831	0 001999	0 002027	0 004724	0 000704	0 000991

5.0 Energy Detail

Historical Energy Use N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0 0165	0 1411	0 0611	9 0000e-004		0 0114	0 0114		0 0114	0 0114		179 8869	179 8869	3 4500e-003	3 3000e-003	180 9559
NaturalGas Unmitigated	0 0165	0 1411	0 0611	9 0000e-004		0 0114	0 0114		0 0114	0 0114		179 8869	179 8869	3 4500e-003	3 3000e-003	180 9559

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	lb/day										lb/day					
Apartments Mid Rise	1502 68	0 0162	0 1385	0 0589	8 8000e-004		0 0112	0 0112		0 0112	0 0112		176 7864	176 7864	3 3900e-003	3 2400e-003	177 8369
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
Strip Mall	26 3548	2 8000e-004	2 5800e-003	2 1700e-003	2 0000e-005		2 0000e-004	2 0000e-004		2 0000e-004	2 0000e-004		3 1006	3 1006	6 0000e-005	6 0000e-005	3 1190
Total		**0.0165**	**0.1411**	**0.0611**	**9.0000e-004**		**0.0114**	**0.0114**		**0.0114**	**0.0114**		**179.8869**	**179.8869**	**3.4500e-003**	**3.3000e-003**	**180.9559**

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	lb/day										lb/day					
Apartments Mid Rise	1 50268	0 0162	0 1385	0 0589	8 8000e-004		0 0112	0 0112		0 0112	0 0112		176 7864	176 7864	3 3900e-003	3 2400e-003	177 8369
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
Strip Mall	0 0263548	2 8000e-004	2 5800e-003	2 1700e-003	2 0000e-005		2 0000e-004	2 0000e-004		2 0000e-004	2 0000e-004		3 1006	3 1006	6 0000e-005	6 0000e-005	3 1190
Total		**0.0165**	**0.1411**	**0.0611**	**9.0000e-004**		**0.0114**	**0.0114**		**0.0114**	**0.0114**		**179.8869**	**179.8869**	**3.4500e-003**	**3.3000e-003**	**180.9559**

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	lb/day										lb/day					
Mitigated	12 1589	0 9118	24 8500	0 0547		3 2274	3 2274		3 2274	3 2274	393 4106	762 2575	1,155 6681	1 1794	0 0267	1,193 110 3
Unmitigated	12 1589	0 9118	24 8500	0 0547		3 2274	3 2274		3 2274	3 2274	393 4106	762 2575	1,155 6681	1 1794	0 0267	1,193 110 3

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	lb/day										lb/day					

Architectural Coating	0.0893					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	11.0055	0.8714	21.3592	0.0545		3.2083	3.2083		3.2083	3.2083	393.4106	756.0000	1,149.4106	1.1732	0.0267	1,186.6984
Landscaping	0.1074	0.0404	3.4909	1.8000e-004		0.0191	0.0191		0.0191	0.0191		6.2575	6.2575	6.1700e-003		6.4119
Total	**12.1589**	**0.9118**	**24.8500**	**0.0547**		**3.2274**	**3.2274**		**3.2274**	**3.2274**	**393.4106**	**762.2575**	**1,155.6681**	**1.1794**	**0.0267**	**1,193.1103**

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	lb/day										lb/day					
Architectural Coating	0.0893					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	11.0055	0.8714	21.3592	0.0545		3.2083	3.2083		3.2083	3.2083	393.4106	756.0000	1,149.4106	1.1732	0.0267	1,186.6984
Landscaping	0.1074	0.0404	3.4909	1.8000e-004		0.0191	0.0191		0.0191	0.0191		6.2575	6.2575	6.1700e-003		6.4119
Total	**12.1589**	**0.9118**	**24.8500**	**0.0547**		**3.2274**	**3.2274**		**3.2274**	**3.2274**	**393.4106**	**762.2575**	**1,155.6681**	**1.1794**	**0.0267**	**1,193.1103**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

233 North Hudson Avenue, Pasadena

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	78 00	Space	0 00	37,279 00	0
Apartments Mid Rise	42 00	Dwelling Unit	0 37	41,816 00	120
Strip Mall	5 83	1000sqft	0 13	5,830 00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2 2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2019
Utility Company	Pasadena Water & Power				
CO2 Intensity (lb/MWhr)	1664 14	**CH4 Intensity (lb/MWhr)**	0 029	**N2O Intensity (lb/MWhr)**	0 006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod defaults were utilized.

Land Use - Lot Area (16,304 square feet) 0.37 acres Residential sqft 41,816 Commercial sqft 5,823 Underground parking structure 78 parking spaces

Construction Phase - The default construction schedule was modified based on information provided by the project applicant.

Off-road Equipment -Construction equipment information was modified based information provided by the applicant

Trips and VMT - odd numbered trip values were rounded up the higher even value to ensure complete two way trips

Grading - 13,500 cubic yards of cut/export

Vehicle Emission Factors - None.

Vehicle Emission Factors - None.

Vehicle Emission Factors - None

Construction Off-road Equipment Mitigation - In compliance with SCAQMD rule 403 (Fugitive Dust) it was assumed that the project site would be watered 3 times daily and off-road vehicle speed would be limited to 15 miles per hour

Mobile Land Use Mitigation - None

Off-road Equipment -Construction equipment information was modified based information provided by the applicant.

Off-road Equipment -Construction equipment information was modified based information provided by the applicant

Off-road Equipment -Construction equipment information was modified based information provided by the applicant

Energy Use - CalEEMod defaults were utilized

Water And Wastewater -CalEEMod defaults were utilized.

Vehicle Trips - Estimated average daily trips were provided by the traffic report (City of Pasadena 2017).

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	5 00	66 00
tblConstructionPhase	NumDays	100 00	304 00
tblConstructionPhase	NumDays	2 00	44 00
tblConstructionPhase	NumDays	5 00	66 00
tblConstructionPhase	PhaseEndDate	5/17/2021	10/31/2019
tblConstructionPhase	PhaseEndDate	12/16/2019	10/31/2019
tblConstructionPhase	PhaseEndDate	5/30/2018	5/31/2018
tblConstructionPhase	PhaseEndDate	3/16/2020	8/31/2018
tblConstructionPhase	PhaseStartDate	3/17/2020	8/1/2019
tblConstructionPhase	PhaseStartDate	5/31/2018	9/3/2018
tblConstructionPhase	PhaseStartDate	12/17/2019	6/1/2018
tblGrading	MaterialExported	0 00	13,500 00
tblLandUse	BuildingSpaceSquareFeet	31,200 00	37,279 00
tblLandUse	BuildingSpaceSquareFeet	42,000 00	41,816 00
tblLandUse	LandUseSquareFeet	31,200 00	37,279 00
tblLandUse	LandUseSquareFeet	42,000 00	41,816 00
tblLandUse	LotAcreage	0 70	0 00
tblLandUse	LotAcreage	1 11	0 37

