KUNZMAN ASSOCIATES, INC.

# 10234 4TH STREET PROJECT

# AIR QUALITY, GLOBAL CLIMATE CHANGE, AND HEALTH RISK ASSESSMENT IMPACT ANALYSIS

**March 31, 2018**

Traffic Engineering | Transportation Planning | Parking | Noise/Vibration | Expert Witness
Air Quality | Global Climate Change | Health Risk Assessment

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JN 7378b

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# I. INTRODUCTION & SETTING

## A. Purpose and Objectives

This study was performed for the proposed 10234 4th Street project to address the possibility of regional and local air quality impacts, global climate change impacts, and cancer risk from mobile source diesel emissions. The objectives of the study include:

- documentation of the atmospheric setting
- discussion of criteria pollutants and greenhouse gases
- discussion of the air quality and global climate change regulatory framework
- discussion of the air quality, greenhouse gases, and cancer risk thresholds of significance
- analysis of the construction related air quality and greenhouse gas emissions
- analysis of the operations related air quality and greenhouse gas emissions
- analysis of the operations related cancer risk from diesel emissions
- analysis of the conformity of the proposed project with the SCAQMD AQMP
- recommendations for mitigation measures

The City of Rancho Cucamonga is the lead agency for the preparation of this air quality impact analysis, in accordance with the California Environmental Quality Act authorizing legislation. Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with terms unique to air quality and global climate change, a definition of terms has been provided in Appendix A.

## B. Project Location

The project site is located north of 4th Street between Hermosa Avenue and Center Avenue at 10234 4th Street in the City of Rancho Cucamonga. The project location is provided on Figure 1.

According to the SCAQMD's MATES-IV study, the project area has an estimated ambient cancer risk of 1,149.12 in one million risk of cancer. In comparison the average cancer risk for San Bernardino County is 339 in one million. This increased cancer risk is largely due to the proximity to the I-10 and I-15 Freeways.

## C. Project Description

The 2.76 acre project site is proposed to be developed with one building containing 27,093 square feet of refrigerated warehouse use and 32,037 square feet of manufacturing and office uses. The project site is proposed to include 80 parking stalls, one loading parking stall with four dock doors, and one trailer parking stall. As the warehouse portion of the project site will be receiving fresh produce deliveries, it is anticipated (per the applicant)

that the project would receive no more than 15 truck trips per day[1]. Figure 2 illustrates the site plan.

## D. Phasing and Timing

The project is anticipated to be built in one phase. Construction is anticipated to start no sooner than the beginning of June 2018 and be completed by early 2019. The project is anticipated to be operational in 2019.

## E. Sensitive Receptors in Project Vicinity

Those who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. For purposes of CEQA, the SCAQMD defines a sensitive receptor as a land use such as residences, schools, child care centers, athletic facilities, playgrounds, retirement homes and convalescent homes (South Coast Air Quality Management District 2008). Commercial and industrial facilities are not included in the definition because employees do not typically remain on-site for 24 hours.

The nearest sensitive receptors to the project site include multi-family attached residential dwelling units located approximately 100 feet south of the project site (across 4th Street). In addition, Ontario Motor Speedway Park is located approximately 0.16 miles south and Ontario Center School is located approximately 0.24 miles south of the project site.

## F. Executive Summary of Findings

*Construction-Source Emissions*
Project construction-source emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. For localized emissions, the project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD.

Project construction-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). As discussed herein, the project will comply with all applicable SCAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less than significant.

[1] It is unknown at this time how many of the 15 daily truck trips will include trailers with Transport Refrigeration Units (TRUs); therefore, to estimate the worst-case emissions, it is assumed that all 15 trucks have TRUs.

*Operational-Source Emissions*

The project operational-sourced emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. Project operational-source emissions would not result in or cause a significant localized air quality impact as discussed in the Operations-Related Local Air Quality Impacts section of this report. Additionally, project-related trips will not cause or result in CO concentrations exceeding applicable state and/or federal standards (CO "hotspots). Project operational-source emissions would therefore not adversely affect sensitive receptors within the vicinity of the project.

Project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The project's emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

Project-related GHG emissions are also considered to be less than significant and will not conflict with the goals of AB-32, SB-32, or the City of Rancho Cucamonga Sustainable Community Action Plan.

# Figure 1
# Project Location Map


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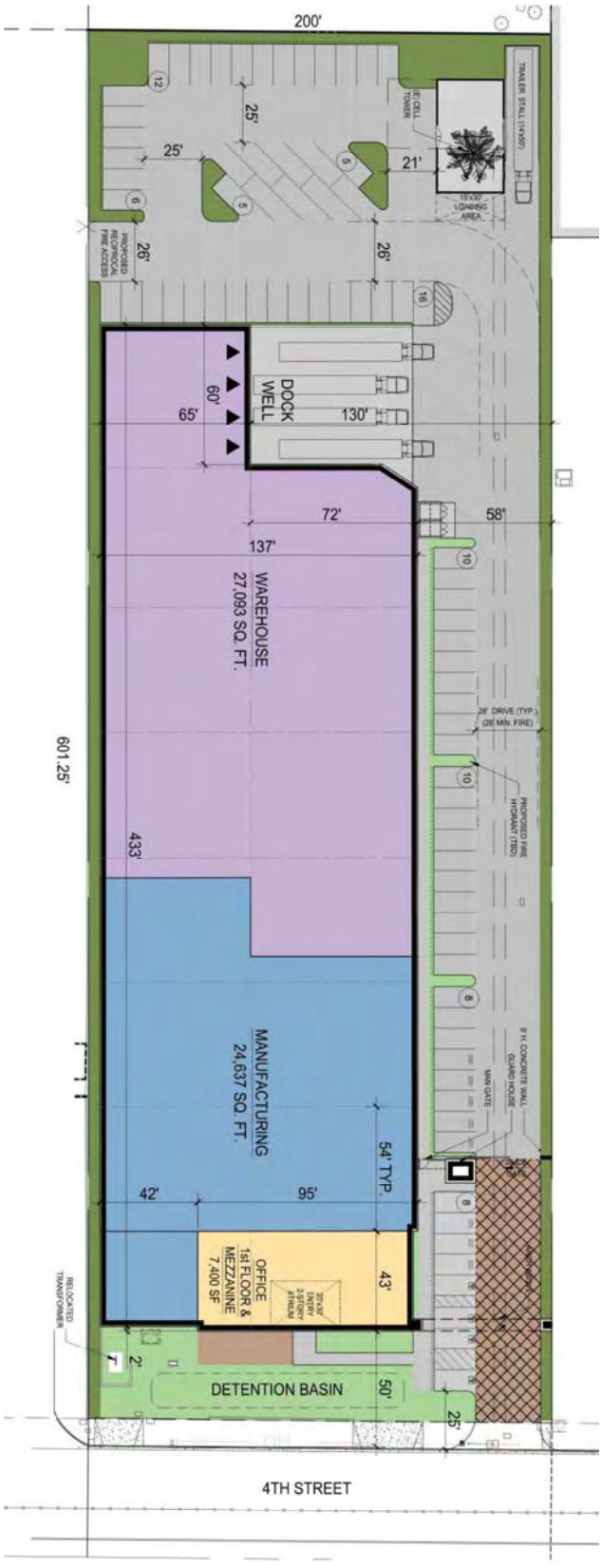
# Figure 2
# Site Plan



## II. ATMOSPHERIC SETTING

The project site is located within the southwestern portion of San Bernardino County, which is part of the South Coast Air Basin (SCAB) that includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The South Coast Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the South Coast Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter. The project site is located toward the northeast portion of the South Coast Air Basin near the foot of the San Bernardino Mountains, which define the eastern boundary of the South Coast Air Basin.

The climate of western San Bernardino County, technically called an interior valley subclimate of the Southern California's Mediterranean-type climate, is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. The clouds and fog that form along the area's coastline rarely extend as far inland as western San Bernardino County. When morning clouds and fog form, they typically burn off quickly after sunrise. The most important weather pattern from an air quality perspective is associated with the warm season airflow across the populated areas of the Los Angeles Basin. This airflow brings polluted air into western San Bernardino County late in the afternoon. This transport pattern creates unhealthful air quality that may extend to the project site particularly during the summer months.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in western San Bernardino County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the South Coast Air Basin into the interior valleys which become trapped by the mountains that border the eastern edge of the South Coast Air Basin.

In the summer, strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloud.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin, there is not enough traffic volumes in inland valleys to cause any winter air pollution problems.

Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the neighboring city of Fontana are shown below in Table 1. Table 1 shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

## Table 1

## Fontana Monthly Climate Data[1]

| Descriptor | Month of Year | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Avg. Max. Temperature | 66.4 | 68.9 | 68.5 | 72.8 | 80.3 | 86.5 | 95 | 96.2 | 90 | 80.4 | 68.7 | 66 |
| Avg. Min. Temperature | 41.5 | 42.6 | 43.9 | 45.9 | 51.5 | 56.1 | 59.5 | 62.4 | 60.2 | 52.5 | 43.5 | 41.7 |
| Avg. Total Precipitation (in.) | 3.17 | 3.27 | 4.13 | 1.31 | 0.31 | 0.00 | 0.00 | 0.28 | 0.62 | 0.77 | 2.59 | 2.33 |

[1] Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3120. Data taken from the Fontana Kaiser, CA station (043120).

# III. POLLUTANTS

Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

## A. Criteria Pollutants

The criteria pollutants consist of: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants.

### 1. Nitrogen Dioxide

Nitrogen Oxides (NOx) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide ($NO_2$) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NOx are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as $NO_2$, which cause respiratory problems. NOx and the pollutants formed from NOx can be transported over long distances, following the patterns of prevailing winds. Therefore controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

### 2. Ozone

Ozone is not usually emitted directly into the air but at ground-level is created by a chemical reaction between NOx and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

3. Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

4. Sulfur Dioxide

Sulfur Oxide (SOx) gases (including sulfur dioxide) are formed when fuel containing sulfur, such as coal and oil is burned, and from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

5. Lead

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system,

leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

6. Particulate Matter

Particulate matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. Particulate matter is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

7. Volatile Organic Compounds (VOC)

Although not a criteria pollutant, reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably. Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM10 and lower visibility.

## B. Other Pollutants of Concern

1. Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. Sources of toxic air contaminants include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important of these toxic air contaminants, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to toxic air contaminants can result from emissions from normal operations as well as accidental releases. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, and death.

Toxic air contaminants are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of

toxic air contaminants with varying degrees of toxicity. Sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to the 2013 California Almanac of Emissions and Air Quality, the majority of the estimated health risk from toxic air contaminants can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). Diesel particulate matter is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of diesel particulate matter as a toxic air contaminant in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in diesel particulate matter by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of diesel particulate matter as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to diesel particulate matter is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

2. Asbestos

Asbestos is listed as a TAC by ARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestoform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. Naturally occurring asbestos is not present in San Bernardino County. The nearest likely locations of naturally occurring asbestos, as identified in the General Location Guide for Ultramafic Rocks in California prepared by the California Division of Mines and Geology, is located in Santa Barbara County. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

## C. Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide ($CO_2$), methane ($CH_4$), ozone, water vapor, nitrous oxide ($N_2O$), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable

climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of $CO_2$ and nitrous oxide (NOx) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of $CO_2$, where $CO_2$ is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

1. Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved in is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

2. Carbon Dioxide

The natural production and absorption of $CO_2$ is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid-1700s. Each of these activities has increased in scale and distribution. $CO_2$ was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC Fifth Assessment Report, 2014) Emissions of $CO_2$ from fossil fuel combustion and industrial processes contributed about 78% of the total GHG emissions increase from 1970 to 2010, with a similar percentage contribution for the increase during the period 2000 to 2010. Globally, economic and population growth continued to be the most important

drivers of increases in $CO_2$ emissions from fossil fuel combustion. The contribution of population growth between 2000 and 2010 remained roughly identical to the previous three decades, while the contribution of economic growth has risen sharply.

3. Methane

$CH_4$ is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of $CO_2$. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as $CO_2$, $N_2O$, and Chlorofluorocarbons (CFCs). $CH_4$ has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

4. Nitrous Oxide

Concentrations of $N_2O$ also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). $N_2O$ is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and in race cars).

5. Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane ($C_2H_6$) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

6. Hydrofluorocarbons

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 ($CHF_3$), HFC-134a ($CF_3CH_2F$), and HFC-152a ($CH_3CHF_2$). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a

refrigerant. Concentrations of HFC-23 HFC-134a are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

7. Perfluorocarbons

PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane ($CF_4$) and hexafluoroethane ($C_2F_6$). Concentrations of $CF_4$ in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

8. Sulfur Hexafluoride

$SF_6$ is an inorganic, odorless, colorless, nontoxic, nonflammable gas. $SF_6$ has the highest global warming potential of any gas evaluated; 23,900 times that of $CO_2$. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

9. Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

10. Global Warming Potential

The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide ($CO_2$). The larger the GWP, the more that a given gas warms the Earth compared to $CO_2$ over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases (e.g., to compile a national GHG inventory), and allows policymakers to compare emissions reduction opportunities across sectors and gases. A summary of the atmospheric lifetime and the global warming potential of selected gases are summarized in Table 2. As shown in Table 2, the global warming potential of GHGs ranges from 1 to 22,800.

## Table 2

## Global Warming Potentials and Atmospheric Lifetimes[1]

| Gas | Atmospheric Lifetime | Global Warming Potential[2] (100 Year Horizon) |
|---|---|---|
| Carbon Dioxide ($CO_2$) | —[3] | 1 |
| Methane ($CH_4$) | 12 | 28-36 |
| Nitrous Oxide (NO) | 114 | 298 |
| Hydrofluorocarbons (HFCs) | 1-270 | 12-14,800 |
| Perfluorocarbons (PFCs) | 2,600-50,000 | 7,390-12,200 |
| Nitrogen trifluoride ($NF_3$) | 740 | 17,200 |
| Sulfur Hexafluoride ($SF_6$) | 3,200 | 22,800 |

[1] Source: http://www3.epa.gov/climatechange/ghgemissions/gases.html

[2] Compared to the same quantity of $CO_2$ emissions.

[3] Carbon dioxide's lifetime is poorly defined because the gas is not destroyed over time, but instead moves among different parts of the ocean–atmosphere–land system. Some of the excess carbon dioxide will be absorbed quickly (for example, by the ocean surface), but some will remain in the atmosphere for thousands of years, due in part to the very slow process by which carbon is transferred to ocean sediments.

# IV. AIR QUALITY MANAGEMENT

## A. Regulatory Setting

The proposed project is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

### 1. International

*Montreal Protocol*

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

*The Paris Agreement*

The Paris Agreement entered into force on 4 November 2016, thirty days after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 % of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depositary.

The Paris Agreement builds upon the Convention and – for the first time – brings all nations into a common cause to undertake take ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable

countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework.

2. Federal - United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The National Ambient Air Quality Standards (NAAQS) pollutants were identified using medical evidence and are shown below in Table 3.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The State Implementation Plan (SIP) must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the State Implementation Plan (SIP).

The EPA and the California Air Resource Board (CARB) designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the Federal annual PM2.5 standard is met if the three-year average of the annual average PM2.5 concentration is less than or equal to the standard. Attainment status is shown in Table 4.

As indicated below in Table 4, the Basin has been designated by the EPA as a non-attainment area for ozone ($O_3$) and suspended particulates (PM10 and PM2.5). Currently, the Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide ($SO_2$), and nitrogen dioxide ($NO_2$).

In 2011, the Basin exceeded federal standards for either ozone or PM2.5 at one or more locations on a total of 124 days, based on the current federal standards for 8-hour ozone and 24-hour PM2.5. Despite substantial improvements in air quality over the past few decades, some air monitoring stations in the Basin still exceed the NAAQS for ozone more frequently than any other stations in the U.S. In 2011, three of the top five stations that exceeded the 8-hour ozone NAAQS were located in the Basin (Central San Bernardino Mountains, East San Bernardino Valley, and Metropolitan Riverside County).

PM2.5 in the Basin has improved significantly in recent years, with 2010 and 2011 being the cleanest years on record. In 2011, only one station in the Basin (Metropolitan Riverside County at Mira Loma) exceeded the annual PM2.5 NAAQS and the 98th percentile form of the 24-hour PM2.5 NAAQS, as well as the 3-year design values for these standards. Basin-wide, the federal PM2.5 24-hour standard level was exceeded in 2011 on 17 sampling days.

The Basin is currently in attainment for the federal standards for carbon monoxide (CO), lead, sulfur dioxide ($SO_2$), and nitrogen dioxide ($NO_2$). While the concentration level of the new 1-hour $NO_2$ federal standard (100 ppb) was exceeded in the Basin at two stations (Central Los Angeles and Long Beach) on the same day in 2011, the NAAQS $NO_2$ design value has not been exceeded. Therefore, the Basin remains in attainment of the $NO_2$ NAAQS.

The EPA designated the Los Angeles County portion of the Basin as nonattainment for the revised (2008) federal lead standard (0.15 µg/m3, rolling 3-month average), due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard in the 2007-2009 period of data used.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate $CO_2$ and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions will not themselves impose any requirements on industry or other entities. However, it is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by the EPA and Department of Transportation on September 15, 2009.

On March 19, 2015, the Whitehouse announced that President Obama will issue an Executive Order that will cut the Federal Government's greenhouse gas (GHG) emissions 40 percent over the next decade from 2008 levels -- saving taxpayers up to $18 billion in avoided energy costs -- and increase the share of electricity the Federal Government consumes from renewable sources to 30 percent. Complementing this effort, several major Federal suppliers are announcing commitments to cut their own GHG emissions. The Administration hosted a roundtable that brought some of these large Federal suppliers together to discuss the benefits of their GHG reduction targets or to make their first-ever corporate commitments to disclose emissions and set new reduction goals.

Together, the combined results of the Federal Government actions and new supplier commitments will reduce GHG emissions by 26 million metric tons by 2025 from 2008 levels, the equivalent of taking nearly 5.5 million cars off the road for a year. And to encourage continued progress across the Federal supply chain, the Administration is releasing a new scorecard to publicly track self-reported emissions disclosure and progress for all major Federal suppliers, who together represent more than $187 billion in Federal spending and account for more than 40 percent of all Federal contract dollars.

Since the Federal Government is the single largest consumer of energy in the Nation, Federal emissions reductions and progress across the supply chain will have broad impacts. The new commitments announced today support the United States' international commitment to cut net GHG emissions 26-28 percent below 2005 levels by 2025, which President Obama first announced in November 2014 as part of an historic agreement with China. Additionally, the goals build on the strong progress made by Federal agencies during the first six years of the Administration under President Obama's 2009 Executive Order on Federal Leadership on Environmental, Energy and Economic Performance, including reducing Federal GHG emissions by 17 percent — which helped Federal agencies avoid $1.8 billion in cumulative energy costs — and increasing the share of renewable energy consumption to 9 percent.[2]

3. State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the State Implementation Plan (SIP). The California Ambient Air Quality Standards (CAAQS) for criteria pollutants are shown in Table 3. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g., hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

[2] Source: https://www.whitehouse.gov/the-press-office/2015/03/19/fact-sheet-reducing-greenhouse-gas-emissions-federal-government-and-acro.

The South Coast Air Basin has been designated by the CARB as a nonattainment area for ozone, PM10 and PM2.5. Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for CO, lead, $SO_2$, $NO_2$, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

On June 20, 2002, the CARB revised the PM10 annual average standard to 20 µg/m3 and established an annual average standard for PM2.5 of 12 µg/m3. These standards were approved by the Office of Administrative Law in June 2003 and are now effective. On September 27, 2007 CARB approved the South Coast Air Basin and the Coachella Valley 2007 Air Quality Management Plan for Attaining the Federal 8-hour Ozone and PM2.5 Standards. The plan projects attainment for the 8-hour Ozone standard by 2024 and the PM2.5 standard by 2015.

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California.

The CARB is also responsible for regulations pertaining to toxic air contaminants. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release into the South Coast Air Basin. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

The State currently has no regulations that establish ambient air quality standards for GHGs. However, the State has passed laws directing CARB to develop actions to reduce GHG emissions, which are listed below.

*Assembly Bill 1493*

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for $CO_2$ and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

*Executive Order S-3-05*

The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

*Assembly Bill 32*

In 2006, the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

On December 6, 2007 CARB released the calculated Year 1990 GHG emissions of 427 million metric tons of $CO_2e$ ($MMTCO_2e$). The 2020 target of 427 $MMTCO_2e$ requires the reduction of 169 $MMTCO_2e$, or approximately 30 percent from the State's projected 2020 business as usual emissions of 596 $MMTCO_2e$ and the reduction of 42 $MMTCO_2e$, or almost 10 percent from the 2002-2004 average GHG emissions. Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of $CO_2$ in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources that became enforceable on or before January 1, 2010.

On December 11, 2008 the CARB Board approved a Scoping Plan, with final adoption May 11, 2009 that proposed a variety of measures including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, a market-based cap-and-trade system, and a fee regulation to fund the program. In current pending litigation, Association of Irritated Residents v. California Air Resources Board, a California State trial

court found that the analysis of the alternatives identified in the AB 32 Scoping Plan Functional Equivalent Document (FED) was not sufficient for informed decision-making and public review under CEQA. In response, CARB has appealed the decision. In addition, CARB prepared the *Supplement to the AB 32 Scoping Plan Functional Equivalent Document,* June 13, 2011. On August 24, 2011 CARB recertified the complete AB 32 Scoping Plan Functional Equivalent Environmental Document revised by the Final Supplement. In December, 2011 the Final Supplement was accepted as sufficient to fulfill the trial court's March order.

While local government operations were not accounted for in achieving the 2020 emissions reduction, local land use changes are estimated to result in a reduction of 5 metric tons of $CO_2e$, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments will play in successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of 2010 levels by 2020 to ensure that municipal and community-wide emissions match the state's reduction target. According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 metric tons of $CO_2e$ (or approximately 1.2 percent of the GHG reduction target).

In May 2014, CARB released its *First Update to the Climate Change Scoping Plan* (CARB 2014). This *Update* identifies the next steps for California's leadership on climate change. While California continues on its path to meet the near-term 2020 greenhouse gas limit, it must also set a clear path toward long-term, deep GHG emission reductions. This report highlights California's success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050.

In November 2017, CARB released the 2017 Scoping Plan. This latest Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals, and includes a description of a suite of specific actions to meet the State's 2030 GHG limit. In addition, this Scoping Plan provides a broader description of the many actions and proposals being explored across the sectors, including the natural resources sector, to achieve the State's mid and long-term climate goals.

The 2017 Scoping Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The 2017 Scoping Plan includes policies to require direct GHG reductions at some of the State's largest

stationary sources and mobile sources. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and Trade Program, which constrains and reduces emissions at covered sources.

*SB 32. SB 32, Pavley. California Global Warming Solutions Act of 2006.*

(1) The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The state board is required to approve a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020 and to adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective greenhouse gas emissions reductions. This bill would require the state board to ensure that statewide greenhouse gas emissions are reduced to 40% below the 1990 level by 2030.

(2) This bill would become operative only if AB 197 of the 2015–16 Regular Session is enacted and becomes effective on or before January 1, 2017. AB 197 requires that the California Air Resources Board, which directs implementation of emission-reduction programs, should target direct reductions at both stationary and mobile sources.

*Senate Bill 1368*

Senate Bill 1368 (SB 1368) is the companion Bill of AB 32 and was adopted September, 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007 and for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to the State, including imported electricity, must be generated by plants that meet the standards set by California Public Utilities Commission (CPUC) and California Energy Commission (CEC).

*Executive Order S-1-07*

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year

beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

*Senate Bill 97*

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA

Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.

- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

*Senate Bills 1078, 107, and X1-2 and Executive Orders S-14-08 and S-21-09*

Senate Bill 1078 (SB 1078) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

*Senate Bill 375*

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035

Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements. The Housing Element Update is required by the State to be completed within 18 months after RTP/SCS adoption or by October 2013.

On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy (2016 RTP/SCS or Plan). The Plan is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The Plan charts a course for closely integrating land use and transportation – so that the region can grow smartly and sustainably. It outlines more than $556.5 billion in transportation system investments through 2040. The Plan was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit 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 (FHWA) and the Federal Transit Administration (FTA) indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 FTIP Consistency Amendment through Amendment 15-12 have been met.

*Senate Bill X7-7*

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. In addition SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

*Assembly Bill 939 and Senate Bill 1374*

Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

*California Code of Regulations (CCR) Title 24, Part 6*

CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally

intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013 Standards have been approved and were effective July 1, 2014. 2016 Standards were adopted January 1, 2017.

*California Code of Regulations (CCR) Title 24, Part 11*

All buildings for which an application for a building permit is submitted on or after January 1, 2017 must follow the 2016 standards. The 2016 standards are estimated to be approximately 28 percent more efficient than the 2013 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

*California Green Building Standards*

On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The 2016 version of the standards became effective as of January 1, 2017. The 2016 version address additional items such as clean air vehicles, increased requirements for electric vehicles charging infrastructure, organic waste, and water efficiency and conservation.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them

as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

*Executive Order B-30-15*
Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

*Executive Order B-29-15*
Executive Order B-29-15, mandates a statewide 25% reduction in potable water usage. EO B-29-15 signed into law on April 1, 2015.

*Executive Order B-37-16*
Executive Order B-29-15, continuing the State's adopted water reductions, was signed into law on May 9, 2016. The water reductions build off the mandatory 25% percent reduction called for in EO B-29-15.

4. Regional

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

*South Coast Air Quality Management District*
The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. The SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. On June 30, 2016, the SCAQMD released its Draft 2016 AQMP. The 2016 AQMP is a regional blueprint for achieving the federal air quality standards and healthful air.

The 2016 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the Plan is not approved or if the NAAQS are not met on time. As with every AQMP, a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures is updated with the latest data and methods. The most significant air quality challenge in the Basin is to reduce nitrogen oxide (NOx) emissions sufficiently to meet the upcoming ozone standard deadlines. On March 23, 2017 CARB approved the 2016 AQMP. The primary goal of this Air Quality Management Plan is to meet clean air

standards and protect public health, including ensuring benefits to environmental justice and disadvantaged communities. Now that the plan has been approved by CARB, it has been forwarded to the U.S. Environmental Protection Agency for its review. If approved by EPA, the plan becomes federally enforceable.

A revised draft of the 2012 AQMP was released on September, 2012, and was adopted by the SCAQMD Board on December 7, 2012. The 2012 AQMP is now awaiting approval from CARB and the U.S. EPA. The 2012 AQMP is being prepared in order to meet the federal Clean Air Act requirement that all 24-hour PM2.5 non-attainment areas prepare a SIP, which was required to be submitted to the U.S. EPA by December 14, 2012 and demonstrate attainment with the 24-hour PM2.5 standard by 2014. The 2012 AQMP demonstrates attainment of the federal 24-hour PM2.5 standard by 2014 in the Basin through adoption of all feasible measures, and therefore, no extension of the attainment date is needed.

The 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These "black box" emissions reductions represent 65 percent of the remaining NOx emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NOx control measures have been provided in this AQMP even though the primary purpose of this AQMP is to show compliance with 24-hour PM2.5 emissions standards.

The 2012 AQMP built upon the approaches taken in the 2007 AQMP for the attainment of federal PM and ozone standards, and highlights the significant amount of reductions needed and the need to engage in interagency coordinated planning of mobile sources to meet all of the federal criteria pollutant standards. Compared with the 2007 AQMP, the 2012 AQMP utilizes revised emissions inventory projections that use 2008 as the base year. On-road emissions are calculated using CARB EMFAC2011 emission factors and the transportation activity data provided by SCAG from their 2012 Regional Transportation Plan (2012 RTP). Off-road emissions were updated using CARB's 2011 In-Use Off-Road Fleet Inventory Model. Since the 2007 AQMP was finalized new area source categories such as LPG transmission losses, storage tank and pipeline cleaning and degassing, and architectural colorants, were created and included in the emissions inventories. The 2012 AQMP also includes analysis of several additional sources of GHG emissions such as landfills and could also assist in reaching the GHG target goals in the AB32 Scoping Plan.

The control measures in the 2012 AQMP consist of three components: (1) Basin-wide and episodic short-term PM2.5 measures; (2) Section 182(e)(5) implementation measures; and (3) Transportation control measures. Many of the control measures are not based on command and control regulations, but instead focus on incentives, outreach, and education to bring about emissions reductions through voluntary participation and behavioral changes. More broadly, a transition to zero- and near-zero emission technologies is necessary to meet 2023 and 2032 air quality standards and 2050 climate goals. Many of the same technologies will address both air quality and climate needs.

During construction and operation, the project must comply with applicable rules and regulations. The following are rules the project may be required to comply with, either directly, or indirectly:

**SCAQMD Rule 402** prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

**SCAQMD Rule 403** governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the $PM_{10}$ component). Compliance with these rules would reduce impacts on nearby sensitive receptors. Rule 403 measures may include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least three times daily. (Locations where grading is to occur will be thoroughly watered prior to earthmoving.)
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meters (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce

the amount of particulate matter on public streets. All sweepers shall be compliant with SCAQMD Rule 1186.1, Less Polluting Sweepers.

**SCAQMD Rule 445** prohibits permanently installed wood burning devices into any new development. A wood burning device means any fireplace, wood burning heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.

**SCAQMD Rule 481** applies to all spray painting and spray coating operations and equipment. The rule states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

(1) The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face velocity not less than 100 feet per minute nor greater than 300 feet per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.
(2) Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.
(3) An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

**SCAQMD Rule 1108** governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the South Coast Air Basin. This rule would regulate the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the project must comply with SCAQMD Rule 1108.

**SCAQMD Rule 1113** governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of the project must comply with SCAQMD Rule 1113.

**SCAQMD Rule 1143** governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

**SCAQMD Rule 1186** limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

**SCAQMD Rule 1303** governs the permitting of re-located or new major emission sources, requiring Best Available Control Measures and setting significance limits for $PM_{10}$ among other pollutants.

**SCAQMD Rule 1401,** New Source Review of Toxic Air Contaminants, specifies limits for maximum individual cancer risk, cancer burden, and non-cancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units, which emit toxic air contaminants.

**SCAQMD Rule 2202**, On-Road Motor Vehicle Mitigation Options, is to provide employers with a menu of options to reduce mobile source emissions generated from employee commutes, to comply with federal and state Clean Air Act requirements, Health & Safety Code Section 40458, and Section 182(d)(1)(B) of the federal Clean Air Act. It applies to any employer who employs 250 or more employees on a full or part-time basis at a worksite for a consecutive six-month period calculated as a monthly average.

In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group and adopted Rules 2700, 2701, 2702, and 3002 which are described below.

**SCAQMD Working Group**

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual thresholds of 10,000 MTCO2e for industrial uses.

**Rules 2700 and 2701**

The SCAQMD adopted Rules 2700 and 2701 on December 5, 2008, which establishes the administrative structure for a voluntary program designed to quantify GHG emission reductions. Rule 2700 establishes definitions for the various terms used in Regulation XXVII – Global Climate Change. Rule 2701 provides specific protocols for private parties to follow to generate certified GHG emission reductions for projects within the district. Approved protocols include forest projects, urban tree planting, and manure management. The SCAQMD is currently developing additional protocols for other reduction measures. For a GHG emission reduction project to qualify, it must be verified and certified by the SCAQMD Executive Officer, who has 60 days to approve or deny the Plan to reduce GHG emissions. Upon approval of the Plan, the Executive Officer issues required to issue a certified receipt of the GHG emission reductions within 90 days.

**Rule 2702**

The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to

purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a Federal cap and trade program.

**Rule 3002**

The SCAQMD amended Rule 3002 on November 5, 2010 to include facilities that emit greater than 100,000 tons per year of $CO_2e$ are required to apply for a Title V permit by July 1, 2011. A Title V permit is for facilities that are considered major sources of emissions.

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the South Coast Air Basin. Instead, this is controlled through local jurisdictions in accordance with the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the CEQA Air Quality Handbook (SCAQMD CEQA Handbook) prepared by the SCAQMD (1993) with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs of the AQMP. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that the SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the South Coast Air Basin, and adverse impacts will be minimized.

*Southern California Association of Governments*

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the Federally designated MPO for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Regional Transportation Plan and Regional Transportation Improvement Plan (RTIP), which addresses regional development and growth forecasts. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Regional Transportation Plan, Regional Transportation Improvement Plan, and AQMP are based on projections originating within the City and County General Plans.

5. Local – City of Rancho Cucamonga

Local jurisdictions, such as the City of Rancho Cucamonga, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2016 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the County relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

The Rancho Cucamonga General Plan Public Safety Element contains the following air quality-related goals and policies that are applicable to the proposed project:

**Goal PS-10**
Maintain good local air quality, and reduce the local contributions of airborne pollutants to the air basin.

**Policies**

**PS 10.1** Pursue efforts to reduce air pollution and greenhouse gas emissions by implementing effective energy conservation and efficiency measures and promoting the use of renewable energy (e.g., solar, wind, biomass, cogeneration, and hydroelectric power).

**PS 10.2** Integrate air quality planning with land use, economic development, and transportation planning.

**PS 10.3** Consider surrounding land uses when locating sensitive receptors such as schools, hospitals, and residential uses so they are not unreasonably exposed to uses that generate pollutants considered detrimental to human health.

**PS 10.4** Require projects that generate potentially significant levels of air pollutants to incorporate the best available air quality mitigation into the project design, as appropriate.

**PS 10.5** Avoid placing sensitive land uses adjacent to heavy industrial areas.

**PS 10.6** Implement the policies in the Resource Conservation Chapter that are related to energy resources, energy conservation, and green buildings.

**Goal PS-11**
Reduce the volume of pollutants generated by motorized vehicles.

**Policies**

**PS 11.1** Implement the policies in the Community Mobility Chapter to foster a healthy and sustainable community and promote transportation choices other than the private automobile.

**PS 11.2** Minimize vehicle emissions by encouraging alternative land use patterns that reduce the need for automobile trips.

**PS 11.3** Support programs that increase ridesharing, reduce pollutants generated by vehicle use, and meet the transportation control measures recommended by SCAQMD in the most recent Clean Air Plan.

**PS 11.4** Support regional and local transportation and housing programs that reduce vehicle emissions by decreasing vehicle miles traveled (VMT).

**PS 11.5** Consult with neighboring cities and jurisdictions and regional agencies, including the Southern California Association of Governments (SCAG) and the South Coast Air Quality Management District (SCAQMD), to reduce vehicle emissions.

**PS 11.6** Pursue strategies and capital improvements that allow safe routes for children to walk or bike to school to reduce the need for automobile trips.

## B. Monitored Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates of the existing emissions in the Basin provided in the Final 2016 Air Quality Management Plan prepared by SCAQMD (March 2017) indicate that collectively, mobile sources account for 60 percent of the VOC, 90 percent of the NOx emissions, 95 percent of the CO emissions and 34 percent of directly emitted PM2.5, with another 13 percent of PM2.5 from road dust.

The SCAQMD has divided the South Coast Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in the Southwest San Bernardino Valley Air Monitoring Area (Area 33), which is located in the southwestern portion of San Bernardino County and covers from Rancho Cucamonga on the north, the Riverside County line on the east, the Orange County and Riverside County lines on the south, and the Los Angeles County line on the west. Data was taken from the Upland Station, the nearest monitoring station to the project site. The Upland Station is located approximately 3.3 miles northwest of the project site at 1350 San

Bernardino Road, Upland. Table 5 presents the monitored pollutant levels from these Monitoring Stations.

Table 5 summarizes 2014 through 2016 published monitoring data from the air monitoring stations, which is the most recent 3-year period available. The data shows that during the past few years, the project area has exceeded the ozone standards. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

**Ozone**

During the 2014 to 2016 monitoring period, the State 1-hour concentration standard for ozone was exceeded between 34 and 53 days each year over the past three years at the Upland Station. The State 8-hour ozone standard has been exceeded between 60 and 89 days each year over the past three years at the Upland Station. The Federal 8-hour ozone standard was exceeded between 57 and 88 days each year over the past three years at the Upland Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and $NO_2$, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

**Carbon Monoxide**

CO is another important pollutant that is due mainly to motor vehicles. The Upland Station did not record an exceedance of the state or federal 8-hour CO standards for the last three years.

**Nitrogen Dioxide**

The Upland Station did not record an exceedance of the State or Federal $NO_2$ standards for the last three years.

**Particulate Matter**

There was insufficient data for the State 24-hour concentration standards for PM10 at the Upland Station for the past three years. Over the past three years, the Federal 24-hour standards for PM10 were exceeded for only one day in 2016 at the Upland Station.

There was insufficient data for the Federal 24 hour standards for PM2.5 over the past three years at the Upland Station.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people

who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

## Table 3

## State and Federal Criteria Pollutant Standards

| Air Pollutant | Concentration / Averaging Time | | Most Relevant Effects |
|---|---|---|---|
| | California Standards | Federal Primary Standards | |
| Ozone ($O_3$) | 0.09 ppm/1-hour<br>0.07 ppm/8-hour | 0.070 ppm/8-hour | (a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; (f) Property damage. |
| Carbon Monoxide (CO) | 20.0 ppm/1-hour<br>9.0 ppm/8-hour | 35.0 ppm/1-hour<br>9.0 ppm/8-hour | (a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses. |
| Nitrogen Dioxide ($NO_2$) | 0.18 ppm/1-hour<br>0.03 ppm/annual | 100 ppb/1-hour<br>0.053 ppm/annual | (a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration. |
| Sulfur Dioxide ($SO_2$) | 0.25 ppm/1-hour<br>0.04 ppm/24-hour | 75 ppb/1-hour<br>0.14 ppm/24-hour | (a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. |
| Suspended Particulate Matter ($PM_{10}$) | 50 µg/$m^3$/24-hour<br>20 µg/$m^3$/annual | 150 µg/$m^3$/24-hour | (a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; (c) Increased risk of premature death from heart or lung diseases in elderly. |
| Suspended Particulate Matter ($PM_{2.5}$) | 12 µg/$m^3$ / annual | 35 µg/$m^3$/24-hour<br>15 µg/$m^3$/annual | |
| Sulfates | 25 µg/$m^3$/24-hour | No Federal Standards | (a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c ) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) property damage. |
| Lead | 1.5 µg/$m^3$/30-day | 0.15 µg/$m^3$/3-month rolling | (a) Learning disabilities; (b) Impairment of blood formation and nerve conduction. |
| Visibility Reducing Particles | Extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more due to particles when humidity is less than 70 percent. | No Federal Standards | Visibility impairment on days when relative humidity is less than 70 percent. |

[1] Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf .

## Table 4

## South Coast Air Basin Attainment Status

| Pollutant | State Status[1] | National Status[2] |
|---|---|---|
| Ozone | Nonattainment | Nonattainment (Extreme) |
| Carbon monoxide | Attainment | Attainment/Unclassified |
| Nitrogen dioxide | Attainment | Attainment/Unclassified |
| Sulfur dioxide | Attainment | Attainment/Unclassified |
| PM10 | Nonattainment | Attainment (Maintenance) |
| PM2.5 | Nonattainment | Nonattainment (Moderate) |

[1] Source of State status: California Air Resources Board 2015.

[2] Source of National status: http://www3.epa.gov/airquality/greenbk/index.html and CARB 2015.

## Table 5

## Local Area Air Quality Monitoring Summary[1]

| Pollutant (Standard)[2] | Year | | |
|---|---|---|---|
| | 2014 | 2015 | 2016 |
| **Ozone:** | | | |
| Maximum 1-Hour Concentration (ppm) | 0.126 | 0.136 | 0.156 |
| Days > CAAQS (0.09 ppm) | **34** | **49** | **53** |
| Maximum 8-Hour Concentration (ppm) | 0.101 | 0.106 | 0.116 |
| Days > NAAQS (0.07 ppm) | **57** | **66** | **88** |
| Days > CAAQS (0.070 ppm) | **60** | **69** | **89** |
| **Carbon Monoxide:** | | | |
| Maximum 8-Hour Concentration (ppm) | * | * | * |
| Days > NAAQS (9 ppm) | 0 | * | * |
| **Nitrogen Dioxide:** | | | |
| Maximum 1-Hour Concentration (ppm) | 0.0741 | 0.0716 | 0.0701 |
| Days > NAAQS (0.25 ppm) | 0 | 0 | 0 |
| **Inhalable Particulates (PM10):** | | | |
| Maximum 24-Hour Concentration (ug/$m^3$) | 80.8 | 77.7 | 184 |
| Days > NAAQS (150 ug/$m^3$) | 0 | 0 | **1** |
| Days > CAAQS (50 ug/$m^3$) | * | * | * |
| **Ultra-Fine Particulates (PM2.5):** | | | |
| Maximum 24-Hour Concentration (pg/$m^3$) | 40.0 | 73.4 | 44.9 |
| Days > NAAQS (35 ug/$m^3$) | * | * | * |

[1] Source: http://www.arb.ca.gov/adam/

[2] CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million

Data Obtained from the Upland Monitoring Station unless otherwise noted.

* http://www.arb.ca.gov/adam/ - insufficient (OR no) data available to determine the value

# V. AIR QUALITY STANDARDS

## A. Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, the SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the South Coast Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table 6.

## B. Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significant Threshold Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significant Threshold Methodology found that the primary emissions of concern are $NO_2$, CO, PM10, and PM2.5.

The significance thresholds for the local emissions of $NO_2$ and CO are determined by subtracting the highest background concentration from the last three years of these pollutants from Table 5 above, from the most restrictive ambient air quality standards for these pollutants that are outlined in the Localized Significant Thresholds. Table 6 shows the ambient air quality standards for $NO_2$, CO, and PM10 and PM2.5.

## C. Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to hazardous air pollutants (HAP), the Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, (Diesel Analysis) prepared by SCAQMD (August 2003) recommends that if the proposed project is anticipated to create hazardous air pollutants through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the hazardous air pollutants and the toxicity of the hazardous air pollutants should be analyzed through a comprehensive facility-wide health risk assessment (HRA). The potential for health risks due to project-related diesel particulate matter (DPM) emissions is examined in Section VIII of this report.

**D. Odor Impacts**

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

> "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
>
> The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

**E. Greenhouse Gases**

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

- The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
- The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions[3].

[3] The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

1. Regional - South Coast Air Quality Management District

The project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

**SCAQMD Regulation XXVII, Climate Change.** SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

A variety of agencies have developed greenhouse gas emission thresholds and/or have made recommendations for how to identify a threshold. However, the thresholds for projects in the jurisdiction of the SCAQMD remain in flux. The California Air Pollution Control Officers Association explored a variety of threshold approaches, but did not recommend one approach (2008). The ARB recommended approaches for setting interim significance thresholds (California Air Resources Board 2008b), in which a draft industrial project threshold suggests that non-transportation related emissions under 7,000 MTCO2e per year would be less than significant; however, the ARB has not approved those thresholds and has not published anything since then. The Bay Area Air Quality Management District and the San Joaquin Valley Air Pollution Control District have both developed greenhouse gas thresholds. However, those thresholds are not applicable to the project since the project is under the jurisdiction of the SCAQMD. The SCAQMD is in the process of developing thresholds, as discussed below.

**SCAQMD Threshold Development**. On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is lead agency (SCAQMD permit threshold). The SCAQMD permit threshold consists of five tiers. However, the SCAQMD is not the lead agency for this project. Therefore, the five permit threshold tiers do not apply to the proposed project.

The SCAQMD is in the process of preparing recommended significance thresholds for greenhouse gases for local lead agency consideration ("SCAQMD draft local agency threshold"); however, the SCAQMD Board has not approved the thresholds as of the date of the Notice of Preparation. The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.