tblOffRoadEquipment	LoadFactor	0 50	0 50
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1 00	0 00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2 00	0 00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1 00	0 00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1 00	0 00
tblOffRoadEquipment	UsageHours	8 00	0 00
tblOffRoadEquipment	UsageHours	1 00	4 00
tblOffRoadEquipment	UsageHours	6 00	0 00
tblOffRoadEquipment	UsageHours	7 00	0 00
tblOffRoadEquipment	UsageHours	7 00	0 00
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	HaulingTripNumber	1,688 00	845 00
tblTripsAndVMT	VendorTripNumber	0 00	2 00
tblTripsAndVMT	WorkerTripNumber	5 00	12 00
tblTripsAndVMT	WorkerTripNumber	48 00	40 00
tblTripsAndVMT	WorkerTripNumber	13 00	30 00
tblTripsAndVMT	WorkerTripNumber	10 00	30 00
tblVehicleTrips	ST_TR	6 39	5 81
tblVehicleTrips	ST_TR	42 04	40 00
tblVehicleTrips	SU_TR	5 86	5 81
tblVehicleTrips	SU_TR	20 43	40 00
tblVehicleTrips	WD_TR	6 65	5 81
tblVehicleTrips	WD_TR	44 32	40 00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2018	2 2559	16 0214	13 6876	0 0254	3 5155	0 9501	3 9046	1 7879	0 8927	2 1468	0 0000	2,657 4094	2,657 4094	0 4765	0 0000	2,667 5100
2019	7 3563	16 5400	16 2062	0 0303	0 8592	0 9488	1 8080	0 2296	0 8995	1 1291	0 0000	2,919 3117	2,919 3117	0 4977	0 0000	2,931 7528
Maximum	**7.3563**	**16.5400**	**16.2062**	**0.0303**	**3.5155**	**0.9501**	**3.9046**	**1.7879**	**0.8995**	**2.1468**	**0.0000**	**2,919.3117**	**2,919.3117**	**0.4977**	**0.0000**	**2,931.7528**

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	lb/day										lb/day					
2018	2 2559	16 0214	13 6876	0 0254	1 6576	0 9501	2 0467	0 7751	0 8927	1 1339	0 0000	2,657 4094	2,657 4094	0 4765	0 0000	2,667 5100
2019	7 3563	16 5400	16 2062	0 0303	0 8592	0 9488	1 8080	0 2296	0 8995	1 1291	0 0000	2,919 3117	2,919 3117	0 4977	0 0000	2,931 7528
Maximum	**7.3563**	**16.5400**	**16.2062**	**0.0303**	**1.6576**	**0.9501**	**2.0467**	**0.7751**	**0.8995**	**1.1339**	**0.0000**	**2,919.3117**	**2,919.3117**	**0.4977**	**0.0000**	**2,931.7528**

	ROG	NOx	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	42.47	0.00	32.52	50.20	0.00	30.92	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2 5	Exhaust PM2 5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12 1589	0 9118	24 8500	0 0547		3 2274	3 2274		3 2274	3 2274	393 4106	762 2575	1,155 6681	1 1794	0 0267	1,193 1103
Energy	0 0165	0 1411	0 0611	9 0000e-004		0 0114	0 0114		0 0114	0 0114		179 8869	179 8869	3 4500e-003	3 3000e-003	180 9559
Mobile	0 9129	4 6586	10 9920	0 0343	2 7165	0 0408	2 7573	0 7269	0 0384	0 7653		3,486 8496	3,486 8496	0 1985		3,491 8109
Total	**13.0882**	**5.7115**	**35.9032**	**0.0899**	**2.7165**	**3.2796**	**5.9961**	**0.7269**	**3.2772**	**4.0041**	**393.4106**	**4,428.9941**	**4,822.4047**	**1.3813**	**0.0300**	**4,865.8771**

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	lb/day										lb/day					
Area	12 1589	0 9118	24 8500	0 0547		3 2274	3 2274		3 2274	3 2274	393 4106	762 2575	1,155 6681	1 1794	0 0267	1,193 1103
Energy	0 0165	0 1411	0 0611	9 0000e-004		0 0114	0 0114		0 0114	0 0114		179 8869	179 8869	3 4500e-003	3 3000e-003	180 9559
Mobile	0 9129	4 6586	10 9920	0 0343	2 7165	0 0408	2 7573	0 7269	0 0384	0 7653		3,486 8496	3,486 8496	0 1985		3,491 8109
Total	**13.0882**	**5.7115**	**35.9032**	**0.0899**	**2.7165**	**3.2796**	**5.9961**	**0.7269**	**3.2772**	**4.0041**	**393.4106**	**4,428.9941**	**4,822.4047**	**1.3813**	**0.0300**	**4,865.8771**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description

1	Grading	Grading	4/2/2018	5/31/2018	5	44	
2	Paving	Paving	6/1/2018	8/31/2018	5	66	
3	Building Construction	Building Construction	9/3/2018	10/31/2019	5	304	
4	Architectural Coating	Architectural Coating	8/1/2019	10/31/2019	5	66	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 84,677; Residential Outdoor: 28,226; Non-Residential Indoor: 8,745; Non-Residential Outdoor: 2,915; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8 00	187	0 41
Site Preparation	Tractors/Loaders/Backhoes	1	8 00	97	0 37
Grading	Concrete/Industrial Saws	0	0 00	81	0 73
Grading	Rubber Tired Dozers	1	4 00	247	0 40
Grading	Tractors/Loaders/Backhoes	0	0 00	97	0 37
Building Construction	Cranes	1	4 00	231	0 29
Building Construction	Forklifts	2	6 00	89	0 20
Building Construction	Tractors/Loaders/Backhoes	2	8 00	97	0 37
Paving	Cement and Mortar Mixers	4	6 00	9	0 56
Paving	Pavers	1	7 00	130	0 42
Paving	Rollers	0	0 00	80	0 38
Paving	Tractors/Loaders/Backhoes	0	0 00	97	0 37
Architectural Coating	Air Compressors	1	6 00	78	0 48
Grading	Bore/Drill Rigs	1	4 00	221	0 50
Building Construction	Welders	2	8 00	46	0 45

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
Grading	2	12 00	0 00	845 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	40 00	12 00	0 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT
Paving	5	30 00	2 00	0 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30 00	0 00	0 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3 0457	0 0000	3 0457	1 6604	0 0000	1 6604			0 0000			0 0000
Off-Road	0 7344	8 3885	3 2393	8 9900e-003		0 3649	0 3649		0 3357	0 3357		904 6243	904 6243	0 2816		911 6648
Total	**0.7344**	**8.3885**	**3.2393**	**8.9900e-003**	**3.0457**	**0.3649**	**3.4106**	**1.6604**	**0.3357**	**1.9961**		**904.6243**	**904.6243**	**0.2816**		**911.6648**

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	lb/day										lb/day					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0 1714	5 9956	1 1875	0 0150	0 3356	0 0232	0 3588	0 0920	0 0222	0 1142		1,615 9037	1,615 9037	0 1177		1,618 8469
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
Worker	0 0703	0 0508	0 5449	1 3800e-003	0 1341	1 0700e-003	0 1352	0 0356	9 9000e-004	0 0366		136 8815	136 8815	4 6700e-003		136 9983
Total	**0.2417**	**6.0464**	**1.7324**	**0.0164**	**0.4697**	**0.0243**	**0.4940**	**0.1275**	**0.0232**	**0.1507**		**1,752.7852**	**1,752.7852**	**0.1224**		**1,755.8452**

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	lb/day										lb/day					
Fugitive Dust					1 1878	0 0000	1 1878	0 6475	0 0000	0 6475			0 0000			0 0000
Off-Road	0 7344	8 3885	3 2393	8 9900e-003		0 3649	0 3649		0 3357	0 3357	0 0000	904 6243	904 6243	0 2816		911 6648
Total	**0.7344**	**8.3885**	**3.2393**	**8.9900e-003**	**1.1878**	**0.3649**	**1.5527**	**0.6475**	**0.3357**	**0.9832**	**0.0000**	**904.6243**	**904.6243**	**0.2816**		**911.6648**