- Tier 2 consists of determining whether the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
  - All land use types: 3,000 MTCO2e per year
  - Based on land use type: residential: 3,500 MTCO2e per year; commercial: 1,400 MTCO2e per year; or mixed use: 3,000 MTCO2e per year.
  - Based on land type: Industrial (where SCAQMD is the lead agency), 10,000 MTCO2e per year.
- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual (BAU) by a certain percentage; this percentage is currently undefined.
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures.
  - Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO2e/SP/year for projects and 6.6 MTCO2e/SP/year for plans;
  - Option 3, 2035 target: 3.0 MTCO2e/SP/year for projects and 4.1 MTCO2e/SP/year for plans.
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's draft threshold uses the Executive Order S-3-05 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate. Specifically, the Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90 percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to a CEQA analysis, including a negative declaration, a mitigated negative declaration, or an environmental impact report, which includes analyzing feasible alternatives and imposing feasible mitigation measures. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 MMTCO2eq/yr). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the

statewide GHG inventory. Finally, these small sources are already subject to BACT for criteria pollutants and are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility.

To determine whether the project is significant, this analysis uses the SCAQMD draft local agency tier 3 threshold of 3,000 MTCO2e per year for all land use types as a screening threshold.

2. Local - City of Rancho Cucamonga

The City of Rancho Cucamonga adopted the City of Rancho Cucamonga Sustainable Community Action Plan in April 2017. The Sustainable Community Action Plan is the City's roadmap to both advance in environmental sustainability and reduce greenhouse gas emissions. This Plan identifies the initial steps the City can take in order to begin implementing their sustainability initiatives. The Sustainable Community Action Plan identifies the below GHG reduction targets and goals:

- Reduce emissions to 1990 levels by 2020 (equivalent to 15 percent below 2008 baseline levels), consistent with AB 32
- Reduce emissions to 40 percent below 1990 levels by 2030 (equivalent to 49 percent below 2008 baseline levels), consistent with E.O. B-30-15 and SB 32
- Reduce emissions to 80 percent below 1990 levels by 2050 (equivalent to 83 percent below 2008 baseline levels), consistent with E.O. S-3-05

As identified in the Sustainable Community Action Plan, existing actions, state programs, and the goals, policies, and actions identified in the Sustainable Community Action Plan will reduce GHG emissions in the City of Rancho Cucamonga up to 16.9 percent by 2020.

The City of Rancho Cucamonga General Plan Public Safety Element also contains the following goal and policies aimed at reducing greenhouse gas emissions.

**Goal PS-12**
Mitigate against climate change.

**Policies**

**PS 12-1** Consult with State agencies, SCAG, and the San Bernardino Associated Governments (SANBAG) to implement AB32 and SB375 by utilizing incentives to facilitate infill and transit-oriented development

**PS 12-2** Encourage renewable energy installation, and facilitate green technology and business and a reduction in community-wide energy consumption.

**PS 12-3** Encourage development of transit-oriented and infill development, and encourage a mix of uses that foster walking and alternative transportation.

**PS 12-4** Provide enhanced bicycling and walking infrastructure, and support public transit, including public bus service, the Metrolink, and the potential for Bus Rapid Transit (BRT).

**PS 12-5** Provide green building incentives, assess green building techniques as a formal stage of project review, and develop a green building ordinance or program that addresses both new and existing buildings. Adaptation strategies will also include increased water efficiency in buildings.

**PS 12-6** Encourage efforts to reduce waste generation and re-use and support increased recycling and composting opportunities with a focus on large commercial and industrial waste producers.

**PS 12-7** Support tree planting, planting more vegetation (including native and drought-resistant planting), and preservation of open space.

**PS 12-8** Develop green procurement plans and ensure energy savings in City operations and maintenance.

**PS 12-7** Develop energy- or climate change-themed publications and workshops, facilitating energy audits for residents, and establishing partnerships to reduce greenhouse gas emissions. Increase public awareness about climate change, and encourage residents and businesses to become involved in activities and lifestyle changes that help reduce greenhouse gas emissions.

The project will be subject to the requirements of the California Green Building Code and 2016 Title 24 Building Energy Efficiency Standards which would also reduce project-related greenhouse gas emissions.

## Table 6

## SCAQMD Air Quality Significance Thresholds[1]

| Mass Daily Thresholds | | |
|---|---|---|
| Pollutant | Construction (lbs/day) | Operation (lbs/day) |
| NOx | 100 | 55 |
| VOC | 75 | 55 |
| PM10 | 150 | 150 |
| PM2.5 | 55 | 55 |
| SOx | 150 | 150 |
| CO | 550 | 550 |
| Lead | 3 | 3 |

| Toxic Air Contaminants, Odor and GHG Thresholds | |
|---|---|
| TACs | Maximum Incremental Cancer Risk ≥ 10 in 1 million<br>Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million)<br>Chronic & Acute Hazard Index > 1.0 (project increment) |
| Odor | Project creates an odor nuisance pursuant to SCAQMD Rule 402 |
| GHG | 10,000 MT/yr CO2e for industrial land uses |

| Ambient Air Quality Standards | |
|---|---|
| Pollutant | SCAQMD Standards |
| NO2 -1-hour average | 0.18 ppm (338 µg/m^3) |
| PM10 -24-hour average<br>Construction<br>Operations | <br>10.4 µg/m^3<br>2.5 ug/m^3 |
| PM2.5 -24-hour average<br>Construction<br>Operations | <br>10.4 µg/m^3<br>2.5 µg/m^3 |
| SO2<br>1-hour average<br>24-hour average | <br>0.25 ppm<br>0.04 ppm |
| CO<br>1-hour average<br>8-hour average | <br>20 ppm (23,000 µg/m^3)<br>9 ppm (10,000 µg/m^3) |
| Lead<br>30-day average<br>Rolling 3-month average<br>Quarterly average | <br>1.5 µg/m^3<br>0.15 µg/m^3<br>1.5 µg/m^3 |

[1] Source: http://www.aqmd.gov/ceqa/handbook/signthres.pdf

# VI. SHORT-TERM CONSTRUCTION IMPACTS

Construction activities associated with the proposed project would have the potential to generate air emissions, toxic air contaminant emissions, and odor impacts. Assumptions for the phasing, duration, and required equipment for the construction of the proposed project were obtained from the project applicant. The construction activities for the proposed project are anticipated to include: demolition of an approximately 14,200 square foot existing building, grading of approximately 2.76 acres, construction of one building consisting of 27,093 square feet of refrigerated warehouse and 32,037 square feet of manufacturing/office use, paving of a parking lot with 80 standard parking spaces, one loading stall, and one trailer stall, and application of architectural coatings.

The proposed project is anticipated to start construction no sooner than the beginning of June 2018 and be completed by early 2019. The project is anticipated to be operational in 2019.

## A. Construction-Related Regional Impacts

The construction-related regional air quality impacts have been analyzed for both criteria pollutants and GHGs.

### 1. Construction-Related Criteria Pollutants Analysis

The following provides a discussion of the methodology used to calculate regional construction air emissions and an analysis of the proposed project's short-term construction emissions for the criteria pollutants.

*Methodology*

Typical emission rates from construction activities were obtained from CalEEMod Version 2016.3.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2014 computer program to calculate the emission rates specific for the eastern portion of Riverside County for construction-related employee vehicle trips and the OFFROAD2014 computer program to calculate emission rates for heavy truck operations. EMFAC2014 and OFFROAD2014 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions during each phase was calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions. The daily construction emissions printouts from CalEEMod are provided in Appendix B.

*SCAQMD's Rule 403*

The Project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by

application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent and stabilizing ground cover on finished sites. In addition, projects that disturb 50 acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. The total project area is approximately 2.76 acres. Therefore, a Fugitive Dust Control Plan or Large Operation Notification would not be required.

SCAQMD's Rule 403 minimum requirements require that the application of the best available dust control measures are used for all grading operations and include the application of water or other soil stabilizers in sufficient quantity to prevent the generation of visible dust plumes. Compliance with Rule 403 would require the use of water trucks during all phases where earth moving operations would occur.

The phases of the construction activities which have been analyzed below for each phase are: (1) demolition, (2) grading, (3) building construction, (4) paving, and (5) application of architectural coatings. Details pertaining to the project's construction timing and the type of equipment modeled for each construction phase are available in the CalEEMod output in Appendix B.

*Project Impacts*

The construction-related criteria pollutant emissions for each phase are shown below in Table 7. Table 7 shows that none of the project's emissions will exceed regional thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

**B. Construction-Related Local Impacts**

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local air quality impacts created from: construction-related fugitive dust and diesel emissions; from toxic air contaminants; and from construction-related odor impacts.

1. Local Air Quality Impacts from Construction

The SCAQMD has published a "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (South Coast Air Quality Management District 2011b). CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. In order to compare CalEEMod reported emissions against the localized significance threshold lookup tables, the CEQA document should contain in its project design features or its mitigation measures the following parameters:

(1) The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
(2) The maximum number of acres disturbed on the peak day.
(3) Any emission control devices added onto off-road equipment.
(4) Specific dust suppression techniques used on the day of construction activity with maximum emissions.

The CalEEMod output in Appendix B shows the equipment used for this analysis.

As shown in Table 8, the maximum number of acres disturbed in a day would be 2 acres.

The local air quality emissions from construction were analyzed using the SCAQMD's Mass Rate Localized Significant Threshold Look-up Tables and the methodology described in Localized Significance Threshold Methodology prepared by SCAQMD (revised July 2008). The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The emission thresholds were calculated based on the Southwest San Bernardino Valley source receptor area (SRA) 33 and a disturbance value of two acres per day. According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25 meter thresholds. The nearest sensitive receptors are the multi-family attached residential dwelling units located approximately 100 feet (30.5 meters) south of the project site; therefore, to be conservative, the SCAQMD Look-up Tables for 25 meters was used. Table 9 details the on-site emissions from the CalEEMod model for the different construction phases and the calculated emissions thresholds.

The data provided in Table 9 shows that none of the analyzed criteria pollutants would exceed the SCAQMD's local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

2. Construction-Related Toxic Air Contaminant Impacts

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 30-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any local or regional

thresholds. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

3. Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement and diesel exhaust emissions. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.

## Table 7

## Construction-Related Regional Pollutant Emissions[1]

| Activity | Pollutant Emissions (pounds/day) | | | | | |
|---|---|---|---|---|---|---|
| | ROG | NOx | CO | $SO_2$ | PM10 | PM2.5 |
| **Demolition** | | | | | | |
| On-Site | 2.48 | 24.36 | 15.11 | 0.02 | 1.80 | 1.40 |
| Off-Site | 0.12 | 1.29 | 0.91 | 0.01 | 0.23 | 0.06 |
| **Total** | **2.60** | **25.65** | **16.02** | **0.03** | **2.03** | **1.46** |
| **Grading** | | | | | | |
| On-Site[2] | 2.15 | 24.29 | 10.38 | 0.02 | 3.75 | 2.39 |
| Off-Site[3] | 0.07 | 0.05 | 0.56 | 0.00 | 0.11 | 0.03 |
| **Total** | **2.22** | **24.34** | **10.94** | **0.02** | **3.86** | **2.42** |
| **Building Construction** | | | | | | |
| On-Site | 2.91 | 20.71 | 15.72 | 0.03 | 1.26 | 1.21 |
| Off-Site | 0.42 | 2.68 | 3.39 | 0.01 | 0.72 | 0.21 |
| **Total** | **3.33** | **23.39** | **19.11** | **0.04** | **1.98** | **1.41** |
| **Paving** | | | | | | |
| On-Site | 1.44 | 12.57 | 11.85 | 0.02 | 0.73 | 0.67 |
| Off-Site | 0.09 | 0.06 | 0.75 | 0.00 | 0.17 | 0.05 |
| **Total** | **1.53** | **12.63** | **12.60** | **0.02** | **0.90** | **0.72** |
| **Architectural Coating** | | | | | | |
| On-Site | 56.79 | 1.84 | 1.84 | 0.00 | 0.13 | 0.13 |
| Off-Site | 0.06 | 0.04 | 0.50 | 0.00 | 0.11 | 0.03 |
| **Total** | **56.85** | **1.88** | **2.34** | **0.00** | **0.24** | **0.16** |
| **Total for overlapping phases[4]** | **61.71** | **37.90** | **34.05** | **0.06** | **3.12** | **2.29** |
| **SCAQMD Thresholds** | **75** | **100** | **550** | **150** | **150** | **55** |
| **Exceeds Thresholds** | No | No | No | No | No | No |

[1] Source: CalEEMod Version 2016.3.2

[2] On-site emissions from equipment operated on-site that is not operated on public roads.

[3] Off-site emissions from equipment operated on public roads.

[4] Construction, paving and painting phases may overlap.

## Table 8

## Maximum Number of Acres Disturbed Per Day[1]

| Activity | Equipment | Number | Acres/8hr-day | Total Acres |
|---|---|---|---|---|
| Demolition | Tractors/Loaders/Backhoes | 3 | 0.5 | 1.5 |
| | Rubber Tired Dozers | 1 | 0.5 | 0.5 |
| Total per phase | | - | - | **2** |
| Grading | Graders | 1 | 0.5 | 0.5 |
| | Rubber Tired Dozers | 1 | 0.5 | 0.5 |
| | Tractors/Loaders/Backhoes | 2 | 0.5 | 1 |
| Total per phase | | - | - | **2** |

[1] Source: South Coast AQMD, Fact Sheet for Applying CalEEMod to Localized Significance Thresholds, 2011b.

## Table 9

## Local Construction Emissions at the Nearest Receptor[1]

| Phase | On-Site Pollutant Emissions (pounds/day) | | | |
|---|---|---|---|---|
| | NOx | CO | PM10 | PM2.5 |
| Demolition | 24.36 | 15.11 | 1.80 | 1.40 |
| Grading | 24.29 | 10.38 | 3.75 | 2.39 |
| Building Construction | 20.71 | 15.72 | 1.26 | 1.21 |
| Paving | 12.57 | 11.85 | 0.73 | 0.67 |
| Architectural Coating | 1.84 | 1.84 | 0.13 | 0.13 |
| **SCAQMD Threshold for 25 meters[2]** | **170** | **1,232** | **6** | **5** |
| Exceeds Threshold? | No | No | No | No |

[1] Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for two acres in SRA 33 Southwest San Bernardino Valley.

[2] The nearest sensitive receptors to the proposed project are located approximately 100 feet south (~30.5 meters); therefore, the 25 meter threshold was used.

# VII. LONG-TERM AIR QUALITY OPERATIONAL IMPACTS

The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to: regional air quality and local air quality impacts with the on-going operations of the proposed project.

## A. Operations-Related Regional Air Quality Impacts

The potential operations-related air emissions have been analyzed below for the criteria pollutants and cumulative impacts.

### 1. Operations-Related Criteria Pollutant Analysis

The operations-related criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model. The operating emissions were based on the anticipated opening year of 2019. The operations daily emissions printouts from the CalEEMod model are provided in Appendix B. The CalEEMod analyzes operational emissions from area sources, energy usage, and mobile sources, which are discussed below.

**Mobile Sources**

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. A Traffic Study has not been prepared for the proposed project; however, per the project applicant, the proposed project is anticipated to have no more than 15 truck trips per day. Trip generation rates from the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017 for Land Use Code 140 - Manufacturing and Land Use Code 150 - Warehousing were used to revise the CalEEMod default trip generation rates (as they are based on Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012 trip generation rates). The trip generation rate used for manufacturing is 3.93 trips/thousand square feet for weekdays, 1.24 trips/thousand square feet for Saturday and 0.99 trips/thousand square feet for Sunday. The trip generation rate used for warehousing was 1.74 trips/thousand square feet/day. The program then applies the emission factors for each trip which is provided by the EMFAC2014 model to determine the vehicular traffic pollutant emissions. Due to the project's location and proposed warehouse land use, the average customer-based trip length (C-W) was increased to 40 miles (per SCAQMD recommendation), while all other trip lengths were based on the urban default values.

**Area Sources**

Area sources include emissions from hearths, consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air

compressors, generators, and pumps. No changes were made to the CalEEMod default area source parameters.

**Energy Usage**

Energy usage includes emissions from the generation of electricity and natural gas used on-site. The warehouse was modeled as a refrigerated warehouse to capture emissions generated by use of refrigeration on-site. No changes were made to the CalEEMod default energy usage parameters.

**TRUs**

Emissions estimated for the operation of 15 transport refrigeration units (TRUs) operating continuously for 4 hours per day[4].

*Project Impacts*

The worst-case summer or winter VOC, NOx, CO, $SO_2$, PM10, and PM2.5 emissions generated by the proposed project's long-term operations have been calculated and are summarized below in Table 10. Table 10 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

2. Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature.

The project area is out of attainment for both ozone and PM10 particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic volumes from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. With respect to long-term emissions, this project would create a less than significant cumulative impact.

[4] Emissions factors for TRUs obtained from NREL; *Emissions of Transport Refrigeration Units with CARB Diesel, Gas-to-Liquid Diesel, and Emissions Control Devices*: https://www.nrel.gov/docs/fy10osti/46598.pdf. See Appendix B for details.

**B. Operations-Related Local Air Quality Impacts**

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analysis analyzes the vehicular CO emissions, local impacts from on-site operations, and odor impacts.

1. Local CO Emission Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented in above in Section V.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section V, a sensitivity analysis is typically conducted to determine the potential for CO "hot spots" at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, "hot spots" potentially can occur at high traffic volume intersections with a Level of Service E or worse.

The analysis prepared for CO attainment in the South Coast Air Basin by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the South Coast Air Basin. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 Air Quality Management Plan (2003 AQMP) and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan). As discussed in the 1992 CO Plan, peak carbon monoxide concentrations in the South Coast Air Basin are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Considering the region's unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of 1992 CO Plan and subsequent plan updates and air quality management plans. In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: South Long Beach Boulevard and Imperial Highway (Lynwood); Wilshire Boulevard and Veteran Avenue (Westwood); Sunset Boulevard and Highland Avenue (Hollywood); and La Cienega Boulevard and Century Boulevard (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority evaluated the LOS in the vicinity of the

Wilshire Boulevard/Veteran Avenue intersection and found it to be Level of Service E during the morning peak hour and Level of Service F during the afternoon peak hour.

The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. Therefore, as the project does not generate enough trips to warrant a Traffic Study, no CO "hot spot" modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

2. Local Air Quality Impacts from On-Site Operations

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, on-site usage of natural gas appliances as well as the operation of vehicles on-site may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The nearest sensitive receptors that may be impacted by the proposed project include the multi-family attached residential dwelling units located approximately 100 feet south of the project site (across 4th Street). In addition, Ontario Motor Speedway Park is located approximately 0.16 miles south and Ontario Center School is located approximately 0.24 miles south of the project site.

The local air quality emissions from on-site operations were analyzed according to the methodology described in Localized Significance Threshold Methodology prepared by SCAQMD (revised July 2008). The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The proposed project was analyzed based on the South Coastal Los Angeles County source receptor area (SRA 4) and used the thresholds for a two-acre project site (as the site is approximately 2.76 acres).

Table 11 shows the on-site emissions from the CalEEMod model that includes natural gas usage, landscape maintenance equipment, vehicles operating on-site, and emissions from 15 TRUs (operating for 4 hours per day) and the emissions thresholds. Per LST methodology, mobile emissions include on-site vehicles, which equates to approximately 10 percent of the project-related mobile sources[5]. The data provided in Table 11 shows that the on-going operations of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section V. Therefore, the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

[5] The project site is approximately 0.12 miles in length at its longest point; therefore the on-site mobile source emissions represent approximately 1/70th of the shortest CalEEMod default distance of 8.4 miles. To be conservative, 1/10th the distance (dividing the mobile source emissions by 10) was used to represent the portion of the overall mobile source emissions that would occur on-site.

3. Operations-Related Odor Impacts

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from trash storage areas. Due to the distance of the nearest receptors from the proposed trash storage areas and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed project.

## Table 10

## Operational Regional Pollutant Emissions[1]

| Activity | Pollutant Emissions (pounds/day) | | | | | |
|---|---|---|---|---|---|---|
| | ROGs | NOx | CO | SO2 | PM10 | PM2.5 |
| Area Sources[2] | 1.35 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Energy Usage[3] | 0.07 | 0.66 | 0.55 | 0.00 | 0.05 | 0.05 |
| Mobile Sources[4] | 0.52 | 3.36 | 7.08 | 0.02 | 1.67 | 0.46 |
| TRUs[5] | 2.07 | 0.20 | 2.22 | 0.00 | 0.49 | 0.46 |
| **Total Emissions** | **4.01** | **4.21** | **9.87** | **0.03** | **2.21** | **0.98** |
| SCAQMD Thresholds | **55** | **55** | **550** | **150** | **150** | **55** |
| Exceeds Threshold? | No | No | No | No | No | No |

[1] Source: CalEEMod Version 2016.3.2

[2] Area sources consist of emissions from consumer products, architectural coatings, hearths and landscaping equipment.

[3] Energy usage consists of emissions from generation of electricity and on-site non-hearth natural gas usage.

[4] Mobile sources consist of emissions from vehicles and road dust.

[5] Calculated for 15 TRUs running at low speed for 4 hours per day.

## Table 11

## Local Operational Emissions at the Nearest Receptors[1]

| On-Site Emission Source | On-Site Pollutant Emissions (pounds/day) | | | |
|---|---|---|---|---|
| | NOx | CO | PM10 | PM2.5 |
| Area Sources[2] | 0.00 | 0.01 | 0.00 | 0.00 |
| Energy Usage[3] | 0.66 | 0.55 | 0.05 | 0.05 |
| Vehicle Emissions[4] | 0.34 | 0.71 | 0.17 | 0.00 |
| TRUs[6] | 0.20 | 2.22 | 0.49 | 0.46 |
| **Total Emissions** | **1.19** | **3.50** | **0.71** | **0.52** |
| **SCAQMD Thresholds[5]** | **170** | **1,232** | **2** | **2** |
| Exceeds Threshold? | No | No | No | No |

[1] Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for two acres in Southwest San Bernardino Valley (SRA 33).

[2] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

[3] Energy usage consists of emissions from on-site natural gas usage.

[4] Per LST methodology, mobile source emissions do not need to be included except for land use emissions and on-site vehicle emissions. It is estimated that approximately 10% of mobile emissions will occur on the project site.

[5] The nearest sensitive receptor is a mobile home park located approximately 100 feet (~30.5 meters) south of proposed project; therefore, the 25 meter threshold was used.

[6] Calculated for 15 TRUs running at low speed for 4 hours per day.

## VIII. DIESEL EMISSIONS HEALTH RISK ASSESSMENT

The project would generate toxic air contaminant (TAC) emissions from diesel truck emissions created by the on-going operations of the proposed project. The California Air Pollution Control Officers Association (CAPCOA) has developed TAC health risk assessment guidelines to provide consistent, statewide procedures for preparing the health risk assessments required under the Air Toxics "Hot Spots" Act. The title of these guidelines is CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines. The District recommends that lead agencies conduct TAC risk assessments in accordance with the CAPCOA Risk Assessment Guidelines, as supplemented by the District's supplemental guidelines. According to SCAQMD and CAPCOA guidelines, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 30-year lifetime will contract cancer, based on the use of standard risk-assessment methodology.

The nearest sensitive receptors to the project site are the multi-family attached residential dwelling units located approximately 100 feet south of the project site (across 4th Street). In addition, Ontario Motor Speedway Park is located approximately 0.16 miles south and Ontario Center School is located approximately 0.24 miles south of the project site.

The most recent Health Risk Assessment for Proposed Land Use Projects prepared by CAPCOA (July 2009) recommends avoiding siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). A summary of the basis for the distance recommendations can be found in the ARB Handbook *Air Quality and Land Use Handbook: A Community Health Perspective*.

As stated previously, per the project applicant, the proposed refrigerated warehouse use portion of the site will have no more than 15 truck trips per day. In order to estimate worst-case impacts, it has been assumed that all 15 truck trips will have transport refrigeration units (TRUs) and would operate no more than four continuous hours per day (60 hours/week total). Therefore, as this project is not anticipated to accommodate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units (TRUs) per day, a quantitative health risk assessment for the proposed on-site refrigerated warehouse use is not warranted. Significant TAC impacts from the project-related mobile and/or TRU-based emissions are not anticipated and no significant long-term operations-related TAC impacts from the proposed project to nearby sensitive receptors would occur.

# IX. GLOBAL CLIMATE CHANGE ANALYSIS

The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste, water, and construction equipment. The following provides the methodology used to calculate the project-related GHG emissions, the project impacts and a consistency analysis of the proposed project with any applicable GHG reduction plans, policies or regulations.

## A. Methodology

The CalEEMod Version 2016.3.2 was used to calculate the GHG emissions from the proposed project. The project's emissions were compared to the SCAQMD draft local agency tier 3 threshold of 3,000 $MTCO_2e$ per year for all land use types. As discussed previously, the Rancho Cucamonga Sustainable Community Action Plan was adopted in 2017; therefore, the project's GHG emissions have also been compared to the emission reduction goals in the Sustainable Community Action Plan.

The CalEEMod Annual Output for year 2019 is available in Appendix C. Each source of GHG emissions is described in greater detail below.

1. Area Sources

   Area sources include emissions from hearths, consumer products, landscape equipment and architectural coatings. No changes were made to the default area source parameters.

2. Energy Usage

   Energy usage includes emissions from the generation of electricity and natural gas used on-site. The warehouse was modeled as a refrigerated warehouse to capture emissions generated by use of refrigeration on-site. No changes were made to the CalEEMod default energy usage parameters.

3. Mobile Sources

   Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed as described above in Section VII. The program then applies the emission factors for each trip which is provided by the EMFAC2014 model to determine the vehicular traffic pollutant emissions.

4. Waste

   Waste includes the GHG emissions generated from the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. No changes were made to the default waste parameters.

5. Water

Water includes the water used for the interior of the building as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. No changes were made to the default water parameters.

6. Construction

The construction-related GHG emissions were also included in the analysis and were based on a 30 year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The construction-related GHG emissions were calculated by CalEEMod and detailed above in Section VI.

7. TRUs

Emissions estimated for the operation of 15 transport refrigeration units (TRUs) operating continuously for 4 hours per day[6], 365 days per year.

## B. Project Greenhouse Gas Emissions

The GHG emissions have been calculated based on the parameters described above for opening year 2019. A summary of the project's emissions are shown below in Table 12 and the CalEEMod Model runs for all modeled years are provided in Appendix C. Table 12 shows that the proposed project's emissions would be approximately 1,146.00 metric tons of $CO_2e$ per year. According to the thresholds of significance established above in Section V above, a cumulative global climate change impact would potentially occur if the GHG emissions created from the on-going operations would exceed the screening threshold of 3,000 metric tons per year of $CO_2e$. Therefore, operation of the proposed project would not create a significant cumulative impact to global climate change.

## C. Greenhouse Gas Plan Consistency

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. The applicable plan for the proposed project is the Rancho Cucamonga Sustainable Community Action Plan. The Sustainable Community Action Plan identifies the below GHG reduction targets and goals:

- Reduce emissions to 1990 levels by 2020 (equivalent to 15 percent below 2008 baseline levels), consistent with AB 32
- Reduce emissions to 40 percent below 1990 levels by 2030 (equivalent to 49 percent below 2008 baseline levels), consistent with E.O. B-30-15 and SB 32

[6] Emissions factors for TRUs obtained from NREL; *Emissions of Transport Refrigeration Units with CARB Diesel, Gas-to-Liquid Diesel, and Emissions Control Devices*: https://www.nrel.gov/docs/fy10osti/46598.pdf. See Appendix B for details.

- Reduce emissions to 80 percent below 1990 levels by 2050 (equivalent to 83 percent below 2008 baseline levels), consistent with E.O. S-3-05.

With similar goals as the Rancho Cucamonga Sustainable Community Action Plan, the SCAQMD also used Executive Order S-3-05 goal as the basis for deriving their screening level thresholds which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

Therefore, as the project's emissions do not exceed the SCAQMD draft GHG emissions threshold of 3,000 MTCO2e/year, the project is also in line with the reduction goals specified in Rancho Cucamonga Sustainable Community Action Plan.

*SB-32*

SB-32 requires the state board to ensure that statewide greenhouse gas emissions are reduced to 40% below the 1990 level by 2030. SCAQMD's thresholds used Executive Order S-3-05 goal as the basis for deriving the screening level. The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

As the SCAQMD uses EO S-3-05 as the basis for their screening level, and EO S-3-05 includes the long-term goal to reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050, the project would also be consistent with the goal of SB 32 (to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030). Therefore, projects that meet the current interim emissions targets/thresholds established by SCAQMD (as described in Section V, Air Quality Standards) would also be on track to meet the reduction targets for 2030. Furthermore, all of the post 2020 reductions in GHG emissions are addressed via regulatory requirements at the State level and the project will be required to comply with these regulations as they come into effect.

Therefore, as the project is in compliance with the goals of the Rancho Cucamonga Sustainable Community Action Plan and is on track to meet the goals of SB-32, the project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. Furthermore, the project will comply with applicable Green Building Standards and City of Rancho Cucamonga's policies regarding sustainability (as dictated by the City's General Plan). Impacts are considered to be less than significant.

## Table 12

## Project-Related Greenhouse Gas Emissions[1]

| Category | Greenhouse Gas Emissions (Metric Tons/Year) | | | | | |
|---|---|---|---|---|---|---|
| | Bio-CO2 | NonBio-$CO_2$ | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
| Area Sources[2] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Energy Usage[3] | 0.00 | 582.51 | 582.51 | 0.02 | 0.01 | 584.90 |
| Mobile Sources[4] | 0.00 | 313.27 | 313.27 | 0.02 | 0.00 | 313.68 |
| Solid Waste[5] | 13.23 | 0.00 | 13.23 | 0.78 | 0.00 | 32.78 |
| Water[6] | 4.34 | 56.73 | 61.07 | 0.45 | 0.01 | 75.54 |
| Construction[7] | 0.00 | 7.79 | 7.79 | 0.00 | 0.00 | 7.83 |
| TRUs[8] | 0.00 | 131.25 | 131.25 | 0.00 | 0.00 | 131.25 |
| **Total Emissions** | 17.57 | 1,091.56 | 1,109.14 | 1.27 | 0.02 | **1,146.00** |
| SCAQMD Draft Threshold | | | | | | **3,000** |
| Exceeds Threshold? | | | | | | **No** |

[1] Source: CalEEMod Version 2016.3.2

[2] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.

[3] Energy usage consist of GHG emissions from electricity and natural gas usage.

[4] Mobile sources consist of GHG emissions from vehicles.

[5] Solid waste includes the $CO_2$ and $CH_4$ emissions created from the solid waste placed in landfills.

[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

[7] Construction GHG emissions CO2e based on a 30 year amortization rate.

[8] Calculated for 15 TRUs running at low speed for 4 hours per day.

# X. AIR QUALITY COMPLIANCE

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
(2) Whether the project will exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

## A. Criterion 1 - Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in this Air Analysis, the short-term construction impacts will not result in significant impacts based on the SCAQMD regional and local thresholds of significance. This Air Analysis also found that long-term operations impacts will not result in significant impacts based on the SCAQMD regional and local thresholds of significance.

Therefore, the proposed project is not anticipated to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

## B. Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2016-2040 Regional Transportation/Sustainable Communities

Strategy prepared by SCAG (2016) includes chapters on: the challenges in a changing region, creating a plan for our future, and the road to greater mobility and sustainable growth. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of Compton Draft 2030 General Plan Update defines the assumptions that are represented in the AQMP.

The project site is currently designated as Industrial Park (0.40-0.60 FAR) in the City of Rancho Cucamonga General Plan. The proposed project is the development of the project site with a building containing refrigerated warehousing and manufacturing land uses. Therefore, the proposed project includes industrial uses, it would not exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project would not conflict with the implementation of the SCAQMD AQMP. Therefore, impacts are considered to be less than significant impact.

# XI. MITIGATION MEASURES

**A. Construction Measures**

*The project is required to comply with SCAQMD Rule 403 - Fugitive Dust.*

No construction mitigation is required.

**B. Operational Measures**

No operational mitigation is required.

## XII. REFERENCES


**California Air Pollution Control Officers Association**

2009 Health Risk Assessments for Proposed Land Use Projects

**California Air Resources Board**

2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Almanac of Emissions and Air Quality. Source: https://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2017 Historical Air Quality, Top 4 Summary

2017 California's 2017 Climate Change Scoping Plan. November.

**City of Rancho Cucamonga**

2010 Rancho Cucamonga General Plan. May 19.

2017 Rancho Cucamonga Sustainable Community Action Plan. April.

**Governor's Office of Planning and Research**

2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

**Intergovernmental Panel on Climate Change (IPCC).**

2014 IPCC Fifth Assessment Report, Climate Change 2014: Synthesis Report

**National Renewable Energy Laboratory**

2010 Emissions of Transport Refrigeration Units with CARB Diesel, Gas-to-Liquid Diesel, and Emissions Control Devices. Conference Paper NREL/CP-540-46598. R.A. Barnitt, D. Chernich and M. Burnitzki, et al. May.

**Office of Environmental Health Hazard Assessment**

2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

**South Coast Air Quality Management District**

1993 CEQA Air Quality Handbook

2003 Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis

2005 Rule 403 Fugitive Dust

2007 2007 Air Quality Management Plan

2008 Final Localized Significance Threshold Methodology, Revised

2012 Final 2012 Air Quality Management Plan

2015 Final MATES-IV Multiple Air Toxics Exposure Study in the South Coast Air Basin. May.

2016 2016 Air Quality Management Plan

**Southern California Association of Governments**

2012 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy

**U.S. Environmental Protection Agency (EPA)**

2017 Understanding Global Warming Potentials (Source: https://www.epa.gov/ghgemissions/understanding-global-warming-potentials)

**U.S. Geological Survey**

2011 Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California

# APPENDICES

**Appendix A – Glossary of Terms**

**Appendix B – CalEEMod Model Daily Emissions Printouts**

**Appendix C – CalEEMod Model Annual Emissions Printouts**

**APPENDIX A**

**Glossary of Terms**

| | |
|---|---|
| AQMP | Air Quality Management Plan |
| BACT | Best Available Control Technologies |
| CAAQS | California Ambient Air Quality Standards |
| CalEPA | California Environmental Protection Agency |
| CARB | California Air Resources Board |
| CCAA | California Clean Air Act |
| CCAR | California Climate Action Registry |
| CEQA | California Environmental Quality Act |
| CFCs | Chlorofluorocarbons |
| $CH_4$ | Methane |
| CNG | Compressed natural gas |
| CO | Carbon monoxide |
| $CO_2$ | Carbon dioxide |
| $CO_2e$ | Carbon dioxide equivalent |
| DPM | Diesel particulate matter |
| EPA | U.S. Environmental Protection Agency |
| GHG | Greenhouse gas |
| GWP | Global warming potential |
| HIDPM | Hazard Index Diesel Particulate Matter |
| HFCs | Hydrofluorocarbons |
| IPCC | International Panel on Climate Change |
| LCFS | Low Carbon Fuel Standard |
| LST | Localized Significant Thresholds |
| $MTCO_2e$ | Metric tons of carbon dioxide equivalent |
| $MMTCO_2e$ | Million metric tons of carbon dioxide equivalent |
| MPO | Metropolitan Planning Organization |
| NAAQS | National Ambient Air Quality Standards |
| NOx | Nitrogen Oxides |
| $NO_2$ | Nitrogen dioxide |
| $N_2O$ | Nitrous oxide |
| $O_3$ | Ozone |
| OPR | Governor's Office of Planning and Research |
| PFCs | Perfluorocarbons |
| PM | Particle matter |
| PM10 | Particles that are less than 10 micrometers in diameter |
| PM2.5 | Particles that are less than 2.5 micrometers in diameter |
| PMI | Point of maximum impact |
| PPM | Parts per million |
| PPB | Parts per billion |
| ROG | Reactive organic gases |
| RTIP | Regional Transportation Improvement Plan |
| RTP | Regional Transportation Plan |
| SCAB | South Coast Air Basin |
| SCAG | Southern California Association of Governments |

| | |
|---|---|
| SCAQMD | South Coast Air Quality Management District |
| $SF_6$ | Sulfur hexafluoride |
| SIP | State Implementation Plan |
| SOx | Sulfur Oxides |
| TAC | Toxic air contaminants |
| VOC | Volatile organic compounds |

**APPENDIX B**

**CalEEMod Model Daily Emissions Printouts**

# 7378 10234 4th St Project

**San Bernardino-South Coast County, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Manufacturing | 32.04 | 1000sqft | 0.74 | 32,037.00 | 0 |
| Refrigerated Warehouse-No Rail | 27.09 | 1000sqft | 0.62 | 27,093.00 | 0 |
| Other Non-Asphalt Surfaces | 0.66 | Acre | 0.66 | 28,749.60 | 0 |
| Parking Lot | 82.00 | Space | 0.74 | 32,800.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 32 |
| **Climate Zone** | 10 | | | **Operational Year** | 2019 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 702.44 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

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

7378 10234 4th St Project - San Bernardino-South Coast County, Summer

Project Characteristics -

Land Use - 2.76 ac w/ 32,037 square feet manufacturing/office use, 27,093 square feet refrigerated warehouse, & 82 parking stalls (includes 80 stndrd, 1 loading, & 1 trailer space), rmdr landscaping/detention basin (~0.66 ac).

Construction Phase - Construction anticipated to start June 2018 and be completed by early 2019.

Demolition - Demolition of an ~14,200 square foot existing building.

Grading - Site is 2.76 acres and is to be balanced.

Vehicle Trips - Trip Gen per 10th Edition ITE Manual: 140 Manufac - 3.93 trps/TSF wkdy, 1.24 trps/TSF Sat, 0.99 trips/TSF Sun; ITE code 150 WH - 1.74 trps/TSF. Distance for trucks (C-W) increased to 40 mi. for WH (per SCAQMD recs). WH has 80.3% cars,19.7%trks

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - ~0.27 miles west Omnitrans Rte 82 stop Haven & 4th & ~1.99 miles southeast dwntwn Rancho Cucamonga. 1emp/1030sf industrial = (27,093+32,037)/1030sf = 57.4emp/2.76ac = ~20.8 emp/ac.

Water Mitigation - 20% reduction in indoor water use and use of water efficient irrigation systems, per Green Building Standards.

Waste Mitigation - AB 939 requires all jurisdictions in CA to divert at least 50% of their waste away from landfills.

Operational Off-Road Equipment -

7378 10234 4th St Project - San Bernardino-South Coast County, Summer

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 20.00 | 15.00 |
| tblConstructionPhase | NumDays | 6.00 | 5.00 |
| tblConstructionPhase | NumDays | 220.00 | 160.00 |
| tblGrading | AcresOfGrading | 2.50 | 2.76 |
| tblLandUse | LandUseSquareFeet | 32,040.00 | 32,037.00 |
| tblLandUse | LandUseSquareFeet | 27,090.00 | 27,093.00 |
| tblVehicleTrips | CNW_TTP | 41.00 | 80.30 |
| tblVehicleTrips | CW_TL | 16.60 | 40.00 |
| tblVehicleTrips | CW_TTP | 59.00 | 19.70 |
| tblVehicleTrips | ST_TR | 1.49 | 1.24 |
| tblVehicleTrips | ST_TR | 1.68 | 1.74 |
| tblVehicleTrips | SU_TR | 0.62 | 0.99 |
| tblVehicleTrips | SU_TR | 1.68 | 1.74 |
| tblVehicleTrips | WD_TR | 3.82 | 3.93 |
| tblVehicleTrips | WD_TR | 1.68 | 1.74 |

## 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 | 5.5428 | 47.7221 | 30.0550 | 0.0586 | 7.4174 | 2.4475 | 9.8649 | 3.5912 | 2.3006 | 5.8917 | 0.0000 | 5,725.6259 | 5,725.6259 | 1.2157 | 0.0000 | 5,756.0174 |
| 2019 | 58.3791 | 21.4143 | 18.2650 | 0.0365 | 0.6982 | 1.1084 | 1.8065 | 0.1881 | 1.0622 | 1.2503 | 0.0000 | 3,483.1130 | 3,483.1130 | 0.5753 | 0.0000 | 3,496.6106 |
| **Maximum** | **58.3791** | **47.7221** | **30.0550** | **0.0586** | **7.4174** | **2.4475** | **9.8649** | **3.5912** | **2.3006** | **5.8917** | **0.0000** | **5,725.6259** | **5,725.6259** | **1.2157** | **0.0000** | **5,756.0174** |

### 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 | 5.5428 | 47.7221 | 30.0550 | 0.0586 | 3.3869 | 2.4475 | 5.8344 | 1.5334 | 2.3006 | 3.8339 | 0.0000 | 5,725.6259 | 5,725.6259 | 1.2157 | 0.0000 | 5,756.0174 |
| 2019 | 58.3791 | 21.4143 | 18.2650 | 0.0365 | 0.6982 | 1.1084 | 1.8065 | 0.1881 | 1.0622 | 1.2503 | 0.0000 | 3,483.1130 | 3,483.1130 | 0.5753 | 0.0000 | 3,496.6106 |
| **Maximum** | **58.3791** | **47.7221** | **30.0550** | **0.0586** | **3.3869** | **2.4475** | **5.8344** | **1.5334** | **2.3006** | **3.8339** | **0.0000** | **5,725.6259** | **5,725.6259** | **1.2157** | **0.0000** | **5,756.0174** |

| | ROG | NOx | 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** | **49.66** | **0.00** | **34.53** | **54.45** | **0.00** | **28.81** | **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 | 1.3488 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| Energy | 0.0722 | 0.6563 | 0.5513 | 3.9400e-003 | | 0.0499 | 0.0499 | | 0.0499 | 0.0499 | | 787.4991 | 787.4991 | 0.0151 | 0.0144 | 792.1788 |
| Mobile | 0.5191 | 3.3117 | 7.0848 | 0.0233 | 1.6468 | 0.0230 | 1.6698 | 0.4407 | 0.0217 | 0.4625 | | 2,369.0334 | 2,369.0334 | 0.1187 | | 2,372.0000 |
| **Total** | **1.9401** | **3.9681** | **7.6507** | **0.0272** | **1.6468** | **0.0729** | **1.7197** | **0.4407** | **0.0717** | **0.5124** | | **3,156.5634** | **3,156.5634** | **0.1338** | **0.0144** | **3,164.2119** |

### 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 | 1.3488 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| Energy | 0.0722 | 0.6563 | 0.5513 | 3.9400e-003 | | 0.0499 | 0.0499 | | 0.0499 | 0.0499 | | 787.4991 | 787.4991 | 0.0151 | 0.0144 | 792.1788 |
| Mobile | 0.4514 | 2.7352 | 5.2341 | 0.0169 | 1.1555 | 0.0166 | 1.1721 | 0.3093 | 0.0157 | 0.3249 | | 1,721.9534 | 1,721.9534 | 0.0941 | | 1,724.3063 |
| **Total** | **1.8724** | **3.3916** | **5.8000** | **0.0209** | **1.1555** | **0.0665** | **1.2220** | **0.3093** | **0.0656** | **0.3748** | | **2,509.4835** | **2,509.4835** | **0.1093** | **0.0144** | **2,516.5182** |

| | ROG | NOx | 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** | **3.49** | **14.53** | **24.19** | **23.42** | **29.83** | **8.83** | **28.94** | **29.83** | **8.49** | **26.85** | **0.00** | **20.50** | **20.50** | **18.34** | **0.00** | **20.47** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 6/1/2018 | 6/21/2018 | 5 | 15 | |
| 2 | Grading | Grading | 6/22/2018 | 6/28/2018 | 5 | 5 | |
| 3 | Building Construction | Building Construction | 6/28/2018 | 2/6/2019 | 5 | 160 | |
| 4 | Paving | Paving | 2/7/2019 | 2/20/2019 | 5 | 10 | |
| 5 | Architectural Coating | Architectural Coating | 2/18/2019 | 3/1/2019 | 5 | 10 | |