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	lb/day										lb/day					
Hauling	0 1714	5 9956	1 1875	0 0150	0 3356	0 0232	0 3588	0 0920	0 0222	0 1142		1,615 9037	1,615 9037	0 1177		1,618 8469
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
Worker	0 0703	0 0508	0 5449	1 3800e-003	0 1341	1 0700e-003	0 1352	0 0356	9 9000e-004	0 0366		136 8815	136 8815	4 6700e-003		136 9983
Total	**0.2417**	**6.0464**	**1.7324**	**0.0164**	**0.4697**	**0.0243**	**0.4940**	**0.1275**	**0.0232**	**0.1507**		**1,752.7852**	**1,752.7852**	**0.1224**		**1,755.8452**

3.3 Paving - 2018

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	0.4617	4.2620	3.4859	6.2500e-003		0.1977	0.1977		0.1854	0.1854		565.5402	565.5402	0.1446		569.1556
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4617**	**4.2620**	**3.4859**	**6.2500e-003**		**0.1977**	**0.1977**		**0.1854**	**0.1854**		**565.5402**	**565.5402**	**0.1446**		**569.1556**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
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
Vendor	8.8800e-003	0.2428	0.0670	5.1000e-004	0.0128	1.8000e-003	0.0146	3.6900e-003	1.7200e-003	5.4100e-003		54.1513	54.1513	4.0700e-003		54.2532
Worker	0.1758	0.1270	1.3623	3.4400e-003	0.3353	2.6700e-003	0.3380	0.0889	2.4600e-003	0.0914		342.2038	342.2038	0.0117		342.4957
Total	**0.1846**	**0.3697**	**1.4293**	**3.9500e-003**	**0.3481**	**4.4700e-003**	**0.3526**	**0.0926**	**4.1800e-003**	**0.0968**		**396.3551**	**396.3551**	**0.0158**		**396.7489**

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	lb/day										lb/day					
Off-Road	0 4617	4 2620	3 4859	6 2500e-003		0 1977	0 1977		0 1854	0 1854	0 0000	565 5402	565 5402	0 1446		569 1556
Paving	0 0000					0.0000	0 0000		0 0000	0 0000			0 0000			0 0000
Total	**0.4617**	**4.2620**	**3.4859**	**6.2500e-003**		**0.1977**	**0.1977**		**0.1854**	**0.1854**	**0.0000**	**565.5402**	**565.5402**	**0.1446**		**569.1556**

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	lb/day										lb/day					
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
Vendor	8 8800e-003	0 2428	0 0670	5 1000e-004	0 0128	1 8000e-003	0 0146	3 6900e-003	1 7200e-003	5 4100e-003		54 1513	54 1513	4 0700e-003		54 2532
Worker	0 1758	0 1270	1 3623	3 4400e-003	0 3353	2 6700e-003	0 3380	0 0889	2 4600e-003	0 0914		342 2038	342 2038	0 0117		342 4957
Total	**0.1846**	**0.3697**	**1.4293**	**3.9500e-003**	**0.3481**	**4.4700e-003**	**0.3526**	**0.0926**	**4.1800e-003**	**0.0968**		**396.3551**	**396.3551**	**0.0158**		**396.7489**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2 5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1 9683	14 3955	11 4692	0 0165		0 9358	0 9358		0 8791	0 8791		1,561 4877	1,561 4877	0 4365		1,572 4007

Total	1.9683	14.3955	11.4692	0.0165		0.9358	0.9358		0.8791	0.8791		1,561.4877	1,561.4877	0.4365		1,572.4007

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	lb/day										lb/day					
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
Vendor	0 0533	1 4566	0 4020	3 0500e-003	0 0768	0 0108	0 0876	0 0221	0 0103	0 0324		324 9077	324 9077	0 0245		325 5190
Worker	0 2343	0 1693	1 8164	4 5800e-003	0 4471	3 5600e-003	0 4507	0 1186	3 2900e-003	0 1219		456 2717	456 2717	0 0156		456 6609
Total	**0.2876**	**1.6259**	**2.2184**	**7.6300e-003**	**0.5239**	**0.0144**	**0.5383**	**0.1407**	**0.0136**	**0.1543**		**781.1794**	**781.1794**	**0.0400**		**782.1799**

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	lb/day										lb/day					
Off-Road	1 9683	14 3955	11 4692	0 0165		0 9358	0 9358		0 8791	0 8791	0 0000	1,561 4877	1,561 4877	0 4365		1,572 4007
Total	**1.9683**	**14.3955**	**11.4692**	**0.0165**		**0.9358**	**0.9358**		**0.8791**	**0.8791**	**0.0000**	**1,561.4877**	**1,561.4877**	**0.4365**		**1,572.4007**

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	lb/day										lb/day					
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
Vendor	0.0533	1.4566	0.4020	3.0500e-003	0.0768	0.0108	0.0876	0.0221	0.0103	0.0324		324.9077	324.9077	0.0245		325.5190
Worker	0.2343	0.1693	1.8164	4.5800e-003	0.4471	3.5600e-003	0.4507	0.1186	3.2900e-003	0.1219		456.2717	456.2717	0.0156		456.6609
Total	**0.2876**	**1.6259**	**2.2184**	**7.6300e-003**	**0.5239**	**0.0144**	**0.5383**	**0.1407**	**0.0136**	**0.1543**		**781.1794**	**781.1794**	**0.0400**		**782.1799**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7279	13.0692	11.1575	0.0165		0.8047	0.8047		0.7563	0.7563		1,542.6251	1,542.6251	0.4262		1,553.2788
Total	**1.7279**	**13.0692**	**11.1575**	**0.0165**		**0.8047**	**0.8047**		**0.7563**	**0.7563**		**1,542.6251**	**1,542.6251**	**0.4262**		**1,553.2788**

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	lb/day										lb/day					

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
Vendor	0 0483	1 3741	0 3697	3 0200e-003	0 0768	9 2400e-003	0 0860	0 0221	8 8400e-003	0 0310		321 9795	321 9795	0 0236		322 5687
Worker	0 2133	0 1493	1 6215	4 4400e-003	0 4471	3 4800e-003	0 4506	0 1186	3 2100e-003	0 1218		441 8623	441 8623	0 0138		442 2074
Total	**0.2616**	**1.5234**	**1.9912**	**7.4600e-003**	**0.5239**	**0.0127**	**0.5366**	**0.1407**	**0.0121**	**0.1527**		**763.8418**	**763.8418**	**0.0374**		**764.7761**

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	lb/day										lb/day					
Off-Road	1 7279	13 0692	11 1575	0 0165		0 8047	0 8047		0 7563	0 7563	0 0000	1,542 6251	1,542 6251	0 4262		1,553 2788
Total	**1.7279**	**13.0692**	**11.1575**	**0.0165**		**0.8047**	**0.8047**		**0.7563**	**0.7563**	**0.0000**	**1,542.6251**	**1,542.6251**	**0.4262**		**1,553.2788**

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	lb/day										lb/day					
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
Vendor	0 0483	1 3741	0 3697	3 0200e-003	0 0768	9 2400e-003	0 0860	0 0221	8 8400e-003	0 0310		321 9795	321 9795	0 0236		322 5687
Worker	0 2133	0 1493	1 6215	4 4400e-003	0 4471	3 4800e-003	0 4506	0 1186	3 2100e-003	0 1218		441 8623	441 8623	0 0138		442 2074
Total	**0.2616**	**1.5234**	**1.9912**	**7.4600e-003**	**0.5239**	**0.0127**	**0.5366**	**0.1407**	**0.0121**	**0.1527**		**763.8418**	**763.8418**	**0.0374**		**764.7761**

3.5 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2 5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit Coating	4 9404					0 0000	0 0000		0 0000	0 0000			0 0000			0 0000
Off-Road	0 2664	1 8354	1 8413	2 9700e-003		0 1288	0 1288		0 1288	0 1288		281 4481	281 4481	0 0238		282 0423
Total	**5.2068**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