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

**Acres of Grading (Grading Phase): 2.76**

**Acres of Paving: 1.4**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 88,695; Non-Residential Outdoor: 29,565; Striped Parking Area: 3,693 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 3 | 8.00 | 97 | 0.37 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 8.00 | 231 | 0.29 |
| Building Construction | Forklifts | 2 | 7.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |
| Paving | Cement and Mortar Mixers | 1 | 8.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 5 | 13.00 | 0.00 | 65.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 8 | 51.00 | 20.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 10.00 | 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 Demolition - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.9319 | 0.0000 | 0.9319 | 0.1411 | 0.0000 | 0.1411 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.4838 | 24.3641 | 15.1107 | 0.0241 | | 1.4365 | 1.4365 | | 1.3429 | 1.3429 | | 2,391.1659 | 2,391.1659 | 0.6058 | | 2,406.3105 |
| **Total** | **2.4838** | **24.3641** | **15.1107** | **0.0241** | **0.9319** | **1.4365** | **2.3683** | **0.1411** | **1.3429** | **1.4840** | | **2,391.1659** | **2,391.1659** | **0.6058** | | **2,406.3105** |

## 3.2 Demolition - 2018

### 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 | 0.0309 | 1.2198 | 0.1741 | 3.4800e-003 | 0.0758 | 4.2600e-003 | 0.0801 | 0.0208 | 4.0700e-003 | 0.0249 | | 368.9364 | 368.9364 | 0.0202 | | 369.4420 |
| 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 | 0.0848 | 0.0583 | 0.7310 | 1.5800e-003 | 0.1453 | 1.0100e-003 | 0.1463 | 0.0385 | 9.3000e-004 | 0.0395 | | 156.9657 | 156.9657 | 5.7800e-003 | | 157.1103 |
| **Total** | **0.1157** | **1.2781** | **0.9050** | **5.0600e-003** | **0.2212** | **5.2700e-003** | **0.2264** | **0.0593** | **5.0000e-003** | **0.0643** | | **525.9022** | **525.9022** | **0.0260** | | **526.5523** |

### 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 | | | | | 0.3634 | 0.0000 | 0.3634 | 0.0550 | 0.0000 | 0.0550 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.4838 | 24.3641 | 15.1107 | 0.0241 | | 1.4365 | 1.4365 | | 1.3429 | 1.3429 | 0.0000 | 2,391.1659 | 2,391.1659 | 0.6058 | | 2,406.3105 |
| **Total** | **2.4838** | **24.3641** | **15.1107** | **0.0241** | **0.3634** | **1.4365** | **1.7999** | **0.0550** | **1.3429** | **1.3979** | **0.0000** | **2,391.1659** | **2,391.1659** | **0.6058** | | **2,406.3105** |

## 3.2 Demolition - 2018

**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 | 0.0309 | 1.2198 | 0.1741 | 3.4800e-003 | 0.0758 | 4.2600e-003 | 0.0801 | 0.0208 | 4.0700e-003 | 0.0249 | | 368.9364 | 368.9364 | 0.0202 | | 369.4420 |
| 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 | 0.0848 | 0.0583 | 0.7310 | 1.5800e-003 | 0.1453 | 1.0100e-003 | 0.1463 | 0.0385 | 9.3000e-004 | 0.0395 | | 156.9657 | 156.9657 | 5.7800e-003 | | 157.1103 |
| **Total** | **0.1157** | **1.2781** | **0.9050** | **5.0600e-003** | **0.2212** | **5.2700e-003** | **0.2264** | **0.0593** | **5.0000e-003** | **0.0643** | | **525.9022** | **525.9022** | **0.0260** | | **526.5523** |

## 3.3 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 | | | | | 6.6075 | 0.0000 | 6.6075 | 3.3734 | 0.0000 | 3.3734 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.1515 | 24.2895 | 10.3804 | 0.0206 | | 1.1683 | 1.1683 | | 1.0748 | 1.0748 | | 2,077.4666 | 2,077.4666 | 0.6467 | | 2,093.6352 |
| **Total** | **2.1515** | **24.2895** | **10.3804** | **0.0206** | **6.6075** | **1.1683** | **7.7758** | **3.3734** | **1.0748** | **4.4483** | | **2,077.4666** | **2,077.4666** | **0.6467** | | **2,093.6352** |

## 3.3 Grading - 2018

### 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 | 0.0652 | 0.0449 | 0.5623 | 1.2100e-003 | 0.1118 | 7.8000e-004 | 0.1126 | 0.0296 | 7.2000e-004 | 0.0304 | | 120.7429 | 120.7429 | 4.4500e-003 | | 120.8541 |
| **Total** | **0.0652** | **0.0449** | **0.5623** | **1.2100e-003** | **0.1118** | **7.8000e-004** | **0.1126** | **0.0296** | **7.2000e-004** | **0.0304** | | **120.7429** | **120.7429** | **4.4500e-003** | | **120.8541** |

### 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 | | | | | 2.5769 | 0.0000 | 2.5769 | 1.3156 | 0.0000 | 1.3156 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.1515 | 24.2895 | 10.3804 | 0.0206 | | 1.1683 | 1.1683 | | 1.0748 | 1.0748 | 0.0000 | 2,077.4666 | 2,077.4666 | 0.6467 | | 2,093.6352 |
| **Total** | **2.1515** | **24.2895** | **10.3804** | **0.0206** | **2.5769** | **1.1683** | **3.7452** | **1.3156** | **1.0748** | **2.3905** | **0.0000** | **2,077.4666** | **2,077.4666** | **0.6467** | | **2,093.6352** |

## 3.3 Grading - 2018

**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 | 0.0652 | 0.0449 | 0.5623 | 1.2100e-003 | 0.1118 | 7.8000e-004 | 0.1126 | 0.0296 | 7.2000e-004 | 0.0304 | | 120.7429 | 120.7429 | 4.4500e-003 | | 120.8541 |
| **Total** | **0.0652** | **0.0449** | **0.5623** | **1.2100e-003** | **0.1118** | **7.8000e-004** | **0.1126** | **0.0296** | **7.2000e-004** | **0.0304** | | **120.7429** | **120.7429** | **4.4500e-003** | | **120.8541** |

## 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 | 2.9127 | 20.7077 | 15.7183 | 0.0250 | | 1.2575 | 1.2575 | | 1.2051 | 1.2051 | | 2,329.7759 | 2,329.7759 | 0.5019 | | 2,342.3232 |
| **Total** | **2.9127** | **20.7077** | **15.7183** | **0.0250** | | **1.2575** | **1.2575** | | **1.2051** | **1.2051** | | **2,329.7759** | **2,329.7759** | **0.5019** | | **2,342.3232** |

## 3.4 Building Construction - 2018

### 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 | 0.0806 | 2.4514 | 0.5263 | 5.5200e-003 | 0.1281 | 0.0170 | 0.1451 | 0.0369 | 0.0163 | 0.0532 | | 581.8519 | 581.8519 | 0.0399 | | 582.8491 |
| Worker | 0.3327 | 0.2288 | 2.8677 | 6.1900e-003 | 0.5701 | 3.9600e-003 | 0.5740 | 0.1512 | 3.6500e-003 | 0.1548 | | 615.7886 | 615.7886 | 0.0227 | | 616.3559 |
| **Total** | **0.4133** | **2.6801** | **3.3940** | **0.0117** | **0.6982** | **0.0210** | **0.7191** | **0.1881** | **0.0199** | **0.2080** | | **1,197.6405** | **1,197.6405** | **0.0626** | | **1,199.2049** |

### 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 | 2.9127 | 20.7077 | 15.7183 | 0.0250 | | 1.2575 | 1.2575 | | 1.2051 | 1.2051 | 0.0000 | 2,329.7759 | 2,329.7759 | 0.5019 | | 2,342.3232 |
| **Total** | **2.9127** | **20.7077** | **15.7183** | **0.0250** | | **1.2575** | **1.2575** | | **1.2051** | **1.2051** | **0.0000** | **2,329.7759** | **2,329.7759** | **0.5019** | | **2,342.3232** |

## 3.4 Building Construction - 2018

**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 | 0.0806 | 2.4514 | 0.5263 | 5.5200e-003 | 0.1281 | 0.0170 | 0.1451 | 0.0369 | 0.0163 | 0.0532 | | 581.8519 | 581.8519 | 0.0399 | | 582.8491 |
| Worker | 0.3327 | 0.2288 | 2.8677 | 6.1900e-003 | 0.5701 | 3.9600e-003 | 0.5740 | 0.1512 | 3.6500e-003 | 0.1548 | | 615.7886 | 615.7886 | 0.0227 | | 616.3559 |
| **Total** | **0.4133** | **2.6801** | **3.3940** | **0.0117** | **0.6982** | **0.0210** | **0.7191** | **0.1881** | **0.0199** | **0.2080** | | **1,197.6405** | **1,197.6405** | **0.0626** | | **1,199.2049** |

## 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 | 2.5581 | 18.9103 | 15.2545 | 0.0250 | | 1.0901 | 1.0901 | | 1.0449 | 1.0449 | | 2,312.1454 | 2,312.1454 | 0.4810 | | 2,324.1705 |
| **Total** | **2.5581** | **18.9103** | **15.2545** | **0.0250** | | **1.0901** | **1.0901** | | **1.0449** | **1.0449** | | **2,312.1454** | **2,312.1454** | **0.4810** | | **2,324.1705** |

## 3.4 Building Construction - 2019

### 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 | 0.0717 | 2.3030 | 0.4683 | 5.4700e-003 | 0.1281 | 0.0144 | 0.1425 | 0.0369 | 0.0138 | 0.0507 | | 576.0954 | 576.0954 | 0.0390 | | 577.0693 |
| Worker | 0.3024 | 0.2011 | 2.5423 | 5.9800e-003 | 0.5701 | 3.8300e-003 | 0.5739 | 0.1512 | 3.5300e-003 | 0.1547 | | 594.8721 | 594.8721 | 0.0200 | | 595.3708 |
| **Total** | **0.3741** | **2.5041** | **3.0106** | **0.0115** | **0.6982** | **0.0182** | **0.7164** | **0.1881** | **0.0173** | **0.2054** | | **1,170.9675** | **1,170.9675** | **0.0589** | | **1,172.4401** |

### 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 | 2.5581 | 18.9103 | 15.2545 | 0.0250 | | 1.0901 | 1.0901 | | 1.0449 | 1.0449 | 0.0000 | 2,312.1454 | 2,312.1454 | 0.4810 | | 2,324.1705 |
| **Total** | **2.5581** | **18.9103** | **15.2545** | **0.0250** | | **1.0901** | **1.0901** | | **1.0449** | **1.0449** | **0.0000** | **2,312.1454** | **2,312.1454** | **0.4810** | | **2,324.1705** |

## 3.4 Building Construction - 2019

**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 | 0.0717 | 2.3030 | 0.4683 | 5.4700e-003 | 0.1281 | 0.0144 | 0.1425 | 0.0369 | 0.0138 | 0.0507 | | 576.0954 | 576.0954 | 0.0390 | | 577.0693 |
| Worker | 0.3024 | 0.2011 | 2.5423 | 5.9800e-003 | 0.5701 | 3.8300e-003 | 0.5739 | 0.1512 | 3.5300e-003 | 0.1547 | | 594.8721 | 594.8721 | 0.0200 | | 595.3708 |
| **Total** | **0.3741** | **2.5041** | **3.0106** | **0.0115** | **0.6982** | **0.0182** | **0.7164** | **0.1881** | **0.0173** | **0.2054** | | **1,170.9675** | **1,170.9675** | **0.0589** | | **1,172.4401** |

## 3.5 Paving - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.2453 | 12.5685 | 11.8507 | 0.0178 | | 0.7301 | 0.7301 | | 0.6728 | 0.6728 | | 1,746.2432 | 1,746.2432 | 0.5418 | | 1,759.7870 |
| Paving | 0.1939 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.4392** | **12.5685** | **11.8507** | **0.0178** | | **0.7301** | **0.7301** | | **0.6728** | **0.6728** | | **1,746.2432** | **1,746.2432** | **0.5418** | | **1,759.7870** |

## 3.5 Paving - 2019

### 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 | 0.0889 | 0.0592 | 0.7477 | 1.7600e-003 | 0.1677 | 1.1300e-003 | 0.1688 | 0.0445 | 1.0400e-003 | 0.0455 | | 174.9624 | 174.9624 | 5.8700e-003 | | 175.1091 |
| **Total** | **0.0889** | **0.0592** | **0.7477** | **1.7600e-003** | **0.1677** | **1.1300e-003** | **0.1688** | **0.0445** | **1.0400e-003** | **0.0455** | | **174.9624** | **174.9624** | **5.8700e-003** | | **175.1091** |

### 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 | 1.2453 | 12.5685 | 11.8507 | 0.0178 | | 0.7301 | 0.7301 | | 0.6728 | 0.6728 | 0.0000 | 1,746.2432 | 1,746.2432 | 0.5418 | | 1,759.7870 |
| Paving | 0.1939 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.4392** | **12.5685** | **11.8507** | **0.0178** | | **0.7301** | **0.7301** | | **0.6728** | **0.6728** | **0.0000** | **1,746.2432** | **1,746.2432** | **0.5418** | | **1,759.7870** |

## 3.5 Paving - 2019

**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 | 0.0889 | 0.0592 | 0.7477 | 1.7600e-003 | 0.1677 | 1.1300e-003 | 0.1688 | 0.0445 | 1.0400e-003 | 0.0455 | | 174.9624 | 174.9624 | 5.8700e-003 | | 175.1091 |
| **Total** | **0.0889** | **0.0592** | **0.7477** | **1.7600e-003** | **0.1677** | **1.1300e-003** | **0.1688** | **0.0445** | **1.0400e-003** | **0.0455** | | **174.9624** | **174.9624** | **5.8700e-003** | | **175.1091** |

## 3.6 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 | 56.5252 | | | | | 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** | **56.7917** | **1.8354** | **1.8413** | **2.9700e-003** | | **0.1288** | **0.1288** | | **0.1288** | **0.1288** | | **281.4481** | **281.4481** | **0.0238** | | **282.0423** |

## 3.6 Architectural Coating - 2019

### 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 | 0.0593 | 0.0394 | 0.4985 | 1.1700e-003 | 0.1118 | 7.5000e-004 | 0.1125 | 0.0296 | 6.9000e-004 | 0.0303 | | 116.6416 | 116.6416 | 3.9100e-003 | | 116.7394 |
| **Total** | **0.0593** | **0.0394** | **0.4985** | **1.1700e-003** | **0.1118** | **7.5000e-004** | **0.1125** | **0.0296** | **6.9000e-004** | **0.0303** | | **116.6416** | **116.6416** | **3.9100e-003** | | **116.7394** |

### 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 | 56.5252 | | | | | 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** | **56.7917** | **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** |

### 3.6 Architectural Coating - 2019

**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 | 0.0593 | 0.0394 | 0.4985 | 1.1700e-003 | 0.1118 | 7.5000e-004 | 0.1125 | 0.0296 | 6.9000e-004 | 0.0303 | | 116.6416 | 116.6416 | 3.9100e-003 | | 116.7394 |
| **Total** | **0.0593** | **0.0394** | **0.4985** | **1.1700e-003** | **0.1118** | **7.5000e-004** | **0.1125** | **0.0296** | **6.9000e-004** | **0.0303** | | **116.6416** | **116.6416** | **3.9100e-003** | | **116.7394** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

| | ROG | NOx | CO | SO2 | Fugitive 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 | 0.4514 | 2.7352 | 5.2341 | 0.0169 | 1.1555 | 0.0166 | 1.1721 | 0.3093 | 0.0157 | 0.3249 | | 1,721.9534 | 1,721.9534 | 0.0941 | | 1,724.3063 |
| Unmitigated | 0.5191 | 3.3117 | 7.0848 | 0.0233 | 1.6468 | 0.0230 | 1.6698 | 0.4407 | 0.0217 | 0.4625 | | 2,369.0334 | 2,369.0334 | 0.1187 | | 2,372.0000 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Manufacturing | 125.92 | 39.73 | 31.72 | 443,483 | 311,187 |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Refrigerated Warehouse-No Rail | 47.14 | 47.14 | 47.14 | 214,777 | 150,707 |
| Total | 173.05 | 86.87 | 78.86 | 658,260 | 461,894 |

## 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 |
| Manufacturing | 16.60 | 8.40 | 6.90 | 59.00 | 28.00 | 13.00 | 92 | 5 | 3 |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Refrigerated Warehouse-No | 40.00 | 8.40 | 6.90 | 19.70 | 0.00 | 80.30 | 92 | 5 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |
| Other Non-Asphalt Surfaces | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |
| Parking Lot | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |
| Refrigerated Warehouse-No Rail | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |

## 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 | 0.0722 | 0.6563 | 0.5513 | 3.9400e-003 | | 0.0499 | 0.0499 | | 0.0499 | 0.0499 | | 787.4991 | 787.4991 | 0.0151 | 0.0144 | 792.1788 |
| NaturalGas Unmitigated | 0.0722 | 0.6563 | 0.5513 | 3.9400e-003 | | 0.0499 | 0.0499 | | 0.0499 | 0.0499 | | 787.4991 | 787.4991 | 0.0151 | 0.0144 | 792.1788 |

## 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 | | | | | |
| Manufacturing | 2851.73 | 0.0308 | 0.2796 | 0.2349 | 1.6800e-003 | | 0.0213 | 0.0213 | | 0.0213 | 0.0213 | | 335.4979 | 335.4979 | 6.4300e-003 | 6.1500e-003 | 337.4916 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 3842.01 | 0.0414 | 0.3767 | 0.3164 | 2.2600e-003 | | 0.0286 | 0.0286 | | 0.0286 | 0.0286 | | 452.0012 | 452.0012 | 8.6600e-003 | 8.2900e-003 | 454.6872 |
| **Total** | | **0.0722** | **0.6563** | **0.5513** | **3.9400e-003** | | **0.0499** | **0.0499** | | **0.0499** | **0.0499** | | **787.4991** | **787.4991** | **0.0151** | **0.0144** | **792.1788** |

## 5.2 Energy by Land Use - NaturalGas

**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 | | | | | |
| Manufacturing | 2.85173 | 0.0308 | 0.2796 | 0.2349 | 1.6800e-003 | | 0.0213 | 0.0213 | | 0.0213 | 0.0213 | | 335.4979 | 335.4979 | 6.4300e-003 | 6.1500e-003 | 337.4916 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 3.84201 | 0.0414 | 0.3767 | 0.3164 | 2.2600e-003 | | 0.0286 | 0.0286 | | 0.0286 | 0.0286 | | 452.0012 | 452.0012 | 8.6600e-003 | 8.2900e-003 | 454.6872 |
| **Total** | | **0.0722** | **0.6563** | **0.5513** | **3.9400e-003** | | **0.0499** | **0.0499** | | **0.0499** | **0.0499** | | **787.4991** | **787.4991** | **0.0151** | **0.0144** | **792.1788** |

# 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 | 1.3488 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| Unmitigated | 1.3488 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |

## 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 | 0.1549 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.1926 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 1.3900e-003 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| **Total** | **1.3488** | **1.4000e-004** | **0.0146** | **0.0000** | | **5.0000e-005** | **5.0000e-005** | | **5.0000e-005** | **5.0000e-005** | | **0.0310** | **0.0310** | **8.0000e-005** | | **0.0331** |

### 6.2 Area by SubCategory

**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 | 0.1549 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.1926 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 1.3900e-003 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| **Total** | **1.3488** | **1.4000e-004** | **0.0146** | **0.0000** | | **5.0000e-005** | **5.0000e-005** | | **5.0000e-005** | **5.0000e-005** | | **0.0310** | **0.0310** | **8.0000e-005** | | **0.0331** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Water Efficient Irrigation System

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

## 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

# 7378 10234 4th St Project

**San Bernardino-South Coast County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Manufacturing | 32.04 | 1000sqft | 0.74 | 32,037.00 | 0 |
| Refrigerated Warehouse-No Rail | 27.09 | 1000sqft | 0.62 | 27,093.00 | 0 |
| Other Non-Asphalt Surfaces | 0.66 | Acre | 0.66 | 28,749.60 | 0 |
| Parking Lot | 82.00 | Space | 0.74 | 32,800.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 32 |
| **Climate Zone** | 10 | | | **Operational Year** | 2019 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 702.44 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

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

Project Characteristics -

Land Use - 2.76 ac w/ 32,037 square feet manufacturing/office use, 27,093 square feet refrigerated warehouse, & 82 parking stalls (includes 80 stndrd, 1 loading, & 1 trailer space), rmdr landscaping/detention basin (~0.66 ac).

Construction Phase - Construction anticipated to start June 2018 and be completed by early 2019.

Demolition - Demolition of an ~14,200 square foot existing building.

Grading - Site is 2.76 acres and is to be balanced.

Vehicle Trips - Trip Gen per 10th Edition ITE Manual: 140 Manufac - 3.93 trps/TSF wkdy, 1.24 trps/TSF Sat, 0.99 trips/TSF Sun; ITE code 150 WH - 1.74 trps/TSF. Distance for trucks (C-W) increased to 40 mi. for WH (per SCAQMD recs). WH has 80.3% cars,19.7%trks

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - ~0.27 miles west Omnitrans Rte 82 stop Haven & 4th & ~1.99 miles southeast dwntwn Rancho Cucamonga. 1emp/1030sf industrial = (27,093+32,037)/1030sf = 57.4emp/2.76ac = ~20.8 emp/ac.

Water Mitigation - 20% reduction in indoor water use and use of water efficient irrigation systems, per Green Building Standards.

Waste Mitigation - AB 939 requires all jurisdictions in CA to divert at least 50% of their waste away from landfills.