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	lb/day										lb/day					
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
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
Worker	0 1600	0 1120	1 2162	3 3300e-003	0 3353	2 6100e-003	0 3379	0 0889	2 4000e-003	0 0913		331 3967	331 3967	0 0104		331 6556
Total	**0.1600**	**0.1120**	**1.2162**	**3.3300e-003**	**0.3353**	**2.6100e-003**	**0.3379**	**0.0889**	**2.4000e-003**	**0.0913**		**331.3967**	**331.3967**	**0.0104**		**331.6556**

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	lb/day										lb/day					
Archit. Coating	4.9404					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**5.2068**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

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	lb/day										lb/day					
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
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
Worker	0.1600	0.1120	1.2162	3.3300e-003	0.3353	2.6100e-003	0.3379	0.0889	2.4000e-003	0.0913		331.3967	331.3967	0.0104		331.6556
Total	**0.1600**	**0.1120**	**1.2162**	**3.3300e-003**	**0.3353**	**2.6100e-003**	**0.3379**	**0.0889**	**2.4000e-003**	**0.0913**		**331.3967**	**331.3967**	**0.0104**		**331.6556**

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	lb/day										lb/day					
Mitigated	0 9129	4 6586	10 9920	0 0343	2 7165	0 0408	2 7573	0 7269	0 0384	0.7653		3,486 849 6	3,486 8496	0 1985		3,491 810 9
Unmitigated	0 9129	4 6586	10 9920	0 0343	2 7165	0 0408	2 7573	0 7269	0 0384	0.7653		3,486 849 6	3,486 8496	0 1985		3,491 810 9

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	244 02	244 02	244 02	833,853	833,853
Strip Mall	233 20	233 20	233 20	443,685	443,685
Enclosed Parking with Elevator	0 00	0 00	0 00		
Total	477 22	477 22	477 22	1,277,539	1,277,539

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14 70	5 90	8 70	40 20	19 20	40 60	86	11	3
Strip Mall	16 60	8 40	6 90	16 60	64 40	19 00	45	40	15
Enclosed Parking with Elevator	16 60	8 40	6 90	0 00	0 00	0 00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0 546418	0 044132	0 199182	0 124467	0 017484	0 005870	0 020172	0 031831	0 001999	0 002027	0 004724	0 000704	0 000991
Apartments Mid Rise	0 546418	0 044132	0 199182	0 124467	0 017484	0 005870	0 020172	0 031831	0 001999	0 002027	0 004724	0 000704	0 000991
Strip Mall	0 546418	0 044132	0 199182	0 124467	0 017484	0 005870	0 020172	0 031831	0 001999	0 002027	0 004724	0 000704	0 000991

5.0 Energy Detail

Historical Energy Use N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0 0165	0 1411	0 0611	9 0000e-004		0 0114	0 0114		0 0114	0 0114		179 8869	179 8869	3 4500e-003	3 3000e-003	180 9559
NaturalGas Unmitigated	0 0165	0 1411	0 0611	9 0000e-004		0 0114	0 0114		0 0114	0 0114		179 8869	179 8869	3 4500e-003	3 3000e-003	180 9559

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	lb/day										lb/day					
Apartments Mid Rise	1502 68	0 0162	0 1385	0 0589	8 8000e-004		0 0112	0 0112		0 0112	0 0112		176 7864	176 7864	3 3900e-003	3 2400e-003	177 8369
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
Strip Mall	26 3548	2 8000e-004	2 5800e-003	2 1700e-003	2 0000e-005		2 0000e-004	2 0000e-004		2 0000e-004	2 0000e-004		3 1006	3 1006	6 0000e-005	6 0000e-005	3 1190
Total		**0.0165**	**0.1411**	**0.0611**	**9.0000e-004**		**0.0114**	**0.0114**		**0.0114**	**0.0114**		**179.8869**	**179.8869**	**3.4500e-003**	**3.3000e-003**	**180.9559**

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	lb/day										lb/day					
Apartments Mid Rise	1.50268	0.0162	0.1385	0.0589	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.7864	176.7864	3.3900e-003	3.2400e-003	177.8369
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
Strip Mall	0.0263548	2.8000e-004	2.5800e-003	2.1700e-003	2.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		3.1006	3.1006	6.0000e-005	6.0000e-005	3.1190
Total		**0.0165**	**0.1411**	**0.0611**	**9.0000e-004**		**0.0114**	**0.0114**		**0.0114**	**0.0114**		**179.8869**	**179.8869**	**3.4500e-003**	**3.3000e-003**	**180.9559**

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	lb/day										lb/day					
Mitigated	12.1589	0.9118	24.8500	0.0547		3.2274	3.2274		3.2274	3.2274	393.4106	762.2575	1,155.6681	1.1794	0.0267	1,193.1103
Unmitigated	12.1589	0.9118	24.8500	0.0547		3.2274	3.2274		3.2274	3.2274	393.4106	762.2575	1,155.6681	1.1794	0.0267	1,193.1103

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	lb/day										lb/day					

Architectural Coating	0 0893					0 0000	0 0000		0 0000	0 0000			0 0000			0 0000
Consumer Products	0 9566					0 0000	0 0000		0 0000	0 0000			0 0000			0 0000
Hearth	11 0055	0 8714	21 3592	0 0545		3 2083	3 2083		3 2083	3 2083	393 4106	756 0000	1,149 4106	1 1732	0 0267	1,186 6984
Landscaping	0 1074	0 0404	3 4909	1 8000e-004		0 0191	0 0191		0 0191	0 0191		6 2575	6 2575	6 1700e-003		6 4119
Total	**12.1589**	**0.9118**	**24.8500**	**0.0547**		**3.2274**	**3.2274**		**3.2274**	**3.2274**	**393.4106**	**762.2575**	**1,155.6681**	**1.1794**	**0.0267**	**1,193.1103**

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	lb/day										lb/day					
Architectural Coating	0 0893					0 0000	0 0000		0 0000	0 0000			0 0000			0 0000
Consumer Products	0 9566					0 0000	0 0000		0 0000	0 0000			0 0000			0 0000
Hearth	11 0055	0 8714	21 3592	0 0545		3 2083	3 2083		3 2083	3 2083	393 4106	756 0000	1,149 4106	1 1732	0 0267	1,186 6984
Landscaping	0 1074	0 0404	3 4909	1 8000e-004		0 0191	0 0191		0 0191	0 0191		6 2575	6 2575	6 1700e-003		6 4119
Total	**12.1589**	**0.9118**	**24.8500**	**0.0547**		**3.2274**	**3.2274**		**3.2274**	**3.2274**	**393.4106**	**762.2575**	**1,155.6681**	**1.1794**	**0.0267**	**1,193.1103**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

233 North Hudson Avenue, Pasadena

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	78 00	Space	0 00	37,279 00	0
Apartments Mid Rise	42 00	Dwelling Unit	0 37	41,816 00	120
Strip Mall	5 83	1000sqft	0 13	5,830 00	0

1.2 Other Project Characteristics

Urbanization Urban | **Wind Speed (m/s)** 2 2 | **Precipitation Freq (Days)** 31

Climate Zone 12 | **Operational Year** 2019

Utility Company Pasadena Water & Power

CO2 Intensity (lb/MWhr) 1664 14 | **CH4 Intensity (lb/MWhr)** 0 029 | **N2O Intensity (lb/MWhr)** 0 006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod defaults were utilized

Land Use - Lot Area (16,304 square feet) 0 37 acres Residential sqft 41,816 Commercial sqft 5,823. Underground parking structure 78 parking spaces

Construction Phase - The default construction schedule was modified based on information provided by the project applicant

Off-road Equipment -Construction equipment information was modified based information provided by the applicant

Trips and VMT - odd numbered trip values were rounded up the higher even value to ensure complete two way trips

Grading - 13,500 cubic yards of cut/export

Vehicle Emission Factors - None.