Operational Off-Road Equipment -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 20.00 | 15.00 |
| tblConstructionPhase | NumDays | 6.00 | 5.00 |
| tblConstructionPhase | NumDays | 220.00 | 160.00 |
| tblGrading | AcresOfGrading | 2.50 | 2.76 |
| tblLandUse | LandUseSquareFeet | 32,040.00 | 32,037.00 |
| tblLandUse | LandUseSquareFeet | 27,090.00 | 27,093.00 |
| tblVehicleTrips | CNW_TTP | 41.00 | 80.30 |
| tblVehicleTrips | CW_TL | 16.60 | 40.00 |
| tblVehicleTrips | CW_TTP | 59.00 | 19.70 |
| tblVehicleTrips | ST_TR | 1.49 | 1.24 |
| tblVehicleTrips | ST_TR | 1.68 | 1.74 |
| tblVehicleTrips | SU_TR | 0.62 | 0.99 |
| tblVehicleTrips | SU_TR | 1.68 | 1.74 |
| tblVehicleTrips | WD_TR | 3.82 | 3.93 |
| tblVehicleTrips | WD_TR | 1.68 | 1.74 |

## 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 | 5.5454 | 47.7263 | 29.5279 | 0.0576 | 7.4174 | 2.4478 | 9.8652 | 3.5912 | 2.3008 | 5.8919 | 0.0000 | 5,627.6708 | 5,627.6708 | 1.2164 | 0.0000 | 5,658.0805 |
| 2019 | 58.3789 | 21.4117 | 17.8863 | 0.0356 | 0.6982 | 1.1086 | 1.8067 | 0.1881 | 1.0624 | 1.2505 | 0.0000 | 3,399.6976 | 3,399.6976 | 0.5741 | 0.0000 | 3,413.2346 |
| **Maximum** | **58.3789** | **47.7263** | **29.5279** | **0.0576** | **7.4174** | **2.4478** | **9.8652** | **3.5912** | **2.3008** | **5.8919** | **0.0000** | **5,627.6708** | **5,627.6708** | **1.2164** | **0.0000** | **5,658.0805** |

### 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 | 5.5454 | 47.7263 | 29.5279 | 0.0576 | 3.3869 | 2.4478 | 5.8346 | 1.5334 | 2.3008 | 3.8341 | 0.0000 | 5,627.6708 | 5,627.6708 | 1.2164 | 0.0000 | 5,658.0805 |
| 2019 | 58.3789 | 21.4117 | 17.8863 | 0.0356 | 0.6982 | 1.1086 | 1.8067 | 0.1881 | 1.0624 | 1.2505 | 0.0000 | 3,399.6976 | 3,399.6976 | 0.5741 | 0.0000 | 3,413.2346 |
| **Maximum** | **58.3789** | **47.7263** | **29.5279** | **0.0576** | **3.3869** | **2.4478** | **5.8346** | **1.5334** | **2.3008** | **3.8341** | **0.0000** | **5,627.6708** | **5,627.6708** | **1.2164** | **0.0000** | **5,658.0805** |

| | ROG | NOx | 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** | **49.66** | **0.00** | **34.53** | **54.45** | **0.00** | **28.81** | **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 | 1.3488 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| Energy | 0.0722 | 0.6563 | 0.5513 | 3.9400e-003 | | 0.0499 | 0.0499 | | 0.0499 | 0.0499 | | 787.4991 | 787.4991 | 0.0151 | 0.0144 | 792.1788 |
| Mobile | 0.4589 | 3.3557 | 6.1214 | 0.0215 | 1.6468 | 0.0232 | 1.6700 | 0.4407 | 0.0219 | 0.4626 | | 2,185.3401 | 2,185.3401 | 0.1177 | | 2,188.2827 |
| **Total** | **1.8799** | **4.0121** | **6.6873** | **0.0254** | **1.6468** | **0.0731** | **1.7199** | **0.4407** | **0.0718** | **0.5125** | | **2,972.8702** | **2,972.8702** | **0.1329** | **0.0144** | **2,980.4946** |

### 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 | 1.3488 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| Energy | 0.0722 | 0.6563 | 0.5513 | 3.9400e-003 | | 0.0499 | 0.0499 | | 0.0499 | 0.0499 | | 787.4991 | 787.4991 | 0.0151 | 0.0144 | 792.1788 |
| Mobile | 0.3952 | 2.7510 | 4.6151 | 0.0156 | 1.1555 | 0.0168 | 1.1723 | 0.3093 | 0.0158 | 0.3251 | | 1,586.2676 | 1,586.2676 | 0.0949 | | 1,588.6398 |
| **Total** | **1.8163** | **3.4074** | **5.1809** | **0.0195** | **1.1555** | **0.0667** | **1.2222** | **0.3093** | **0.0657** | **0.3750** | | **2,373.7977** | **2,373.7977** | **0.1101** | **0.0144** | **2,380.8517** |

| | ROG | NOx | 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** | **3.38** | **15.07** | **22.53** | **23.22** | **29.83** | **8.82** | **28.94** | **29.83** | **8.47** | **26.84** | **0.00** | **20.15** | **20.15** | **17.17** | **0.00** | **20.12** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 6/1/2018 | 6/21/2018 | 5 | 15 | |
| 2 | Grading | Grading | 6/22/2018 | 6/28/2018 | 5 | 5 | |
| 3 | Building Construction | Building Construction | 6/28/2018 | 2/6/2019 | 5 | 160 | |
| 4 | Paving | Paving | 2/7/2019 | 2/20/2019 | 5 | 10 | |
| 5 | Architectural Coating | Architectural Coating | 2/18/2019 | 3/1/2019 | 5 | 10 | |

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

**Acres of Grading (Grading Phase): 2.76**

**Acres of Paving: 1.4**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 88,695; Non-Residential Outdoor: 29,565; Striped Parking Area: 3,693 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 3 | 8.00 | 97 | 0.37 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 8.00 | 231 | 0.29 |
| Building Construction | Forklifts | 2 | 7.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |
| Paving | Cement and Mortar Mixers | 1 | 8.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 5 | 13.00 | 0.00 | 65.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 8 | 51.00 | 20.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 10.00 | 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 Demolition - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.9319 | 0.0000 | 0.9319 | 0.1411 | 0.0000 | 0.1411 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.4838 | 24.3641 | 15.1107 | 0.0241 | | 1.4365 | 1.4365 | | 1.3429 | 1.3429 | | 2,391.1659 | 2,391.1659 | 0.6058 | | 2,406.3105 |
| **Total** | **2.4838** | **24.3641** | **15.1107** | **0.0241** | **0.9319** | **1.4365** | **2.3683** | **0.1411** | **1.3429** | **1.4840** | | **2,391.1659** | **2,391.1659** | **0.6058** | | **2,406.3105** |

## 3.2 Demolition - 2018

### 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 | 0.0323 | 1.2288 | 0.1994 | 3.3900e-003 | 0.0758 | 4.3300e-003 | 0.0802 | 0.0208 | 4.1500e-003 | 0.0249 | | 359.5290 | 359.5290 | 0.0219 | | 360.0767 |
| 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 | 0.0846 | 0.0614 | 0.6031 | 1.4200e-003 | 0.1453 | 1.0100e-003 | 0.1463 | 0.0385 | 9.3000e-004 | 0.0395 | | 140.8199 | 140.8199 | 5.0900e-003 | | 140.9471 |
| **Total** | **0.1168** | **1.2903** | **0.8025** | **4.8100e-003** | **0.2212** | **5.3400e-003** | **0.2265** | **0.0593** | **5.0800e-003** | **0.0644** | | **500.3489** | **500.3489** | **0.0270** | | **501.0238** |

### 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 | | | | | 0.3634 | 0.0000 | 0.3634 | 0.0550 | 0.0000 | 0.0550 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.4838 | 24.3641 | 15.1107 | 0.0241 | | 1.4365 | 1.4365 | | 1.3429 | 1.3429 | 0.0000 | 2,391.1659 | 2,391.1659 | 0.6058 | | 2,406.3105 |
| **Total** | **2.4838** | **24.3641** | **15.1107** | **0.0241** | **0.3634** | **1.4365** | **1.7999** | **0.0550** | **1.3429** | **1.3979** | **0.0000** | **2,391.1659** | **2,391.1659** | **0.6058** | | **2,406.3105** |

## 3.2 Demolition - 2018

**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 | 0.0323 | 1.2288 | 0.1994 | 3.3900e-003 | 0.0758 | 4.3300e-003 | 0.0802 | 0.0208 | 4.1500e-003 | 0.0249 | | 359.5290 | 359.5290 | 0.0219 | | 360.0767 |
| 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 | 0.0846 | 0.0614 | 0.6031 | 1.4200e-003 | 0.1453 | 1.0100e-003 | 0.1463 | 0.0385 | 9.3000e-004 | 0.0395 | | 140.8199 | 140.8199 | 5.0900e-003 | | 140.9471 |
| **Total** | **0.1168** | **1.2903** | **0.8025** | **4.8100e-003** | **0.2212** | **5.3400e-003** | **0.2265** | **0.0593** | **5.0800e-003** | **0.0644** | | **500.3489** | **500.3489** | **0.0270** | | **501.0238** |

## 3.3 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 | | | | | 6.6075 | 0.0000 | 6.6075 | 3.3734 | 0.0000 | 3.3734 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.1515 | 24.2895 | 10.3804 | 0.0206 | | 1.1683 | 1.1683 | | 1.0748 | 1.0748 | | 2,077.4666 | 2,077.4666 | 0.6467 | | 2,093.6352 |
| **Total** | **2.1515** | **24.2895** | **10.3804** | **0.0206** | **6.6075** | **1.1683** | **7.7758** | **3.3734** | **1.0748** | **4.4483** | | **2,077.4666** | **2,077.4666** | **0.6467** | | **2,093.6352** |

## 3.3 Grading - 2018

### 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 | 0.0651 | 0.0473 | 0.4640 | 1.0900e-003 | 0.1118 | 7.8000e-004 | 0.1126 | 0.0296 | 7.2000e-004 | 0.0304 | | 108.3230 | 108.3230 | 3.9100e-003 | | 108.4208 |
| **Total** | **0.0651** | **0.0473** | **0.4640** | **1.0900e-003** | **0.1118** | **7.8000e-004** | **0.1126** | **0.0296** | **7.2000e-004** | **0.0304** | | **108.3230** | **108.3230** | **3.9100e-003** | | **108.4208** |

### 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 | | | | | 2.5769 | 0.0000 | 2.5769 | 1.3156 | 0.0000 | 1.3156 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.1515 | 24.2895 | 10.3804 | 0.0206 | | 1.1683 | 1.1683 | | 1.0748 | 1.0748 | 0.0000 | 2,077.4666 | 2,077.4666 | 0.6467 | | 2,093.6352 |
| **Total** | **2.1515** | **24.2895** | **10.3804** | **0.0206** | **2.5769** | **1.1683** | **3.7452** | **1.3156** | **1.0748** | **2.3905** | **0.0000** | **2,077.4666** | **2,077.4666** | **0.6467** | | **2,093.6352** |

## 3.3 Grading - 2018

**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 | 0.0651 | 0.0473 | 0.4640 | 1.0900e-003 | 0.1118 | 7.8000e-004 | 0.1126 | 0.0296 | 7.2000e-004 | 0.0304 | | 108.3230 | 108.3230 | 3.9100e-003 | | 108.4208 |
| **Total** | **0.0651** | **0.0473** | **0.4640** | **1.0900e-003** | **0.1118** | **7.8000e-004** | **0.1126** | **0.0296** | **7.2000e-004** | **0.0304** | | **108.3230** | **108.3230** | **3.9100e-003** | | **108.4208** |

## 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 | 2.9127 | 20.7077 | 15.7183 | 0.0250 | | 1.2575 | 1.2575 | | 1.2051 | 1.2051 | | 2,329.7759 | 2,329.7759 | 0.5019 | | 2,342.3232 |
| **Total** | **2.9127** | **20.7077** | **15.7183** | **0.0250** | | **1.2575** | **1.2575** | | **1.2051** | **1.2051** | | **2,329.7759** | **2,329.7759** | **0.5019** | | **2,342.3232** |

## 3.4 Building Construction - 2018

### 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 | 0.0844 | 2.4408 | 0.5991 | 5.3100e-003 | 0.1281 | 0.0172 | 0.1453 | 0.0369 | 0.0165 | 0.0534 | | 559.6581 | 559.6581 | 0.0439 | | 560.7552 |
| Worker | 0.3317 | 0.2411 | 2.3662 | 5.5500e-003 | 0.5701 | 3.9600e-003 | 0.5740 | 0.1512 | 3.6500e-003 | 0.1548 | | 552.4473 | 552.4473 | 0.0200 | | 552.9461 |
| **Total** | **0.4161** | **2.6819** | **2.9652** | **0.0109** | **0.6982** | **0.0212** | **0.7194** | **0.1881** | **0.0201** | **0.2082** | | **1,112.1053** | **1,112.1053** | **0.0638** | | **1,113.7013** |

### 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 | 2.9127 | 20.7077 | 15.7183 | 0.0250 | | 1.2575 | 1.2575 | | 1.2051 | 1.2051 | 0.0000 | 2,329.7759 | 2,329.7759 | 0.5019 | | 2,342.3232 |
| **Total** | **2.9127** | **20.7077** | **15.7183** | **0.0250** | | **1.2575** | **1.2575** | | **1.2051** | **1.2051** | **0.0000** | **2,329.7759** | **2,329.7759** | **0.5019** | | **2,342.3232** |

## 3.4 Building Construction - 2018

**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 | 0.0844 | 2.4408 | 0.5991 | 5.3100e-003 | 0.1281 | 0.0172 | 0.1453 | 0.0369 | 0.0165 | 0.0534 | | 559.6581 | 559.6581 | 0.0439 | | 560.7552 |
| Worker | 0.3317 | 0.2411 | 2.3662 | 5.5500e-003 | 0.5701 | 3.9600e-003 | 0.5740 | 0.1512 | 3.6500e-003 | 0.1548 | | 552.4473 | 552.4473 | 0.0200 | | 552.9461 |
| **Total** | **0.4161** | **2.6819** | **2.9652** | **0.0109** | **0.6982** | **0.0212** | **0.7194** | **0.1881** | **0.0201** | **0.2082** | | **1,112.1053** | **1,112.1053** | **0.0638** | | **1,113.7013** |

## 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 | 2.5581 | 18.9103 | 15.2545 | 0.0250 | | 1.0901 | 1.0901 | | 1.0449 | 1.0449 | | 2,312.1454 | 2,312.1454 | 0.4810 | | 2,324.1705 |
| **Total** | **2.5581** | **18.9103** | **15.2545** | **0.0250** | | **1.0901** | **1.0901** | | **1.0449** | **1.0449** | | **2,312.1454** | **2,312.1454** | **0.4810** | | **2,324.1705** |

## 3.4 Building Construction - 2019

### 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 | 0.0753 | 2.2897 | 0.5385 | 5.2600e-003 | 0.1281 | 0.0146 | 0.1427 | 0.0369 | 0.0140 | 0.0509 | | 553.8981 | 553.8981 | 0.0430 | | 554.9724 |
| Worker | 0.3019 | 0.2118 | 2.0934 | 5.3600e-003 | 0.5701 | 3.8300e-003 | 0.5739 | 0.1512 | 3.5300e-003 | 0.1547 | | 533.6541 | 533.6541 | 0.0175 | | 534.0918 |
| **Total** | **0.3772** | **2.5015** | **2.6318** | **0.0106** | **0.6982** | **0.0184** | **0.7166** | **0.1881** | **0.0175** | **0.2056** | | **1,087.5522** | **1,087.5522** | **0.0605** | | **1,089.0641** |

### 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 | 2.5581 | 18.9103 | 15.2545 | 0.0250 | | 1.0901 | 1.0901 | | 1.0449 | 1.0449 | 0.0000 | 2,312.1454 | 2,312.1454 | 0.4810 | | 2,324.1705 |
| **Total** | **2.5581** | **18.9103** | **15.2545** | **0.0250** | | **1.0901** | **1.0901** | | **1.0449** | **1.0449** | **0.0000** | **2,312.1454** | **2,312.1454** | **0.4810** | | **2,324.1705** |

## 3.4 Building Construction - 2019

**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 | 0.0753 | 2.2897 | 0.5385 | 5.2600e-003 | 0.1281 | 0.0146 | 0.1427 | 0.0369 | 0.0140 | 0.0509 | | 553.8981 | 553.8981 | 0.0430 | | 554.9724 |
| Worker | 0.3019 | 0.2118 | 2.0934 | 5.3600e-003 | 0.5701 | 3.8300e-003 | 0.5739 | 0.1512 | 3.5300e-003 | 0.1547 | | 533.6541 | 533.6541 | 0.0175 | | 534.0918 |
| **Total** | **0.3772** | **2.5015** | **2.6318** | **0.0106** | **0.6982** | **0.0184** | **0.7166** | **0.1881** | **0.0175** | **0.2056** | | **1,087.5522** | **1,087.5522** | **0.0605** | | **1,089.0641** |

## 3.5 Paving - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.2453 | 12.5685 | 11.8507 | 0.0178 | | 0.7301 | 0.7301 | | 0.6728 | 0.6728 | | 1,746.2432 | 1,746.2432 | 0.5418 | | 1,759.7870 |
| Paving | 0.1939 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.4392** | **12.5685** | **11.8507** | **0.0178** | | **0.7301** | **0.7301** | | **0.6728** | **0.6728** | | **1,746.2432** | **1,746.2432** | **0.5418** | | **1,759.7870** |

## 3.5 Paving - 2019

### 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 | 0.0888 | 0.0623 | 0.6157 | 1.5800e-003 | 0.1677 | 1.1300e-003 | 0.1688 | 0.0445 | 1.0400e-003 | 0.0455 | | 156.9571 | 156.9571 | 5.1500e-003 | | 157.0858 |
| **Total** | **0.0888** | **0.0623** | **0.6157** | **1.5800e-003** | **0.1677** | **1.1300e-003** | **0.1688** | **0.0445** | **1.0400e-003** | **0.0455** | | **156.9571** | **156.9571** | **5.1500e-003** | | **157.0858** |

### 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 | 1.2453 | 12.5685 | 11.8507 | 0.0178 | | 0.7301 | 0.7301 | | 0.6728 | 0.6728 | 0.0000 | 1,746.2432 | 1,746.2432 | 0.5418 | | 1,759.7870 |
| Paving | 0.1939 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.4392** | **12.5685** | **11.8507** | **0.0178** | | **0.7301** | **0.7301** | | **0.6728** | **0.6728** | **0.0000** | **1,746.2432** | **1,746.2432** | **0.5418** | | **1,759.7870** |

## 3.5 Paving - 2019

**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 | 0.0888 | 0.0623 | 0.6157 | 1.5800e-003 | 0.1677 | 1.1300e-003 | 0.1688 | 0.0445 | 1.0400e-003 | 0.0455 | | 156.9571 | 156.9571 | 5.1500e-003 | | 157.0858 |
| **Total** | **0.0888** | **0.0623** | **0.6157** | **1.5800e-003** | **0.1677** | **1.1300e-003** | **0.1688** | **0.0445** | **1.0400e-003** | **0.0455** | | **156.9571** | **156.9571** | **5.1500e-003** | | **157.0858** |

## 3.6 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 | 56.5252 | | | | | 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** | **56.7917** | **1.8354** | **1.8413** | **2.9700e-003** | | **0.1288** | **0.1288** | | **0.1288** | **0.1288** | | **281.4481** | **281.4481** | **0.0238** | | **282.0423** |

## 3.6 Architectural Coating - 2019

### 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 | 0.0592 | 0.0415 | 0.4105 | 1.0500e-003 | 0.1118 | 7.5000e-004 | 0.1125 | 0.0296 | 6.9000e-004 | 0.0303 | | 104.6381 | 104.6381 | 3.4300e-003 | | 104.7239 |
| **Total** | **0.0592** | **0.0415** | **0.4105** | **1.0500e-003** | **0.1118** | **7.5000e-004** | **0.1125** | **0.0296** | **6.9000e-004** | **0.0303** | | **104.6381** | **104.6381** | **3.4300e-003** | | **104.7239** |

### 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 | 56.5252 | | | | | 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** | **56.7917** | **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** |

### 3.6 Architectural Coating - 2019

**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 | 0.0592 | 0.0415 | 0.4105 | 1.0500e-003 | 0.1118 | 7.5000e-004 | 0.1125 | 0.0296 | 6.9000e-004 | 0.0303 | | 104.6381 | 104.6381 | 3.4300e-003 | | 104.7239 |
| **Total** | **0.0592** | **0.0415** | **0.4105** | **1.0500e-003** | **0.1118** | **7.5000e-004** | **0.1125** | **0.0296** | **6.9000e-004** | **0.0303** | | **104.6381** | **104.6381** | **3.4300e-003** | | **104.7239** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

| | ROG | NOx | CO | SO2 | Fugitive 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 | 0.3952 | 2.7510 | 4.6151 | 0.0156 | 1.1555 | 0.0168 | 1.1723 | 0.3093 | 0.0158 | 0.3251 | | 1,586.2676 | 1,586.2676 | 0.0949 | | 1,588.6398 |
| Unmitigated | 0.4589 | 3.3557 | 6.1214 | 0.0215 | 1.6468 | 0.0232 | 1.6700 | 0.4407 | 0.0219 | 0.4626 | | 2,185.3401 | 2,185.3401 | 0.1177 | | 2,188.2827 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Manufacturing | 125.92 | 39.73 | 31.72 | 443,483 | 311,187 |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Refrigerated Warehouse-No Rail | 47.14 | 47.14 | 47.14 | 214,777 | 150,707 |
| Total | 173.05 | 86.87 | 78.86 | 658,260 | 461,894 |

## 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 |
| Manufacturing | 16.60 | 8.40 | 6.90 | 59.00 | 28.00 | 13.00 | 92 | 5 | 3 |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Refrigerated Warehouse-No | 40.00 | 8.40 | 6.90 | 19.70 | 0.00 | 80.30 | 92 | 5 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |
| Other Non-Asphalt Surfaces | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |
| Parking Lot | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |
| Refrigerated Warehouse-No Rail | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |

## 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 | 0.0722 | 0.6563 | 0.5513 | 3.9400e-003 | | 0.0499 | 0.0499 | | 0.0499 | 0.0499 | | 787.4991 | 787.4991 | 0.0151 | 0.0144 | 792.1788 |
| NaturalGas Unmitigated | 0.0722 | 0.6563 | 0.5513 | 3.9400e-003 | | 0.0499 | 0.0499 | | 0.0499 | 0.0499 | | 787.4991 | 787.4991 | 0.0151 | 0.0144 | 792.1788 |

## 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 | | | | | |
| Manufacturing | 2851.73 | 0.0308 | 0.2796 | 0.2349 | 1.6800e-003 | | 0.0213 | 0.0213 | | 0.0213 | 0.0213 | | 335.4979 | 335.4979 | 6.4300e-003 | 6.1500e-003 | 337.4916 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 3842.01 | 0.0414 | 0.3767 | 0.3164 | 2.2600e-003 | | 0.0286 | 0.0286 | | 0.0286 | 0.0286 | | 452.0012 | 452.0012 | 8.6600e-003 | 8.2900e-003 | 454.6872 |
| **Total** | | **0.0722** | **0.6563** | **0.5513** | **3.9400e-003** | | **0.0499** | **0.0499** | | **0.0499** | **0.0499** | | **787.4991** | **787.4991** | **0.0151** | **0.0144** | **792.1788** |

## 5.2 Energy by Land Use - NaturalGas

**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 | | | | | |
| Manufacturing | 2.85173 | 0.0308 | 0.2796 | 0.2349 | 1.6800e-003 | | 0.0213 | 0.0213 | | 0.0213 | 0.0213 | | 335.4979 | 335.4979 | 6.4300e-003 | 6.1500e-003 | 337.4916 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 3.84201 | 0.0414 | 0.3767 | 0.3164 | 2.2600e-003 | | 0.0286 | 0.0286 | | 0.0286 | 0.0286 | | 452.0012 | 452.0012 | 8.6600e-003 | 8.2900e-003 | 454.6872 |
| **Total** | | **0.0722** | **0.6563** | **0.5513** | **3.9400e-003** | | **0.0499** | **0.0499** | | **0.0499** | **0.0499** | | **787.4991** | **787.4991** | **0.0151** | **0.0144** | **792.1788** |

# 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 | 1.3488 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| Unmitigated | 1.3488 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |

## 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 | 0.1549 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.1926 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 1.3900e-003 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| **Total** | **1.3488** | **1.4000e-004** | **0.0146** | **0.0000** | | **5.0000e-005** | **5.0000e-005** | | **5.0000e-005** | **5.0000e-005** | | **0.0310** | **0.0310** | **8.0000e-005** | | **0.0331** |

### 6.2 Area by SubCategory

**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 | 0.1549 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.1926 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 1.3900e-003 | 1.4000e-004 | 0.0146 | 0.0000 | | 5.0000e-005 | 5.0000e-005 | | 5.0000e-005 | 5.0000e-005 | | 0.0310 | 0.0310 | 8.0000e-005 | | 0.0331 |
| **Total** | **1.3488** | **1.4000e-004** | **0.0146** | **0.0000** | | **5.0000e-005** | **5.0000e-005** | | **5.0000e-005** | **5.0000e-005** | | **0.0310** | **0.0310** | **8.0000e-005** | | **0.0331** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Water Efficient Irrigation System

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

## 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

# TRU Calcs

Source: Emissions of Transport Refrigeration Units with CARB Diesel, Gas-to-liquid diesel, and Emissions Control Devices. National Renewable Energy Laboratory Conference Paper NREL/CP-540-46598, May 2010. (https://www.nrel.gov/docs/fy10osti/46598.pdf)

Emissions Factors per TRU

| Fuel | Engine speed | Exhaust | NOx (g/hr) | CO (g/hr) | THC (g/hr) | PM (g/hr) | CO2 (g/hr) | |
|---|---|---|---|---|---|---|---|---|
| CARB | High | Muffler | 123.34 | 61.8 | 37.28 | 17.6 | 17975 | |
| GTL | High | Muffler | 107.49 | 49.94 | 29.21 | 12.89 | 17834 | |
| CARB | High | pDPF | 123.95 | 0.73 | 1.56 | 13.98 | 19715 | |
| GTL | High | pDPF | 108.97 | 0.21 | 1.08 | 9.13 | 18599 | |
| CARB | Low | Muffler | 53.89 | 30.77 | 24.92 | 6.49 | 6222 | |
| GTL | Low | Muffler | 45.47 | 25.4 | 14.22 | 3.87 | 5796 | |
| CARB | Low | pDPF | 52.38 | 10.4 | 17.5 | 2.77 | 6423 | |
| GTL | Low | pDPF | 59.88 | 0.69 | 5.94 | 1.81 | 5532 | |
| | | | 84.42125 | 22.4925 | 16.46375 | 8.5675 | 12262 | AVERAGE |
| | | | 52.905 | 16.815 | 15.645 | 3.735 | 5993.25 | AVERAGE of low speed |
| | | | 115.9375 | 28.17 | 17.2825 | 13.4 | 18530.75 | AVERAGE of high speed |

1 lb equals 453.5924 grams
1 lb equals 0.000454 MT

| **Using AVERAGE** | | **Daily Emissions per TRU** | | | | | | | | **Annual Emissions per TRU** | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **NOx** | **CO** | **VOC** | **PM** | | | **CO2** | | |
| Running 24 hours a day: | | (g) | 2026.1100 | 539.8200 | 395.1300 | 205.6200 | | 294288 | MTCO2 | | MTCO2/year |
| | | (lbs) | 4.4668 | 1.1901 | 0.8711 | 0.4533 | | 648.79 | 0.294288 | | 107.41512 |
| Running 12 hours a day: | | (g) | 1013.0550 | 269.9100 | 197.5650 | 102.8100 | | 147144 | MTCO2 | | MTCO2/year |
| | | (lbs) | 2.2334 | 0.5950 | 0.4356 | 0.2267 | | 324.40 | 0.147144 | | 53.70756 |
| Running 8 hours a day: | | (g) | 675.3700 | 179.9400 | 131.7100 | 68.5400 | | 98096 | MTCO2 | | MTCO2/year |
| | | (lbs) | 1.4889 | 0.3967 | 0.2904 | 0.1511 | | 216.26 | 0.098096 | | 35.80504 |
| Running 4 hours a day: | | (g) | 337.6850 | 89.9700 | 65.8550 | 34.2700 | | 49048 | MTCO2 | | MTCO2/year |
| | | (lbs) | 0.7445 | 0.1983 | 0.1452 | 0.0756 | | 108.13 | 0.049048 | | 17.90252 |
| **Using AVERAGE low speed** | | | | | | | | | | | |
| Running 24 hours a day: | | (g) | 1269.7200 | 403.5600 | 375.4800 | 89.6400 | | 143838 | MTCO2 | | MTCO2/year |
| | | (lbs) | 2.7993 | 0.8897 | 0.8278 | 0.1976 | | 317.11 | 0.143838 | | 52.50087 |
| Running 12 hours a day: | | (g) | 17.8672 | 201.7800 | 187.7400 | 44.8200 | | 71919 | MTCO2 | | MTCO2/year |
| | | (lbs) | 0.0394 | 0.4448 | 0.4139 | 0.0988 | | 158.55 | 0.071919 | | 26.250435 |
| Running 8 hours a day: | | (g) | 11.9115 | 134.5200 | 125.1600 | 29.8800 | | 47946 | MTCO2 | | MTCO2/year |
| | | (lbs) | 0.0263 | 0.2966 | 0.2759 | 0.0659 | | 105.70 | 0.047946 | | 17.50029 |
| Running 4 hours a day: | | (g) | 5.9557 | 67.2600 | 62.5800 | 14.9400 | | 23973 | MTCO2 | | MTCO2/year |
| | | (lbs) | 0.0131 | 0.1483 | 0.1380 | 0.0329 | | 52.85 | 0.023973 | | 8.750145 |

| | **NOx** | **CO** | **VOC** | **PM-10** | **PM-2.5** | **CO2 per year** |
|---|---|---|---|---|---|---|
| For 15 TRUs running 4 hrs/day | | | | | | |
| Avg low speed (lbs): | **0.1970** | **2.2242** | **2.0695** | **0.4941** | **0.4644** | **131.2522** |

**APPENDIX C**

**CalEEMod Model Annual Emissions Printouts**

# 7378 10234 4th St Project

**San Bernardino-South Coast County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Manufacturing | 32.04 | 1000sqft | 0.74 | 32,037.00 | 0 |
| Refrigerated Warehouse-No Rail | 27.09 | 1000sqft | 0.62 | 27,093.00 | 0 |
| Other Non-Asphalt Surfaces | 0.66 | Acre | 0.66 | 28,749.60 | 0 |
| Parking Lot | 82.00 | Space | 0.74 | 32,800.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 32 |
| **Climate Zone** | 10 | | | **Operational Year** | 2019 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 702.44 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

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

7378 10234 4th St Project - San Bernardino-South Coast County, Annual

Project Characteristics -

Land Use - 2.76 ac w/ 32,037 square feet manufacturing/office use, 27,093 square feet refrigerated warehouse, & 82 parking stalls (includes 80 stndrd, 1 loading, & 1 trailer space), rmdr landscaping/detention basin (~0.66 ac).

Construction Phase - Construction anticipated to start June 2018 and be completed by early 2019.

Demolition - Demolition of an ~14,200 square foot existing building.

Grading - Site is 2.76 acres and is to be balanced.

Vehicle Trips - Trip Gen per 10th Edition ITE Manual: 140 Manufac - 3.93 trps/TSF wkdy, 1.24 trps/TSF Sat, 0.99 trips/TSF Sun; ITE code 150 WH - 1.74 trps/TSF. Distance for trucks (C-W) increased to 40 mi. for WH (per SCAQMD recs). WH has 80.3% cars,19.7%trks

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - ~0.27 miles west Omnitrans Rte 82 stop Haven & 4th & ~1.99 miles southeast dwntwn Rancho Cucamonga. 1emp/1030sf industrial = (27,093+32,037)/1030sf = 57.4emp/2.76ac = ~20.8 emp/ac.

Water Mitigation - 20% reduction in indoor water use and use of water efficient irrigation systems, per Green Building Standards.

Waste Mitigation - AB 939 requires all jurisdictions in CA to divert at least 50% of their waste away from landfills.

Operational Off-Road Equipment -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 20.00 | 15.00 |
| tblConstructionPhase | NumDays | 6.00 | 5.00 |
| tblConstructionPhase | NumDays | 220.00 | 160.00 |
| tblGrading | AcresOfGrading | 2.50 | 2.76 |
| tblLandUse | LandUseSquareFeet | 32,040.00 | 32,037.00 |
| tblLandUse | LandUseSquareFeet | 27,090.00 | 27,093.00 |
| tblVehicleTrips | CNW_TTP | 41.00 | 80.30 |
| tblVehicleTrips | CW_TL | 16.60 | 40.00 |
| tblVehicleTrips | CW_TTP | 59.00 | 19.70 |
| tblVehicleTrips | ST_TR | 1.49 | 1.24 |
| tblVehicleTrips | ST_TR | 1.68 | 1.74 |
| tblVehicleTrips | SU_TR | 0.62 | 0.99 |
| tblVehicleTrips | SU_TR | 1.68 | 1.74 |
| tblVehicleTrips | WD_TR | 3.82 | 3.93 |
| tblVehicleTrips | WD_TR | 1.68 | 1.74 |

## 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 | 0.2442 | 1.8130 | 1.3947 | 2.6700e-003 | 0.0710 | 0.0988 | 0.1697 | 0.0223 | 0.0943 | 0.1166 | 0.0000 | 233.8423 | 233.8423 | 0.0398 | 0.0000 | 234.8376 |
| 2019 | 0.3310 | 0.3624 | 0.3163 | 6.0000e-004 | 0.0106 | 0.0193 | 0.0299 | 2.8600e-003 | 0.0184 | 0.0212 | 0.0000 | 52.3470 | 52.3470 | 9.2200e-003 | 0.0000 | 52.5774 |
| **Maximum** | **0.3310** | **1.8130** | **1.3947** | **2.6700e-003** | **0.0710** | **0.0988** | **0.1697** | **0.0223** | **0.0943** | **0.1166** | **0.0000** | **233.8423** | **233.8423** | **0.0398** | **0.0000** | **234.8376** |

### 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 | 0.2442 | 1.8130 | 1.3947 | 2.6700e-003 | 0.0566 | 0.0988 | 0.1554 | 0.0165 | 0.0943 | 0.1108 | 0.0000 | 233.8422 | 233.8422 | 0.0398 | 0.0000 | 234.8374 |
| 2019 | 0.3310 | 0.3624 | 0.3163 | 6.0000e-004 | 0.0106 | 0.0193 | 0.0299 | 2.8600e-003 | 0.0184 | 0.0212 | 0.0000 | 52.3470 | 52.3470 | 9.2200e-003 | 0.0000 | 52.5774 |
| **Maximum** | **0.3310** | **1.8130** | **1.3947** | **2.6700e-003** | **0.0566** | **0.0988** | **0.1554** | **0.0165** | **0.0943** | **0.1108** | **0.0000** | **233.8422** | **233.8422** | **0.0398** | **0.0000** | **234.8374** |

| | ROG | NOx | 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** | **17.57** | **0.00** | **7.18** | **23.01** | **0.00** | **4.20** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| 1 | 6-1-2018 | 8-31-2018 | 0.8983 | 0.8983 |
| 2 | 9-1-2018 | 11-30-2018 | 0.8683 | 0.8683 |
| 3 | 12-1-2018 | 2-28-2019 | 0.9190 | 0.9190 |
| 4 | 3-1-2019 | 5-31-2019 | 0.0210 | 0.0210 |
| | | Highest | 0.9190 | 0.9190 |

## 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 | 0.2461 | 2.0000e-005 | 1.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 3.5200e-003 | 3.5200e-003 | 1.0000e-005 | 0.0000 | 3.7600e-003 |
| Energy | 0.0132 | 0.1198 | 0.1006 | 7.2000e-004 | | 9.1000e-003 | 9.1000e-003 | | 9.1000e-003 | 9.1000e-003 | 0.0000 | 582.5098 | 582.5098 | 0.0212 | 6.2500e-003 | 584.9021 |
| Mobile | 0.0699 | 0.5327 | 0.9847 | 3.3900e-003 | 0.2507 | 3.5800e-003 | 0.2542 | 0.0672 | 3.3800e-003 | 0.0706 | 0.0000 | 313.2747 | 313.2747 | 0.0164 | 0.0000 | 313.6845 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 13.2330 | 0.0000 | 13.2330 | 0.7821 | 0.0000 | 32.7842 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 4.3381 | 56.7295 | 61.0676 | 0.4479 | 0.0110 | 75.5447 |
| **Total** | **0.3291** | **0.6525** | **1.0871** | **4.1100e-003** | **0.2507** | **0.0127** | **0.2634** | **0.0672** | **0.0125** | **0.0797** | **17.5711** | **952.5174** | **970.0885** | **1.2675** | **0.0173** | **1,006.9192** |

## 2.2 Overall Operational

**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 | 0.2461 | 2.0000e-005 | 1.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 3.5200e-003 | 3.5200e-003 | 1.0000e-005 | 0.0000 | 3.7600e-003 |
| Energy | 0.0132 | 0.1198 | 0.1006 | 7.2000e-004 | | 9.1000e-003 | 9.1000e-003 | | 9.1000e-003 | 9.1000e-003 | 0.0000 | 582.5098 | 582.5098 | 0.0212 | 6.2500e-003 | 584.9021 |
| Mobile | 0.0598 | 0.4366 | 0.7396 | 2.4700e-003 | 0.1759 | 2.5800e-003 | 0.1785 | 0.0472 | 2.4300e-003 | 0.0496 | 0.0000 | 227.7903 | 227.7903 | 0.0131 | 0.0000 | 228.1187 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 6.6165 | 0.0000 | 6.6165 | 0.3910 | 0.0000 | 16.3921 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 3.4705 | 45.3836 | 48.8541 | 0.3583 | 8.8000e-003 | 60.4358 |
| **Total** | **0.3191** | **0.5564** | **0.8420** | **3.1900e-003** | **0.1759** | **0.0117** | **0.1876** | **0.0472** | **0.0115** | **0.0587** | **10.0870** | **855.6872** | **865.7741** | **0.7837** | **0.0151** | **889.8524** |

| | ROG | NOx | 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** | **3.06** | **14.72** | **22.55** | **22.38** | **29.83** | **7.88** | **28.77** | **29.83** | **7.61** | **26.34** | **42.59** | **10.17** | **10.75** | **38.17** | **12.80** | **11.63** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 6/1/2018 | 6/21/2018 | 5 | 15 | |
| 2 | Grading | Grading | 6/22/2018 | 6/28/2018 | 5 | 5 | |
| 3 | Building Construction | Building Construction | 6/28/2018 | 2/6/2019 | 5 | 160 | |
| 4 | Paving | Paving | 2/7/2019 | 2/20/2019 | 5 | 10 | |
| 5 | Architectural Coating | Architectural Coating | 2/18/2019 | 3/1/2019 | 5 | 10 | |

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

**Acres of Grading (Grading Phase): 2.76**

**Acres of Paving: 1.4**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 88,695; Non-Residential Outdoor: 29,565; Striped Parking Area: 3,693 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 3 | 8.00 | 97 | 0.37 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 8.00 | 231 | 0.29 |
| Building Construction | Forklifts | 2 | 7.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |
| Paving | Cement and Mortar Mixers | 1 | 8.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 5 | 13.00 | 0.00 | 65.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 8 | 51.00 | 20.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 10.00 | 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 Demolition - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 6.9900e-003 | 0.0000 | 6.9900e-003 | 1.0600e-003 | 0.0000 | 1.0600e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0186 | 0.1827 | 0.1133 | 1.8000e-004 | | 0.0108 | 0.0108 | | 0.0101 | 0.0101 | 0.0000 | 16.2692 | 16.2692 | 4.1200e-003 | 0.0000 | 16.3723 |
| **Total** | **0.0186** | **0.1827** | **0.1133** | **1.8000e-004** | **6.9900e-003** | **0.0108** | **0.0178** | **1.0600e-003** | **0.0101** | **0.0111** | **0.0000** | **16.2692** | **16.2692** | **4.1200e-003** | **0.0000** | **16.3723** |

## 3.2 Demolition - 2018

### 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 | 2.4000e-004 | 9.4000e-003 | 1.3900e-003 | 3.0000e-005 | 5.6000e-004 | 3.0000e-005 | 5.9000e-004 | 1.5000e-004 | 3.0000e-005 | 1.8000e-004 | 0.0000 | 2.4833 | 2.4833 | 1.4000e-004 | 0.0000 | 2.4869 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 5.8000e-004 | 4.9000e-004 | 4.7500e-003 | 1.0000e-005 | 1.0700e-003 | 1.0000e-005 | 1.0800e-003 | 2.8000e-004 | 1.0000e-005 | 2.9000e-004 | 0.0000 | 0.9791 | 0.9791 | 4.0000e-005 | 0.0000 | 0.9800 |
| **Total** | **8.2000e-004** | **9.8900e-003** | **6.1400e-003** | **4.0000e-005** | **1.6300e-003** | **4.0000e-005** | **1.6700e-003** | **4.3000e-004** | **4.0000e-005** | **4.7000e-004** | **0.0000** | **3.4624** | **3.4624** | **1.8000e-004** | **0.0000** | **3.4669** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.7300e-003 | 0.0000 | 2.7300e-003 | 4.1000e-004 | 0.0000 | 4.1000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0186 | 0.1827 | 0.1133 | 1.8000e-004 | | 0.0108 | 0.0108 | | 0.0101 | 0.0101 | 0.0000 | 16.2692 | 16.2692 | 4.1200e-003 | 0.0000 | 16.3722 |
| **Total** | **0.0186** | **0.1827** | **0.1133** | **1.8000e-004** | **2.7300e-003** | **0.0108** | **0.0135** | **4.1000e-004** | **0.0101** | **0.0105** | **0.0000** | **16.2692** | **16.2692** | **4.1200e-003** | **0.0000** | **16.3722** |

## 3.2 Demolition - 2018

**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 | 2.4000e-004 | 9.4000e-003 | 1.3900e-003 | 3.0000e-005 | 5.6000e-004 | 3.0000e-005 | 5.9000e-004 | 1.5000e-004 | 3.0000e-005 | 1.8000e-004 | 0.0000 | 2.4833 | 2.4833 | 1.4000e-004 | 0.0000 | 2.4869 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 5.8000e-004 | 4.9000e-004 | 4.7500e-003 | 1.0000e-005 | 1.0700e-003 | 1.0000e-005 | 1.0800e-003 | 2.8000e-004 | 1.0000e-005 | 2.9000e-004 | 0.0000 | 0.9791 | 0.9791 | 4.0000e-005 | 0.0000 | 0.9800 |
| **Total** | **8.2000e-004** | **9.8900e-003** | **6.1400e-003** | **4.0000e-005** | **1.6300e-003** | **4.0000e-005** | **1.6700e-003** | **4.3000e-004** | **4.0000e-005** | **4.7000e-004** | **0.0000** | **3.4624** | **3.4624** | **1.8000e-004** | **0.0000** | **3.4669** |

## 3.3 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 | | | | | 0.0165 | 0.0000 | 0.0165 | 8.4300e-003 | 0.0000 | 8.4300e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 5.3800e-003 | 0.0607 | 0.0260 | 5.0000e-005 | | 2.9200e-003 | 2.9200e-003 | | 2.6900e-003 | 2.6900e-003 | 0.0000 | 4.7116 | 4.7116 | 1.4700e-003 | 0.0000 | 4.7483 |
| **Total** | **5.3800e-003** | **0.0607** | **0.0260** | **5.0000e-005** | **0.0165** | **2.9200e-003** | **0.0194** | **8.4300e-003** | **2.6900e-003** | **0.0111** | **0.0000** | **4.7116** | **4.7116** | **1.4700e-003** | **0.0000** | **4.7483** |