Vehicle Emission Factors - None

Vehicle Emission Factors - None

Construction Off-road Equipment Mitigation - In compliance with SCAQMD rule 403 (Fugitive Dust) it was assumed that the project site would be watered 3 times daily and off-road vehicle speed would be limited to 15 miles per hour.

Mobile Land Use Mitigation - None

Off-road Equipment -Construction equipment information was modified based information provided by the applicant.

Off-road Equipment -Construction equipment information was modified based information provided by the applicant.

Off-road Equipment -Construction equipment information was modified based information provided by the applicant

Energy Use - CalEEMod defaults were utilized

Water And Wastewater - CalEEMod defaults were utilized.

Vehicle Trips - Estimated average daily trips were provided by the traffic report (City of Pasadena 2017)

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	5 00	66 00
tblConstructionPhase	NumDays	100 00	304 00
tblConstructionPhase	NumDays	2 00	44 00
tblConstructionPhase	NumDays	5 00	66 00
tblConstructionPhase	PhaseEndDate	5/17/2021	10/31/2019
tblConstructionPhase	PhaseEndDate	12/16/2019	10/31/2019
tblConstructionPhase	PhaseEndDate	5/30/2018	5/31/2018
tblConstructionPhase	PhaseEndDate	3/16/2020	8/31/2018
tblConstructionPhase	PhaseStartDate	3/17/2020	8/1/2019
tblConstructionPhase	PhaseStartDate	5/31/2018	9/3/2018
tblConstructionPhase	PhaseStartDate	12/17/2019	6/1/2018
tblGrading	MaterialExported	0 00	13,500 00
tblLandUse	BuildingSpaceSquareFeet	31,200 00	37,279 00
tblLandUse	BuildingSpaceSquareFeet	42,000 00	41,816 00
tblLandUse	LandUseSquareFeet	31,200 00	37,279 00
tblLandUse	LandUseSquareFeet	42,000 00	41,816 00
tblLandUse	LotAcreage	0 70	0 00
tblLandUse	LotAcreage	1 11	0 37
tblOffRoadEquipment	LoadFactor	0 50	0 50

tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1 00	0 00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2 00	0 00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1 00	0 00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1 00	0 00
tblOffRoadEquipment	UsageHours	8 00	0 00
tblOffRoadEquipment	UsageHours	1 00	4 00
tblOffRoadEquipment	UsageHours	6 00	0 00
tblOffRoadEquipment	UsageHours	7 00	0 00
tblOffRoadEquipment	UsageHours	7 00	0 00
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	HaulingTripNumber	1,688 00	845 00
tblTripsAndVMT	VendorTripNumber	0 00	2 00
tblTripsAndVMT	WorkerTripNumber	5 00	12 00
tblTripsAndVMT	WorkerTripNumber	48 00	40 00
tblTripsAndVMT	WorkerTripNumber	13 00	30 00
tblTripsAndVMT	WorkerTripNumber	10 00	30 00
tblVehicleTrips	ST_TR	6 39	5 81
tblVehicleTrips	ST_TR	42 04	40 00
tblVehicleTrips	SU_TR	5 86	5 81
tblVehicleTrips	SU_TR	20 43	40 00
tblVehicleTrips	WD_TR	6 65	5 81
tblVehicleTrips	WD_TR	44 32	40 00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0 1381	1 1634	0 8618	1 9400e-003	0 1106	0 0561	0 1667	0 0483	0 0525	0 1008	0 0000	174 3280	174 3280	0 0314	0 0000	175 1123
2019	0 3911	1 6582	1 5382	2 8300e-003	0 0669	0 0934	0 1604	0 0180	0 0881	0 1060	0 0000	247 8798	247 8798	0 0468	0 0000	249 0497
Maximum	**0.3911**	**1.6582**	**1.5382**	**2.8300e-003**	**0.1106**	**0.0934**	**0.1667**	**0.0483**	**0.0881**	**0.1060**	**0.0000**	**247.8798**	**247.8798**	**0.0468**	**0.0000**	**249.0497**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2 5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0 1381	1 1634	0 8618	1 9400e-003	0 0697	0 0561	0 1258	0 0260	0 0525	0 0785	0 0000	174 3279	174 3279	0 0314	0 0000	175 1122
2019	0 3911	1 6582	1 5382	2 8300e-003	0 0669	0 0934	0 1604	0 0180	0 0881	0 1060	0 0000	247 8796	247 8796	0 0468	0 0000	249 0495
Maximum	**0.3911**	**1.6582**	**1.5382**	**2.8300e-003**	**0.0697**	**0.0934**	**0.1604**	**0.0260**	**0.0881**	**0.1060**	**0.0000**	**247.8796**	**247.8796**	**0.0468**	**0.0000**	**249.0495**

	ROG	**NOx**	**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**	**23.03**	**0.00**	**12.50**	**33.66**	**0.00**	**10.77**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**4-2-2018**	**7-1-2018**	0 3863	0 3863
2	**7-2-2018**	**10-1-2018**	0 3033	0 3033
3	**10-2-2018**	**1-1-2019**	0 5999	0 5999
4	**1-2-2019**	**4-1-2019**	0 5330	0 5330
5	**4-2-2019**	**7-1-2019**	0 5378	0 5378
6	**7-2-2019**	**9-30-2019**	0 6967	0 6967

		Highest	0 6967	0 6967

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 3419	0 0159	0 7034	7 0000e-004		0 0425	0 0425		0 0425	0 0425	4 4612	9 2825	13 7437	0 0140	3 0000e-004	14 1840
Energy	3 0100e-003	0 0257	0 0112	1 6000e-004		2 0800e-003	2 0800e-003		2 0800e-003	2 0800e-003	0 0000	417 4868	417 4868	7 3300e-003	1 9400e-003	418 2493
Mobile	0 1621	0 8634	2 0269	6 3400e-003	0 4854	7 3800e-003	0 4928	0 1301	6 9400e-003	0 1370	0 0000	584 4535	584 4535	0 0325	0 0000	585 2665
Waste						0 0000	0 0000		0 0000	0 0000	5 1641	0 0000	5 1641	0 3052	0 0000	12 7938
Water						0 0000	0 0000		0 0000	0 0000	1 0052	47 8281	48 8332	0 1041	2 6100e-003	52 2129
Total	**0.5070**	**0.9050**	**2.7414**	**7.2000e-003**	**0.4854**	**0.0520**	**0.5374**	**0.1301**	**0.0515**	**0.1816**	**10.6305**	**1,059.0509**	**1,069.6814**	**0.4631**	**4.8500e-003**	**1,082.7065**

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 3419	0 0159	0 7034	7 0000e-004		0 0425	0 0425		0 0425	0 0425	4 4612	9 2825	13 7437	0 0140	3 0000e-004	14 1840
Energy	3 0100e-003	0 0257	0 0112	1 6000e-004		2 0800e-003	2 0800e-003		2 0800e-003	2 0800e-003	0 0000	417 4868	417 4868	7 3300e-003	1 9400e-003	418 2493
Mobile	0 1621	0 8634	2 0269	6 3400e-003	0 4854	7 3800e-003	0 4928	0 1301	6 9400e-003	0 1370	0 0000	584 4535	584 4535	0 0325	0 0000	585 2665
Waste						0 0000	0 0000		0 0000	0 0000	5 1641	0 0000	5 1641	0 3052	0 0000	12 7938

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Water						0.0000	0.0000		0.0000	0.0000	1.0052	47.8281	48.8332	0.1041	2.6100e-003	52.2129
Total	0.5070	0.9050	2.7414	7.2000e-003	0.4854	0.0520	0.5374	0.1301	0.0515	0.1816	10.6305	1,059.0509	1,069.6814	0.4631	4.8500e-003	1,082.7065

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	4/2/2018	5/31/2018	5	44	
2	Paving	Paving	6/1/2018	8/31/2018	5	66	
3	Building Construction	Building Construction	9/3/2018	10/31/2019	5	304	
4	Architectural Coating	Architectural Coating	8/1/2019	10/31/2019	5	66	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 84,677; Residential Outdoor: 28,226; Non-Residential Indoor: 8,745; Non-Residential Outdoor: 2,915; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Grading	Rubber Tired Dozers	1	4.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20

Building Construction	Tractors/Loaders/Backhoes	2	8 00	97	0 37
Paving	Cement and Mortar Mixers	4	6 00	9	0 56
Paving	Pavers	1	7 00	130	0 42
Paving	Rollers	0	0 00	80	0 38
Paving	Tractors/Loaders/Backhoes	0	0 00	97	0 37
Architectural Coating	Air Compressors	1	6 00	78	0 48
Grading	Bore/Drill Rigs	1	4 00	221	0 50
Building Construction	Welders	2	8 00	46	0 45

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
Grading	2	12 00	0 00	845 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	40 00	12 00	0 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT
Paving	5	30 00	2 00	0 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30 00	0 00	0 00	14 70	6 90	20 00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0 0670	0 0000	0 0670	0 0365	0 0000	0 0365	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.0162	0.1846	0.0713	2.0000e-004		8.0300e-003	8.0300e-003		7.3800e-003	7.3800e-003	0.0000	18.0546	18.0546	5.6200e-003	0.0000	18.1951
Total	**0.0162**	**0.1846**	**0.0713**	**2.0000e-004**	**0.0670**	**8.0300e-003**	**0.0750**	**0.0365**	**7.3800e-003**	**0.0439**	**0.0000**	**18.0546**	**18.0546**	**5.6200e-003**	**0.0000**	**18.1951**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.7100e-003	0.1343	0.0250	3.3000e-004	7.2600e-003	5.0000e-004	7.7700e-003	1.9900e-003	4.8000e-004	2.4800e-003	0.0000	32.5920	32.5920	2.2900e-003	0.0000	32.6493
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	1.1500e-003	0.0123	3.0000e-005	2.9000e-003	2.0000e-005	2.9200e-003	7.7000e-004	2.0000e-005	7.9000e-004	0.0000	2.7786	2.7786	9.0000e-005	0.0000	2.7810
Total	**5.1100e-003**	**0.1355**	**0.0373**	**3.6000e-004**	**0.0102**	**5.2000e-004**	**0.0107**	**2.7600e-003**	**5.0000e-004**	**3.2700e-003**	**0.0000**	**35.3706**	**35.3706**	**2.3800e-003**	**0.0000**	**35.4302**

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					0.0261	0.0000	0.0261	0.0143	0.0000	0.0143	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0162	0.1846	0.0713	2.0000e-004		8.0300e-003	8.0300e-003		7.3800e-003	7.3800e-003	0.0000	18.0545	18.0545	5.6200e-003	0.0000	18.1950
Total	**0.0162**	**0.1846**	**0.0713**	**2.0000e-004**	**0.0261**	**8.0300e-003**	**0.0342**	**0.0143**	**7.3800e-003**	**0.0216**	**0.0000**	**18.0545**	**18.0545**	**5.6200e-003**	**0.0000**	**18.1950**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2 5	Exhaust PM2 5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3 7100e-003	0 1343	0 0250	3 3000e-004	7 2600e-003	5 0000e-004	7 7700e-003	1 9900e-003	4 8000e-004	2 4800e-003	0 0000	32 5920	32 5920	2 2900e-003	0 0000	32 6493
Vendor	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Worker	1 4000e-003	1 1500e-003	0 0123	3 0000e-005	2 9000e-003	2 0000e-005	2 9200e-003	7 7000e-004	2 0000e-005	7 9000e-004	0 0000	2 7786	2 7786	9 0000e-005	0 0000	2 7810
Total	**5.1100e-003**	**0.1355**	**0.0373**	**3.6000e-004**	**0.0102**	**5.2000e-004**	**0.0107**	**2.7600e-003**	**5.0000e-004**	**3.2700e-003**	**0.0000**	**35.3706**	**35.3706**	**2.3800e-003**	**0.0000**	**35.4302**

3.3 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0 0152	0 1406	0 1150	2 1000e-004		6 5300e-003	6 5300e-003		6 1200e-003	6 1200e-003	0 0000	16 9306	16 9306	4 3300e-003	0 0000	17 0389
Paving	0 0000					0 0000	0 0000		0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Total	**0.0152**	**0.1406**	**0.1150**	**2.1000e-004**		**6.5300e-003**	**6.5300e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**16.9306**	**16.9306**	**4.3300e-003**	**0.0000**	**17.0389**

Unmitigated Construction Off-Site

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

Hauling	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Vendor	2 9000e-004	8 1600e-003	2 1000e-003	2 0000e-005	4 2000e-004	6 0000e-005	4 7000e-004	1 2000e-004	6 0000e-005	1 8000e-004	0 0000	1 6486	1 6486	1 2000e-004	0 0000	1 6515
Worker	5 2600e-003	4 3100e-003	0 0462	1 2000e-004	0 0109	9 0000e-005	0 0110	2 8800e-003	8 0000e-005	2 9700e-003	0 0000	10 4198	10 4198	3 6000e-004	0 0000	10 4287
Total	**5.5500e-003**	**0 0125**	**0.0483**	**1.4000e-004**	**0.0113**	**1.5000e-004**	**0.0114**	**3.0000e-003**	**1.4000e-004**	**3 1500e-003**	**0.0000**	**12.0684**	**12.0684**	**4.8000e-004**	**0.0000**	**12.0802**