## 3.3 Grading - 2018

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.5000e-004 | 1.2000e-004 | 1.2200e-003 | 0.0000 | 2.7000e-004 | 0.0000 | 2.8000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2511 | 0.2511 | 1.0000e-005 | 0.0000 | 0.2513 |
| **Total** | **1.5000e-004** | **1.2000e-004** | **1.2200e-003** | **0.0000** | **2.7000e-004** | **0.0000** | **2.8000e-004** | **7.0000e-005** | **0.0000** | **7.0000e-005** | **0.0000** | **0.2511** | **0.2511** | **1.0000e-005** | **0.0000** | **0.2513** |

### 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 | | | | | 6.4400e-003 | 0.0000 | 6.4400e-003 | 3.2900e-003 | 0.0000 | 3.2900e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 5.3800e-003 | 0.0607 | 0.0260 | 5.0000e-005 | | 2.9200e-003 | 2.9200e-003 | | 2.6900e-003 | 2.6900e-003 | 0.0000 | 4.7116 | 4.7116 | 1.4700e-003 | 0.0000 | 4.7483 |
| **Total** | **5.3800e-003** | **0.0607** | **0.0260** | **5.0000e-005** | **6.4400e-003** | **2.9200e-003** | **9.3600e-003** | **3.2900e-003** | **2.6900e-003** | **5.9800e-003** | **0.0000** | **4.7116** | **4.7116** | **1.4700e-003** | **0.0000** | **4.7483** |

## 3.3 Grading - 2018

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.5000e-004 | 1.2000e-004 | 1.2200e-003 | 0.0000 | 2.7000e-004 | 0.0000 | 2.8000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2511 | 0.2511 | 1.0000e-005 | 0.0000 | 0.2513 |
| **Total** | **1.5000e-004** | **1.2000e-004** | **1.2200e-003** | **0.0000** | **2.7000e-004** | **0.0000** | **2.8000e-004** | **7.0000e-005** | **0.0000** | **7.0000e-005** | **0.0000** | **0.2511** | **0.2511** | **1.0000e-005** | **0.0000** | **0.2513** |

## 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 | 0.1937 | 1.3771 | 1.0453 | 1.6600e-003 | | 0.0836 | 0.0836 | | 0.0801 | 0.0801 | 0.0000 | 140.5502 | 140.5502 | 0.0303 | 0.0000 | 141.3072 |
| **Total** | **0.1937** | **1.3771** | **1.0453** | **1.6600e-003** | | **0.0836** | **0.0836** | | **0.0801** | **0.0801** | **0.0000** | **140.5502** | **140.5502** | **0.0303** | **0.0000** | **141.3072** |

## 3.4 Building Construction - 2018

### 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 | 5.4600e-003 | 0.1656 | 0.0376 | 3.6000e-004 | 8.3900e-003 | 1.1400e-003 | 9.5200e-003 | 2.4200e-003 | 1.0900e-003 | 3.5100e-003 | 0.0000 | 34.5395 | 34.5395 | 2.5200e-003 | 0.0000 | 34.6025 |
| Worker | 0.0200 | 0.0169 | 0.1652 | 3.8000e-004 | 0.0372 | 2.6000e-004 | 0.0375 | 9.8800e-003 | 2.4000e-004 | 0.0101 | 0.0000 | 34.0583 | 34.0583 | 1.2400e-003 | 0.0000 | 34.0893 |
| **Total** | **0.0255** | **0.1825** | **0.2028** | **7.4000e-004** | **0.0456** | **1.4000e-003** | **0.0470** | **0.0123** | **1.3300e-003** | **0.0136** | **0.0000** | **68.5978** | **68.5978** | **3.7600e-003** | **0.0000** | **68.6917** |

### 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 | 0.1937 | 1.3771 | 1.0453 | 1.6600e-003 | | 0.0836 | 0.0836 | | 0.0801 | 0.0801 | 0.0000 | 140.5501 | 140.5501 | 0.0303 | 0.0000 | 141.3070 |
| **Total** | **0.1937** | **1.3771** | **1.0453** | **1.6600e-003** | | **0.0836** | **0.0836** | | **0.0801** | **0.0801** | **0.0000** | **140.5501** | **140.5501** | **0.0303** | **0.0000** | **141.3070** |

## 3.4 Building Construction - 2018

**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 | 5.4600e-003 | 0.1656 | 0.0376 | 3.6000e-004 | 8.3900e-003 | 1.1400e-003 | 9.5200e-003 | 2.4200e-003 | 1.0900e-003 | 3.5100e-003 | 0.0000 | 34.5395 | 34.5395 | 2.5200e-003 | 0.0000 | 34.6025 |
| Worker | 0.0200 | 0.0169 | 0.1652 | 3.8000e-004 | 0.0372 | 2.6000e-004 | 0.0375 | 9.8800e-003 | 2.4000e-004 | 0.0101 | 0.0000 | 34.0583 | 34.0583 | 1.2400e-003 | 0.0000 | 34.0893 |
| **Total** | **0.0255** | **0.1825** | **0.2028** | **7.4000e-004** | **0.0456** | **1.4000e-003** | **0.0470** | **0.0123** | **1.3300e-003** | **0.0136** | **0.0000** | **68.5978** | **68.5978** | **3.7600e-003** | **0.0000** | **68.6917** |

## 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 | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0345 | 0.2553 | 0.2059 | 3.4000e-004 | | 0.0147 | 0.0147 | | 0.0141 | 0.0141 | 0.0000 | 28.3168 | 28.3168 | 5.8900e-003 | 0.0000 | 28.4641 |
| **Total** | **0.0345** | **0.2553** | **0.2059** | **3.4000e-004** | | **0.0147** | **0.0147** | | **0.0141** | **0.0141** | **0.0000** | **28.3168** | **28.3168** | **5.8900e-003** | **0.0000** | **28.4641** |

## 3.4 Building Construction - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 9.9000e-004 | 0.0315 | 6.8300e-003 | 7.0000e-005 | 1.7000e-003 | 2.0000e-004 | 1.9000e-003 | 4.9000e-004 | 1.9000e-004 | 6.8000e-004 | 0.0000 | 6.9413 | 6.9413 | 5.0000e-004 | 0.0000 | 6.9538 |
| Worker | 3.6900e-003 | 3.0100e-003 | 0.0297 | 7.0000e-005 | 7.5500e-003 | 5.0000e-005 | 7.6000e-003 | 2.0000e-003 | 5.0000e-005 | 2.0500e-003 | 0.0000 | 6.6789 | 6.6789 | 2.2000e-004 | 0.0000 | 6.6844 |
| **Total** | **4.6800e-003** | **0.0345** | **0.0365** | **1.4000e-004** | **9.2500e-003** | **2.5000e-004** | **9.5000e-003** | **2.4900e-003** | **2.4000e-004** | **2.7300e-003** | **0.0000** | **13.6202** | **13.6202** | **7.2000e-004** | **0.0000** | **13.6382** |

### 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 | 0.0345 | 0.2553 | 0.2059 | 3.4000e-004 | | 0.0147 | 0.0147 | | 0.0141 | 0.0141 | 0.0000 | 28.3168 | 28.3168 | 5.8900e-003 | 0.0000 | 28.4641 |
| **Total** | **0.0345** | **0.2553** | **0.2059** | **3.4000e-004** | | **0.0147** | **0.0147** | | **0.0141** | **0.0141** | **0.0000** | **28.3168** | **28.3168** | **5.8900e-003** | **0.0000** | **28.4641** |

## 3.4 Building Construction - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 9.9000e-004 | 0.0315 | 6.8300e-003 | 7.0000e-005 | 1.7000e-003 | 2.0000e-004 | 1.9000e-003 | 4.9000e-004 | 1.9000e-004 | 6.8000e-004 | 0.0000 | 6.9413 | 6.9413 | 5.0000e-004 | 0.0000 | 6.9538 |
| Worker | 3.6900e-003 | 3.0100e-003 | 0.0297 | 7.0000e-005 | 7.5500e-003 | 5.0000e-005 | 7.6000e-003 | 2.0000e-003 | 5.0000e-005 | 2.0500e-003 | 0.0000 | 6.6789 | 6.6789 | 2.2000e-004 | 0.0000 | 6.6844 |
| **Total** | **4.6800e-003** | **0.0345** | **0.0365** | **1.4000e-004** | **9.2500e-003** | **2.5000e-004** | **9.5000e-003** | **2.4900e-003** | **2.4000e-004** | **2.7300e-003** | **0.0000** | **13.6202** | **13.6202** | **7.2000e-004** | **0.0000** | **13.6382** |

## 3.5 Paving - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 6.2300e-003 | 0.0628 | 0.0593 | 9.0000e-005 | | 3.6500e-003 | 3.6500e-003 | | 3.3600e-003 | 3.3600e-003 | 0.0000 | 7.9208 | 7.9208 | 2.4600e-003 | 0.0000 | 7.9823 |
| Paving | 9.7000e-004 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **7.2000e-003** | **0.0628** | **0.0593** | **9.0000e-005** | | **3.6500e-003** | **3.6500e-003** | | **3.3600e-003** | **3.3600e-003** | **0.0000** | **7.9208** | **7.9208** | **2.4600e-003** | **0.0000** | **7.9823** |

## 3.5 Paving - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-004 | 3.3000e-004 | 3.2300e-003 | 1.0000e-005 | 8.2000e-004 | 1.0000e-005 | 8.3000e-004 | 2.2000e-004 | 1.0000e-005 | 2.2000e-004 | 0.0000 | 0.7276 | 0.7276 | 2.0000e-005 | 0.0000 | 0.7282 |
| **Total** | **4.0000e-004** | **3.3000e-004** | **3.2300e-003** | **1.0000e-005** | **8.2000e-004** | **1.0000e-005** | **8.3000e-004** | **2.2000e-004** | **1.0000e-005** | **2.2000e-004** | **0.0000** | **0.7276** | **0.7276** | **2.0000e-005** | **0.0000** | **0.7282** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 6.2300e-003 | 0.0628 | 0.0593 | 9.0000e-005 | | 3.6500e-003 | 3.6500e-003 | | 3.3600e-003 | 3.3600e-003 | 0.0000 | 7.9208 | 7.9208 | 2.4600e-003 | 0.0000 | 7.9823 |
| Paving | 9.7000e-004 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **7.2000e-003** | **0.0628** | **0.0593** | **9.0000e-005** | | **3.6500e-003** | **3.6500e-003** | | **3.3600e-003** | **3.3600e-003** | **0.0000** | **7.9208** | **7.9208** | **2.4600e-003** | **0.0000** | **7.9823** |

## 3.5 Paving - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-004 | 3.3000e-004 | 3.2300e-003 | 1.0000e-005 | 8.2000e-004 | 1.0000e-005 | 8.3000e-004 | 2.2000e-004 | 1.0000e-005 | 2.2000e-004 | 0.0000 | 0.7276 | 0.7276 | 2.0000e-005 | 0.0000 | 0.7282 |
| **Total** | **4.0000e-004** | **3.3000e-004** | **3.2300e-003** | **1.0000e-005** | **8.2000e-004** | **1.0000e-005** | **8.3000e-004** | **2.2000e-004** | **1.0000e-005** | **2.2000e-004** | **0.0000** | **0.7276** | **0.7276** | **2.0000e-005** | **0.0000** | **0.7282** |

## 3.6 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 | 0.2826 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.3300e-003 | 9.1800e-003 | 9.2100e-003 | 1.0000e-005 | | 6.4000e-004 | 6.4000e-004 | | 6.4000e-004 | 6.4000e-004 | 0.0000 | 1.2766 | 1.2766 | 1.1000e-004 | 0.0000 | 1.2793 |
| **Total** | **0.2840** | **9.1800e-003** | **9.2100e-003** | **1.0000e-005** | | **6.4000e-004** | **6.4000e-004** | | **6.4000e-004** | **6.4000e-004** | **0.0000** | **1.2766** | **1.2766** | **1.1000e-004** | **0.0000** | **1.2793** |

## 3.6 Architectural Coating - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.7000e-004 | 2.2000e-004 | 2.1500e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4850 | 0.4850 | 2.0000e-005 | 0.0000 | 0.4854 |
| **Total** | **2.7000e-004** | **2.2000e-004** | **2.1500e-003** | **1.0000e-005** | **5.5000e-004** | **0.0000** | **5.5000e-004** | **1.5000e-004** | **0.0000** | **1.5000e-004** | **0.0000** | **0.4850** | **0.4850** | **2.0000e-005** | **0.0000** | **0.4854** |

### 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 | 0.2826 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.3300e-003 | 9.1800e-003 | 9.2100e-003 | 1.0000e-005 | | 6.4000e-004 | 6.4000e-004 | | 6.4000e-004 | 6.4000e-004 | 0.0000 | 1.2766 | 1.2766 | 1.1000e-004 | 0.0000 | 1.2793 |
| **Total** | **0.2840** | **9.1800e-003** | **9.2100e-003** | **1.0000e-005** | | **6.4000e-004** | **6.4000e-004** | | **6.4000e-004** | **6.4000e-004** | **0.0000** | **1.2766** | **1.2766** | **1.1000e-004** | **0.0000** | **1.2793** |

### 3.6 Architectural Coating - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.7000e-004 | 2.2000e-004 | 2.1500e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4850 | 0.4850 | 2.0000e-005 | 0.0000 | 0.4854 |
| **Total** | **2.7000e-004** | **2.2000e-004** | **2.1500e-003** | **1.0000e-005** | **5.5000e-004** | **0.0000** | **5.5000e-004** | **1.5000e-004** | **0.0000** | **1.5000e-004** | **0.0000** | **0.4850** | **0.4850** | **2.0000e-005** | **0.0000** | **0.4854** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 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 | 0.0598 | 0.4366 | 0.7396 | 2.4700e-003 | 0.1759 | 2.5800e-003 | 0.1785 | 0.0472 | 2.4300e-003 | 0.0496 | 0.0000 | 227.7903 | 227.7903 | 0.0131 | 0.0000 | 228.1187 |
| Unmitigated | 0.0699 | 0.5327 | 0.9847 | 3.3900e-003 | 0.2507 | 3.5800e-003 | 0.2542 | 0.0672 | 3.3800e-003 | 0.0706 | 0.0000 | 313.2747 | 313.2747 | 0.0164 | 0.0000 | 313.6845 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Manufacturing | 125.92 | 39.73 | 31.72 | 443,483 | 311,187 |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Refrigerated Warehouse-No Rail | 47.14 | 47.14 | 47.14 | 214,777 | 150,707 |
| Total | 173.05 | 86.87 | 78.86 | 658,260 | 461,894 |

## 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 |
| Manufacturing | 16.60 | 8.40 | 6.90 | 59.00 | 28.00 | 13.00 | 92 | 5 | 3 |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Refrigerated Warehouse-No | 40.00 | 8.40 | 6.90 | 19.70 | 0.00 | 80.30 | 92 | 5 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |
| Other Non-Asphalt Surfaces | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |
| Parking Lot | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |
| Refrigerated Warehouse-No Rail | 0.541740 | 0.038987 | 0.178620 | 0.126833 | 0.019742 | 0.005671 | 0.017070 | 0.060066 | 0.001326 | 0.001715 | 0.006244 | 0.000823 | 0.001163 |

## 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 | 452.1305 | 452.1305 | 0.0187 | 3.8600e-003 | 453.7480 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 452.1305 | 452.1305 | 0.0187 | 3.8600e-003 | 453.7480 |
| NaturalGas Mitigated | 0.0132 | 0.1198 | 0.1006 | 7.2000e-004 | | 9.1000e-003 | 9.1000e-003 | | 9.1000e-003 | 9.1000e-003 | 0.0000 | 130.3793 | 130.3793 | 2.5000e-003 | 2.3900e-003 | 131.1541 |
| NaturalGas Unmitigated | 0.0132 | 0.1198 | 0.1006 | 7.2000e-004 | | 9.1000e-003 | 9.1000e-003 | | 9.1000e-003 | 9.1000e-003 | 0.0000 | 130.3793 | 130.3793 | 2.5000e-003 | 2.3900e-003 | 131.1541 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Manufacturing | 1.04088e+006 | 5.6100e-003 | 0.0510 | 0.0429 | 3.1000e-004 | | 3.8800e-003 | 3.8800e-003 | | 3.8800e-003 | 3.8800e-003 | 0.0000 | 55.5454 | 55.5454 | 1.0600e-003 | 1.0200e-003 | 55.8755 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 1.40233e+006 | 7.5600e-003 | 0.0687 | 0.0577 | 4.1000e-004 | | 5.2200e-003 | 5.2200e-003 | | 5.2200e-003 | 5.2200e-003 | 0.0000 | 74.8339 | 74.8339 | 1.4300e-003 | 1.3700e-003 | 75.2786 |
| **Total** | | **0.0132** | **0.1198** | **0.1006** | **7.2000e-004** | | **9.1000e-003** | **9.1000e-003** | | **9.1000e-003** | **9.1000e-003** | **0.0000** | **130.3793** | **130.3793** | **2.4900e-003** | **2.3900e-003** | **131.1541** |

## 5.2 Energy by Land Use - NaturalGas

**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 | | | | | |
| Manufacturing | 1.04088e+006 | 5.6100e-003 | 0.0510 | 0.0429 | 3.1000e-004 | | 3.8800e-003 | 3.8800e-003 | | 3.8800e-003 | 3.8800e-003 | 0.0000 | 55.5454 | 55.5454 | 1.0600e-003 | 1.0200e-003 | 55.8755 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 1.40233e+006 | 7.5600e-003 | 0.0687 | 0.0577 | 4.1000e-004 | | 5.2200e-003 | 5.2200e-003 | | 5.2200e-003 | 5.2200e-003 | 0.0000 | 74.8339 | 74.8339 | 1.4300e-003 | 1.3700e-003 | 75.2786 |
| **Total** | | **0.0132** | **0.1198** | **0.1006** | **7.2000e-004** | | **9.1000e-003** | **9.1000e-003** | | **9.1000e-003** | **9.1000e-003** | **0.0000** | **130.3793** | **130.3793** | **2.4900e-003** | **2.3900e-003** | **131.1541** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Manufacturing | 325176 | 103.6079 | 4.2800e-003 | 8.8000e-004 | 103.9786 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 11480 | 3.6578 | 1.5000e-004 | 3.0000e-005 | 3.6709 |
| Refrigerated Warehouse-No Rail | 1.08237e+006 | 344.8648 | 0.0142 | 2.9500e-003 | 346.0986 |
| **Total** | | **452.1305** | **0.0187** | **3.8600e-003** | **453.7480** |

## 5.3 Energy by Land Use - Electricity

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Manufacturing | 325176 | 103.6079 | 4.2800e-003 | 8.8000e-004 | 103.9786 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 11480 | 3.6578 | 1.5000e-004 | 3.0000e-005 | 3.6709 |
| Refrigerated Warehouse-No Rail | 1.08237e+006 | 344.8648 | 0.0142 | 2.9500e-003 | 346.0986 |
| **Total** | | **452.1305** | **0.0187** | **3.8600e-003** | **453.7480** |

# 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 | 0.2461 | 2.0000e-005 | 1.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 3.5200e-003 | 3.5200e-003 | 1.0000e-005 | 0.0000 | 3.7600e-003 |
| Unmitigated | 0.2461 | 2.0000e-005 | 1.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 3.5200e-003 | 3.5200e-003 | 1.0000e-005 | 0.0000 | 3.7600e-003 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0283 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.2176 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 1.7000e-004 | 2.0000e-005 | 1.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 3.5200e-003 | 3.5200e-003 | 1.0000e-005 | 0.0000 | 3.7600e-003 |
| **Total** | **0.2461** | **2.0000e-005** | **1.8300e-003** | **0.0000** | | **1.0000e-005** | **1.0000e-005** | | **1.0000e-005** | **1.0000e-005** | **0.0000** | **3.5200e-003** | **3.5200e-003** | **1.0000e-005** | **0.0000** | **3.7600e-003** |

### 6.2 Area by SubCategory

**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 | 0.0283 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.2176 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 1.7000e-004 | 2.0000e-005 | 1.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 3.5200e-003 | 3.5200e-003 | 1.0000e-005 | 0.0000 | 3.7600e-003 |
| **Total** | **0.2461** | **2.0000e-005** | **1.8300e-003** | **0.0000** | | **1.0000e-005** | **1.0000e-005** | | **1.0000e-005** | **1.0000e-005** | **0.0000** | **3.5200e-003** | **3.5200e-003** | **1.0000e-005** | **0.0000** | **3.7600e-003** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Water Efficient Irrigation System

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 48.8541 | 0.3583 | 8.8000e-003 | 60.4358 |
| Unmitigated | 61.0676 | 0.4479 | 0.0110 | 75.5447 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Manufacturing | 7.40925 / 0 | 33.0899 | 0.2427 | 5.9600e-003 | 40.9344 |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 6.26456 / 0 | 27.9777 | 0.2052 | 5.0400e-003 | 34.6103 |
| **Total** | | **61.0676** | **0.4479** | **0.0110** | **75.5447** |

### 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Manufacturing | 5.9274 / 0 | 26.4719 | 0.1942 | 4.7700e-003 | 32.7475 |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 5.01165 / 0 | 22.3822 | 0.1642 | 4.0300e-003 | 27.6882 |
| **Total** | | **48.8541** | **0.3583** | **8.8000e-003** | **60.4358** |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 6.6165 | 0.3910 | 0.0000 | 16.3921 |
| Unmitigated | 13.2330 | 0.7821 | 0.0000 | 32.7842 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Manufacturing | 39.73 | 8.0648 | 0.4766 | 0.0000 | 19.9803 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 25.46 | 5.1682 | 0.3054 | 0.0000 | 12.8039 |
| **Total** | | **13.2330** | **0.7821** | **0.0000** | **32.7842** |

### 8.2 Waste by Land Use

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Manufacturing | 19.865 | 4.0324 | 0.2383 | 0.0000 | 9.9901 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 12.73 | 2.5841 | 0.1527 | 0.0000 | 6.4019 |
| **Total** | | **6.6165** | **0.3910** | **0.0000** | **16.3921** |

## 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

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