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 0152	0 1406	0 1150	2 1000e-004		6 5300e-003	6 5300e-003		6 1200e-003	6 1200e-003	0 0000	16 9306	16 9306	4 3300e-003	0 0000	17 0389
Paving	0 0000					0 0000	0 0000		0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Total	**0.0152**	**0.1406**	**0.1150**	**2.1000e-004**		**6.5300e-003**	**6.5300e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**16.9306**	**16.9306**	**4.3300e-003**	**0.0000**	**17.0389**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2 5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Vendor	2 9000e-004	8 1600e-003	2 1000e-003	2 0000e-005	4 2000e-004	6 0000e-005	4 7000e-004	1 2000e-004	6 0000e-005	1 8000e-004	0 0000	1 6486	1 6486	1 2000e-004	0 0000	1 6515
Worker	5 2600e-003	4 3100e-003	0 0462	1 2000e-004	0 0109	9 0000e-005	0 0110	2 8800e-003	8 0000e-005	2 9700e-003	0 0000	10 4198	10 4198	3 6000e-004	0 0000	10 4287
Total	**5.5500e-003**	**0.0125**	**0.0483**	**1.4000e-004**	**0.0113**	**1.5000e-004**	**0.0114**	**3.0000e-003**	**1.4000e-004**	**3.1500e-003**	**0.0000**	**12.0684**	**12.0684**	**4.8000e-004**	**0.0000**	**12.0802**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0846	0.6190	0.4932	7.1000e-004		0.0402	0.0402		0.0378	0.0378	0.0000	60.9120	60.9120	0.0170	0.0000	61.3377
Total	**0.0846**	**0.6190**	**0.4932**	**7.1000e-004**		**0.0402**	**0.0402**		**0.0378**	**0.0378**	**0.0000**	**60.9120**	**60.9120**	**0.0170**	**0.0000**	**61.3377**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2400e-003	0.0638	0.0164	1.3000e-004	3.2500e-003	4.6000e-004	3.7100e-003	9.4000e-004	4.4000e-004	1.3800e-003	0.0000	12.8888	12.8888	9.2000e-004	0.0000	12.9118
Worker	9.1400e-003	7.4800e-003	0.0803	2.0000e-004	0.0189	1.5000e-004	0.0190	5.0100e-003	1.4000e-004	5.1500e-003	0.0000	18.1031	18.1031	6.2000e-004	0.0000	18.1185
Total	**0.0114**	**0.0713**	**0.0967**	**3.3000e-004**	**0.0221**	**6.1000e-004**	**0.0227**	**5.9500e-003**	**5.8000e-004**	**6.5300e-003**	**0.0000**	**30.9919**	**30.9919**	**1.5400e-003**	**0.0000**	**31.0303**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2 5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0 0846	0 6190	0 4932	7 1000e-004		0 0402	0 0402		0 0378	0 0378	0 0000	60 9119	60 9119	0 0170	0 0000	61 3376
Total	**0.0846**	**0.6190**	**0.4932**	**7.1000e-004**		**0.0402**	**0.0402**		**0.0378**	**0.0378**	**0.0000**	**60.9119**	**60.9119**	**0.0170**	**0.0000**	**61.3376**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2 5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Vendor	2 2400e-003	0 0638	0 0164	1 3000e-004	3 2500e-003	4 6000e-004	3 7100e-003	9 4000e-004	4 4000e-004	1 3800e-003	0 0000	12 8888	12 8888	9 2000e-004	0 0000	12 9118
Worker	9 1400e-003	7 4800e-003	0 0803	2 0000e-004	0 0189	1 5000e-004	0 0190	5 0100e-003	1 4000e-004	5 1500e-003	0 0000	18 1031	18 1031	6 2000e-004	0 0000	18 1185
Total	**0.0114**	**0.0713**	**0.0967**	**3.3000e-004**	**0.0221**	**6.1000e-004**	**0.0227**	**5.9500e-003**	**5.8000e-004**	**6.5300e-003**	**0.0000**	**30.9919**	**30.9919**	**1.5400e-003**	**0.0000**	**31.0303**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0 1883	1 4246	1 2162	1 8000e-003		0 0877	0 0877		0 0824	0 0824	0 0000	152 5396	152 5396	0 0421	0 0000	153 5931

Total	0.1883	1.4246	1.2162	1.8000e-003		0.0877	0.0877		0.0824	0.0824	0.0000	152.5396	152.5396	0.0421	0.0000	153.5931

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 1400e-003	0 1525	0 0383	3 4000e-004	8 2400e-003	1 0000e-003	9 2400e-003	2 3800e-003	9 5000e-004	3 3300e-003	0 0000	32 3823	32 3823	2 2400e-003	0 0000	32 4383
Worker	0 0211	0 0167	0 1818	4 9000e-004	0 0478	3 8000e-004	0 0482	0 0127	3 5000e-004	0 0131	0 0000	44 4411	44 4411	1 3900e-003	0 0000	44 4759
Total	**0.0262**	**0.1692**	**0.2200**	**8.3000e-004**	**0.0561**	**1.3800e-003**	**0.0575**	**0.0151**	**1.3000e-003**	**0.0164**	**0.0000**	**76.8234**	**76.8234**	**3.6300e-003**	**0.0000**	**76.9142**

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 1883	1 4245	1 2162	1 8000e-003		0 0877	0 0877		0 0824	0 0824	0 0000	152 5394	152 5394	0 0421	0 0000	153 5929
Total	**0.1883**	**1.4245**	**1.2162**	**1.8000e-003**		**0.0877**	**0.0877**		**0.0824**	**0.0824**	**0.0000**	**152.5394**	**152.5394**	**0.0421**	**0.0000**	**153.5929**

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 1400e-003	0 1525	0 0383	3 4000e-004	8 2400e-003	1 0000e-003	9 2400e-003	2 3800e-003	9 5000e-004	3 3300e-003	0 0000	32 3823	32 3823	2 2400e-003	0 0000	32 4383
Worker	0 0211	0 0167	0 1818	4 9000e-004	0 0478	3 8000e-004	0 0482	0 0127	3 5000e-004	0 0131	0 0000	44 4411	44 4411	1 3900e-003	0 0000	44 4759
Total	**0.0262**	**0.1692**	**0.2200**	**8.3000e-004**	**0.0561**	**1.3800e-003**	**0.0575**	**0.0151**	**1.3000e-003**	**0.0164**	**0.0000**	**76.8234**	**76.8234**	**3.6300e-003**	**0 0000**	**76.9142**

3.5 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit Coating	0 1630					0 0000	0 0000		0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Off-Road	8 7900e-003	0 0606	0 0608	1 0000e-004		4 2500e-003	4 2500e-003		4 2500e-003	4 2500e-003	0 0000	8 4257	8 4257	7 1000e-004	0 0000	8 4435
Total	**0.1718**	**0.0606**	**0.0608**	**1.0000e-004**		**4.2500e-003**	**4.2500e-003**		**4.2500e-003**	**4.2500e-003**	**0.0000**	**8.4257**	**8.4257**	**7.1000e-004**	**0.0000**	**8.4435**

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 7800e-003	3 8000e-003	0 0413	1 1000e-004	0 0109	9 0000e-005	0 0110	2 8800e-003	8 0000e-005	2 9600e-003	0 0000	10 0910	10 0910	3 2000e-004	0 0000	10 0989
Total	**4.7800e-003**	**3.8000e-003**	**0.0413**	**1.1000e-004**	**0.0109**	**9.0000e-005**	**0.0110**	**2.8800e-003**	**8.0000e-005**	**2.9600e-003**	**0.0000**	**10.0910**	**10.0910**	**3.2000e-004**	**0.0000**	**10.0989**

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 1630					0 0000	0 0000		0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Off-Road	8 7900e-003	0 0606	0 0608	1 0000e-004		4 2500e-003	4 2500e-003		4 2500e-003	4 2500e-003	0 0000	8 4257	8 4257	7 1000e-004	0 0000	8 4435
Total	**0.1718**	**0.0606**	**0.0608**	**1.0000e-004**		**4.2500e-003**	**4.2500e-003**		**4.2500e-003**	**4.2500e-003**	**0.0000**	**8.4257**	**8.4257**	**7.1000e-004**	**0.0000**	**8.4435**

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 7800e-003	3 8000e-003	0 0413	1 1000e-004	0 0109	9 0000e-005	0 0110	2 8800e-003	8 0000e-005	2 9600e-003	0 0000	10 0910	10 0910	3 2000e-004	0 0000	10 0989
Total	**4.7800e-003**	**3.8000e-003**	**0.0413**	**1.1000e-004**	**0.0109**	**9.0000e-005**	**0.0110**	**2.8800e-003**	**8.0000e-005**	**2.9600e-003**	**0.0000**	**10.0910**	**10.0910**	**3.2000e-004**	**0.0000**	**10.0989**

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 1621	0 8634	2 0269	6 3400e-003	0 4854	7 3800e-003	0 4928	0 1301	6 9400e-003	0 1370	0 0000	584 4535	584 4535	0 0325	0 0000	585 2665
Unmitigated	0 1621	0 8634	2 0269	6 3400e-003	0 4854	7 3800e-003	0 4928	0 1301	6 9400e-003	0 1370	0 0000	584 4535	584 4535	0 0325	0 0000	585 2665

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	244 02	244 02	244 02	833,853	833,853
Strip Mall	233 20	233 20	233 20	443,685	443,685
Enclosed Parking with Elevator	0 00	0 00	0 00		
Total	477 22	477 22	477 22	1,277,539	1,277,539

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14 70	5 90	8 70	40 20	19 20	40 60	86	11	3
Strip Mall	16 60	8 40	6 90	16 60	64 40	19 00	45	40	15
Enclosed Parking with Elevator	16 60	8 40	6 90	0 00	0 00	0 00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0 546418	0 044132	0 199182	0 124467	0 017484	0 005870	0 020172	0 031831	0 001999	0 002027	0 004724	0 000704	0 000991
Apartments Mid Rise	0 546418	0 044132	0 199182	0 124467	0 017484	0 005870	0 020172	0 031831	0 001999	0 002027	0 004724	0 000704	0 000991
Strip Mall	0 546418	0 044132	0 199182	0 124467	0 017484	0 005870	0 020172	0 031831	0 001999	0 002027	0 004724	0 000704	0 000991

5.0 Energy Detail

Historical Energy Use N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0 0000	0 0000		0 0000	0 0000	0 0000	387 7045	387 7045	6 7600e-003	1 4000e-003	388 2900
Electricity Unmitigated						0 0000	0 0000		0 0000	0 0000	0 0000	387 7045	387 7045	6 7600e-003	1 4000e-003	388 2900
NaturalGas Mitigated	3 0100e-003	0 0257	0 0112	1 6000e-004		2 0800e-003	2 0800e-003		2 0800e-003	2 0800e-003	0 0000	29 7823	29 7823	5 7000e-004	5 5000e-004	29 9593
NaturalGas Unmitigated	3 0100e-003	0 0257	0 0112	1 6000e-004		2 0800e-003	2 0800e-003		2 0800e-003	2 0800e-003	0 0000	29 7823	29 7823	5 7000e-004	5 5000e-004	29 9593

5.2 Energy by Land Use - NaturalGas

<u>Unmitigated</u>

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	548480	2 9600e-003	0 0253	0 0108	1 6000e-004		2 0400e-003	2 0400e-003		2 0400e-003	2 0400e-003	0 0000	29 2690	29 2690	5 6000e-004	5 4000e-004	29 4429

Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	9619.5	5.0000e-005	4.7000e-004	4.0000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5133	0.5133	1.0000e-005	1.0000e-005	0.5164
Total		**3.0100e-003**	**0.0257**	**0.0112**	**1.6000e-004**		**2.0800e-003**	**2.0800e-003**		**2.0800e-003**	**2.0800e-003**	**0.0000**	**29.7823**	**29.7823**	**5.7000e-004**	**5.5000e-004**	**29.9593**

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					
Apartments Mid Rise	548480	2.9600e-003	0.0253	0.0108	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	29.2690	29.2690	5.6000e-004	5.4000e-004	29.4429
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	9619.5	5.0000e-005	4.7000e-004	4.0000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5133	0.5133	1.0000e-005	1.0000e-005	0.5164
Total		**3.0100e-003**	**0.0257**	**0.0112**	**1.6000e-004**		**2.0800e-003**	**2.0800e-003**		**2.0800e-003**	**2.0800e-003**	**0.0000**	**29.7823**	**29.7823**	**5.7000e-004**	**5.5000e-004**	**29.9593**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	181560	137.0487	2.3900e-003	4.9000e-004	137.2557
Enclosed Parking with Elevator	251260	189.6618	3.3100e-003	6.8000e-004	189.9482
Strip Mall	80803.8	60.9940	1.0600e-003	2.2000e-004	61.0861
Total		**387.7045**	**6.7600e-003**	**1.3900e-003**	**388.2900**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	181560	137 0487	2 3900e-003	4 9000e-004	137 2557
Enclosed Parking with Elevator	251260	189 6618	3 3100e-003	6 8000e-004	189 9482
Strip Mall	80803 8	60 9940	1 0600e-003	2 2000e-004	61 0861
Total		**387.7045**	**6.7600e-003**	**1.3900e-003**	**388.2900**

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 3419	0 0159	0 7034	7 0000e-004		0 0425	0 0425		0 0425	0 0425	4 4612	9 2825	13 7437	0 0140	3 0000e-004	14 1840
Unmitigated	0 3419	0 0159	0 7034	7 0000e-004		0 0425	0 0425		0 0425	0 0425	4 4612	9 2825	13 7437	0 0140	3 0000e-004	14 1840

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 0163					0 0000	0 0000		0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Consumer Products	0 1746					0 0000	0 0000		0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Hearth	0 1376	0 0109	0 2670	6 8000e-004		0 0401	0 0401		0 0401	0 0401	4 4612	8 5729	13 0341	0 0133	3 0000e-004	13 4569
Landscaping	0 0134	5 0500e-003	0 4364	2 0000e-005		2 3900e-003	2 3900e-003		2 3900e-003	2 3900e-003	0 0000	0 7096	0 7096	7 0000e-004	0 0000	0 7271
Total	**0.3419**	**0.0159**	**0.7034**	**7.0000e-004**		**0.0425**	**0.0425**		**0.0425**	**0.0425**	**4.4612**	**9.2825**	**13.7437**	**0.0140**	**3.0000e-004**	**14.1840**

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 0163					0 0000	0 0000		0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Consumer Products	0 1746					0 0000	0 0000		0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
Hearth	0 1376	0 0109	0 2670	6 8000e-004		0 0401	0 0401		0 0401	0 0401	4 4612	8 5729	13 0341	0 0133	3 0000e-004	13 4569
Landscaping	0 0134	5 0500e-003	0 4364	2 0000e-005		2 3900e-003	2 3900e-003		2 3900e-003	2 3900e-003	0 0000	0 7096	0 7096	7 0000e-004	0 0000	0 7271
Total	**0.3419**	**0.0159**	**0.7034**	**7.0000e-004**		**0.0425**	**0.0425**		**0.0425**	**0.0425**	**4.4612**	**9.2825**	**13.7437**	**0.0140**	**3.0000e-004**	**14.1840**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	48 8332	0 1041	2 6100e-003	52 2129
Unmitigated	48 8332	0 1041	2 6100e-003	52 2129

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	2 73647 / 1 72517	42 2321	0 0899	2 2500e-003	45 1511
Enclosed Parking with Elevator	0 / 0	0 0000	0 0000	0 0000	0 0000
Strip Mall	0 431843 / 0 264678	6 6012	0 0142	3 6000e-004	7 0617
Total		**48.8332**	**0.1041**	**2.6100e-003**	**52.2129**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
Apartments Mid Rise	2 73647 / 1 72517	42 2321	0 0899	2 2500e-003	45 1511
Enclosed Parking with Elevator	0 / 0	0 0000	0 0000	0 0000	0 0000
Strip Mall	0 431843 / 0 264678	6 6012	0 0142	3 6000e-004	7 0617
Total		**48.8332**	**0.1041**	**2.6100e-003**	**52.2129**

8.0 Waste Detail

8.1 Mitigation Measures Waste

<u>Category/Year</u>

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5 1641	0 3052	0 0000	12 7938
Unmitigated	5 1641	0 3052	0 0000	12 7938

8.2 Waste by Land Use

<u>Unmitigated</u>

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Apartments Mid Rise	19 32	3 9218	0 2318	0 0000	9 7161
Enclosed Parking with Elevator	0	0 0000	0 0000	0 0000	0 0000
Strip Mall	6 12	1 2423	0 0734	0 0000	3 0778
Total		**5.1641**	**0.3052**	**0.0000**	**12.7938**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	19 32	3 9218	0 2318	0 0000	9 7161
Enclosed Parking with Elevator	0	0 0000	0 0000	0 0000	0 0000
Strip Mall	6 12	1 2423	0 0734	0 0000	3 0778
Total		**5.1641**	**0.3052**	**0.0000**	**12.7938**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation