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Air Quality and Green House Gasses Study for APN: 1061-57101
Four Lot Subdivision Project #: DRC2015-01050
City of Rancho Cucamonga, San Bernardino County, CA.

Prepared by: A. Landin
Report date: 4/21/2018
Revised 10/17/2018

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1.0 Introduction

The San Bernardino County Greenhouse Gas Emissions Development Review Processes updated March 2015 includes reducing 159,423 Metric Tons of Carbon Dioxide Equivalents (MTCO2e) per year from new development by 2020 as compared to the 2020 unmitigated conditions. The review process is primarily focused on the quantification of project-level mitigation of greenhouse gas emissions associated with land use, transportation, energy use, and other related project areas.

Existing environmental law and policy requires that environmental impacts of projects be evaluated and disclosed to the public, and where those impacts are potentially significant, that they be mitigated. In the state of California, the California Environmental Quality Act (CEQA) sets forth the requirements and the framework for the review.

The Report provides a discussion of background information on programs and other circumstances in which quantification of greenhouse gas emissions is important. This includes voluntary emission reduction efforts, project-level emission reduction efforts, reductions for regulatory compliance, and reductions for some form of credit.

The measures included in this Report were selected because they are frequently considered as mitigation for GHG impacts, and standardized methods for quantifying emissions from these projects were not previously available. Measures were screened on the basis of the feasibility of quantifying the emissions, the availability of robust and meaningful data upon which to base the quantification, and whether the measures (alone or in combination with other measures) would result in appreciable reductions in GHG emissions.

Mitigation of GHG emissions impacts through the GHG Development Review Process (DRP) results in one of the most substantial reduction strategies for reducing external emissions. The DRP procedures for evaluating GHG impacts and determining significance for CEQA purposes will be streamlined by (1) applying a uniform set of performance standards to the development project, and (2) utilizing Screening Tables to mitigate project GHG emissions. Thus, adhering to project standards to provide a project-specific technical analysis to quantify and mitigate project emissions.

Our report is based on the CALEEMOD program output data, as shown further below.

1.1 Project Summary

Owner(s): SP Assets LLC Trustee of the 9611 Hillside Trust
Phone: (626) 318 - 2828
City of Rancho Cucamonga Subdivision Project #: DCR2015-01050
Location: 8628 Hillside Road, Rancho Cucamonga, Ca. 91701
APN: 1061-57101-0000

Scope of Work:

Existing lot is going to be subdivided into four equal-sized lots (see tentative map, for more information). The three new lots will have a new single family residence with up to 3,000 square feet of construction per lot. There will also be an impervious pavement of 17,640 square feet, and the proposed landscape area will be 40,000 square feet. The remainder of the property will include a barren post-development area of 54,699 square feet. The implementation of this report during site preparation, before construction, and after construction work, will supplement any other City and State requirements, such as current building codes and energy efficiency standards.

1.2 Purpose of Analysis and Study Objectives

This Air Quality, Greenhouse Gas (GHG) Emissions, and Health Risk Assessment (HRA) Impact Analysis has been completed to determine the air quality, GHG emissions, and toxic air contaminant impacts associated with the proposed Almond Subdivision Project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and greenhouse gases (GHGs);
- A description of the air quality regulatory framework;
- A description of the air quality and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the short-term construction related and long-term operational air quality and GHG emissions impacts;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP); and
- An analysis of the conformity of the proposed project with all applicable GHG emissions reduction plans and policies.

1.3 Site Location and Study Area

The project site is located in the upper north portion of the City of Rancho Cucamonga (City) south of Hillside Road. The approximately 122,839 square foot project site currently has an existing single family house at 1,500 square feet known as the Grandma Issak house, which has a historic property preservation agreement that was documented on December 20, 2000. The project site is bounded by a residential area. The project local study area is shown below.

Sensitive Receptors in Project Vicinity:

According to the SCAQMD, projects have the potential to create significant impacts if they are located within ¼ mile of sensitive receptors and would emit toxic air contaminants identified in SCAQMD Rule 1401. The nearest offsite sensitive receptors to the project site consist of residential homes as near as five feet to the east of the project site. The nearest school to the project site is Hermosa Elementary School that is located as near as 1 mile southeast of the project site. The project is not located within ¼ mile of any long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, schools, playgrounds, child care centers, or athletic facilities.

1.4 Proposed Project Description

The proposed project would consist of the development of three residential homes that total about 9,000 square feet of construction (3,000 square feet each) between the newly subdivided four equal-sized lots totaling 10,500 square feet of space. Each building will have adequate parking area.

The proposed site area is shown in the Site Map below:

Site Map (Not to Scale)

1.5 Standard Air Quality and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the SCAQMD and State of California (State).

South Coast Air Quality Management District Rules

The following lists the SCAQMD rules that are applicable to all commercial projects in the South Coast Air Basin (Air Basin).

Rule 402 -Nuisance

Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes 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. Compliance with Rule 402 will reduce local air quality and odor impacts to nearby sensitive receptors.

Rule 403- Fugitive Dust

Rule 403 governs emissions of fugitive dust during construction activities and requires that no person shall cause or allow the emissions of fugitive dust such that dust remains visible in the atmosphere beyond the property line or the dust emission exceeds 20 percent opacity, if the dust is from the operation of a motorized vehicle. Compliance with this rule is achieved through application of standard Best Available Control Measures, which include but are not limited to the measures below. Compliance with these rules would reduce local air quality impacts to nearby sensitive receptors.

- Utilize either a pad of washed gravel 50 feet long, 100 feet of paved surface, a wheel shaker, or a wheel washing device to remove material from vehicle tires and undercarriages before leaving project site.
- Do not allow any track out of material to extend more than 25 feet onto a public roadway and remove all track out at the end of each workday.
- Water all exposed areas on active sites at least three times per day and pre-water all areas prior to clearing and soil moving activities.
- Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas that will remain inactive for I 0 days or longer.
- Pre-water all material to be exported prior to loading, and either cover all loads or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114.
- Replant all disturbed area as soon as practical.

- Suspend all grading activities when wind speeds (including wind gusts) exceed 25 miles per hour.
- Restrict traffic speeds on all unpaved roads to 15 miles per hour or less. Rule 1113 - Architectural Coatings Rule 1113 governs the sale, use, and manufacturing of architectural coatings and limits the VOC content in sealers, coatings, paints and solvents. This rule regulates the VOC contents of paints available during construction. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

Rule 1143 - Paint Thinners

Rule 1143 governs the sale, use, and manufacturing of paint thinners and multi-purpose solvents that are used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations. This rule regulates the VOC content of solvents used during construction. Solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1143.

State of California Rules

The following lists the State of California rules that are applicable to all commercial projects in the State.

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the California Air Resources Board (CARB) adopted a regulation to reduce diesel particulate matter (DPM) and NO_x emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NO_x emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 20I 0 to delay the original timeline of the performance requirement making the first compliance deadline January I, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 engine and medium and large fleets are restricted from adding Tier I engines. By January 1, 2016 small fleet will also be restricted from adding Tier I engines to their fleets and by January 1, 2018 medium and large fleets will be restricted from adding Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that

the average emissions from their entire fleet emissions meet the NO_x emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NO_x, PMIO 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 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NO_x emissions and 100 percent of a truck fleet installed BACT for PM 10 emissions. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

California Code of Regulations CCCR) Title 24. Part 6

CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) standards require the installation of insulated hot water pipes, improved window performance, improved wall insulation, and mandatory duct sealing. Other Title 24 requirements include the use of cool roofing shingles and a minimum l-inch air space between roof material and roof deck, all outdoor lighting is required to have daylight sensors and motion sensors, and requires that vacancy sensors are installed in bathrooms, utility rooms and other spaces. The 2014 Building Standards are anticipated to reduce energy usage by 25 percent in residential buildings and 30 percent in commercial buildings over the 2008 Building Standards (http://www.energy .ca.gov/releasesl2014 releases/2014-07-01 new title24 standards nr.html).

California Code of Regulations CCCRl Title 24. Part II

CCR Title 24, Part II: California Green Building Standards (Title 24) requires 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 II is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part II has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for non-residential buildings include a 20 percent reduction of potable water use within buildings

through use of low-flow fixtures, a SO percent construction waste diversion from landfills, use of building finish materials and carpets that emit low levels of volatile organic compounds.

1.6 Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality and GHG emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?
Less than significant impact.

Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
Less than significant impact.

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?
Less than significant impact.

Expose sensitive receptors to substantial pollutant concentrations?
Less than significant impact.

Create objectionable odors affecting a substantial number of people?
Less than significant impact.

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
Less than significant impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?
Less than significant impact.

1.7 Mitigation Measures Required for the Proposed Project

This analysis found that implementation of the State and SCAQMD air quality and GHG emissions reductions regulations were adequate to limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality and GHG emissions.

2.0 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.

2.1 Criteria Pollutants

The criteria pollutants consist of: ozone, nitrogen oxides, carbon monoxide, sulfur oxides, 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.

Nitrogen Oxides

Nitrogen Oxides (NO_x) 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 ($N0_2$) can often be seen as a reddish-brown layer over many urban areas. NO_x form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NO_x reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as $N0_2$, which cause respiratory problems. NO_x and the pollutants formed from NO_x can be transported over long distances, following the patterns of prevailing winds. Therefore controlling NO_x is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone is not usually emitted directly into the air but in the vicinity of ground-level is created by a chemical reaction between NO_x 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 NO_x 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 NO_x and VOC

are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NO_x and VOC emissions.

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 approximately 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.

Sulfur Oxides

Sulfur Oxide (SO_x) gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SO_x 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.

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 Pb 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.

Particulate Matter

Particle matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. PM 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 I 0 micrometers in diameter (PM I 0) 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 Jess than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM I 0 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. Sources of TACs 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 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, I, 3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

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

According to The California Almanac of Emissions and Air Quality 2013 Edition, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). DPM is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC 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 DPM 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 DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM 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.

Asbestos

Asbestos is listed as a TAC by CARB 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 asbestiform 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. 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. The nearest historic asbestos mine to the project site, as identified in the Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California, prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 70 miles southeast of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

In compliance with the Southern California Air Quality Management District rule 1403, if there is demolition of older structures asbestos emissions should be cited. Although the construction site is not located in a high traffic area, precautions will be taken to ensure a low production of fugitive waste. Clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25mph per SCAMD guidelines.

2.3 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHGs), play a critical role in the Earth's radiation amount by trapping infrared radiation 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 (O_3), 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 N_2O 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.

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 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).

Carbon Dioxide

The natural production and absorption of C02 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. C02 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20111 century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

CH4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of C02• Its lifetime in the atmosphere is brief(lO to 12 years}, compared to some other GHGs (such as C02, N20, and Chlorofluorocarbons (CFCs)). CH4 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.

Nitrous Oxide

Concentrations ofN20 also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N 20 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. N20 is also commonly 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 race cars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C2H6) 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. They were 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 1 00 years.

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 (CHFJ), HFC-134a (CFJCH2F), and HFC-152a (CH3CHF2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations ofHFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about I ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Pertluorocarbons (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 (CF4) and hexafluoroethane (C2F6). Concentrations of CF4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

Sulfur Hexafluoride (SF6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF6 has the highest global warming potential of any gas evaluated; 23,900 times that of C02. 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.

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.

2.4 Global Warning Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, C0 2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms ofC02e. The GWP of C02 is by definition, I . The GWP values used in this analysis are based on the IPCC Second Assessment Report (SAR} and United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines, and are detailed in Table A. The SAR GWPs are used in CARS's California inventory and AB32 Scoping Plan estimates.

Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas Carbon Dioxide (CO_2) Methane (CH_4)	**Atmospheric Lifetime (years) 1**	**Global Warming Potential (100 Year Horizon) 1**	**Atmospheric Abundance**
Nitrous Oxide (N_20) HFC-23	50-200	1	379 ppm
HFC-134a	9-15	21	1,774 ppb
HFC-152a	120	310	319 ppb
PFC: Tetraflouromethane (CF4)	264	11,700	18 ppt
PFC: Hexaflourethane (C2F6)	14.6	1,300	35 ppt
Sulfure Hexaflouride (SF&)	1.5	140	3.9 ppt
Notes:	50,000	6,500	74 ppt
1Delined as the hnlf-life of the 1!IIS	10,000	9,200	2.9 ppt
	3,200	23,900	5.6 ppt

1 Compared to the same quantity of CO: emissions
Definitions ppm *port per million; ppb *parts per billion; ppt *parts per trillion
Source: IPCC, 2007

3.0 AIR QUALITY MANAGEMENT

3.1 Regulatory Setting

The air quality at the project site 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.

International

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. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 20J 2 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and J 992. 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.

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. NAAQS pollutants were identified using medical evidence and are shown below in Table C.

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 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 SIP.

On December 14, 2012, the EPA revised the primary annual PM2.5 NAAQS from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ and retained the 24 hour PM2.5 standard at 35 $\mu g/m^3$ in order to provide increased protection for children, older adults, persons with pre-existing heart and lung disease and other at risk populations.

Table B – 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-hr 0.07 ppm / 8-hr	0.075 ppm / 8-hr	(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; and (f) Property damage
Carbon Monoxide (CO)	20.0 ppm / 1-hr 9.0 ppm / 8-hr	35.0 ppm / 1-hr 9.0 ppm / 8-hr	(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; and (d) Possible increased risk to fetuses
Nitrogen Dioxide (NO_2)	0.25 ppm / 1-hr 0.030 ppm / annual	100 ppb / 1-hr 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; and (c) Contribution to atmospheric discoloration
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hr 0.04 ppm / 24-hr	75 ppb / 1-hr 0.14 ppm / annual	(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 (PM10) Suspended Particular Matter (PM2.5)	50 µg/m³ / 24-hr 20µg/m³ / annual 12µg/m³ / annual	150 µg/m³ / 24-hr 35 µg/m³ / 24-hr 12 µg/m³ / annual	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly
Sulfates	25 µg/m³ / 24-hr	No Federal Standards	(a) Decrease in ventilator function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property Damage
Lead	1.5 µg/m³ / 30-day	0.15 µg/m³ / 3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction
Visibility Reducing Particles		No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent
Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf			

As indicated below in Table D, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone (03) and fine particulate matter (PM2.5) and partial non-attainment for lead. Currently, the Air Basin is in attainment with the national ambient air quality standards for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and respirable particulate matter (PM10).

Table C – South Coast Air Basin Attainment Status

Pollutant	Averaging Time	National Standards Attainment Date[1]	California Standards[2]
1979 1-Hour Ozone (O_3)[3]	1-Hour (0.12 ppm)	Nonattainment (Extreme) 11/15/2010 (not attained)	Nonattainment
1997 8-Hour Ozone (O_3)[4]	8-Hour (0.08 ppm)	Nonattainment (Extreme) 6/15/2024	
2008 8-Hour Ozone (O_3)	8-Hour (0.075 ppm)	Nonattainment (Extreme) 12/31/2032	
Carbon Monoxide (CO)	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance) 6/11/2007 (attained)	Attainment
Nitrogen Dioxide (NO_2)[5]	1-Hour (100 ppb) Annual (0.053 ppm)	Unclassifiable/Attainment Attained Attainment (Maintenance) 9/22/1998	Attainment
Sulfur Dioxide (SO_2)[6]	1-Hour (75 ppb) 24-Hour (0.14 ppm) Annual (0.03 ppm)	Designation Pending/Pending Unclassifiable/Attainment 3/19/1979 (attained)	Attainment
PM10	24-Hour (150 µg/m³)	Attainment (Maintenance) July 26, 2013	Nonattainment
PM2.5	24-Hour (35 µg/m³) Annual (12.0 µg/m³)	Nonattainment 12/14/2014 Nonattainment 4/5/2015	Nonattainment
Lead (Pb)	3-Months Rolling (0.15 µg/m³)	Nonattainment (Partial)[7] 12/31/2015	Nonattainment

[1]Obtained from 2012 AQMP, SCAQMD, 2012. A design value below the NAAQS for data through the full year of smog season prior to the attainment due is typically required for attainment demonstration

[2]Obtained from http://www.arb.ca.gov/desig/adm/adm_htm

[3]1-hour O_3 standard (0.12 ppm) was revoked, effective June 15, 2005, however the Air Basin has not attained this standard based on 2008-2010 data has some continuing obligations under the former standard

[4]1997 8-hour O_3 standard (0.08ppm) was reduced (0.075 ppm), effective May 27, 2008, the 1997 O_3 standard and most related implementation rules remain in place until the 1997 standard is revoked by U.S. EPA

[5]New No_2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual No_2 standard retained

6The 1971 annual and 24-hour SO_2 standards were revoked, effective August 23, 2010, however, these 1971 standards remain in effect until one year after U.S. EPA promulgates area designations for 2010 SO_2 1-hour standard . Area designations are expected in 2012, with Basin designated Unclassifiable/Attainment

[7]Partial Nonattainment designation – Los Angeles County portion of Air Basin only

In 2011, the Air 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 Air 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 Air Basin (Central San Bernardino Mountains, East San Bernardino Valley, and Metropolitan Riverside County).

PM2.5 in the Air Basin has improved significantly in recent years, with 2010 and 2011 being the cleanest years on record. In 2011, only one station in the Air Basin (Metropolitan Riverside County at Mira Loma) exceeded the annual PM2.5 NAAQS and the 981 percentile fonn 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 Ai r Basin is currently in attainment for the federal standards for S02, CO, and N02. While the concentration level of the new 1-hour N02 federal standard (100 ppb) was exceeded in the Air Basin at two stations (Central Los Angeles and Long Beach) on the same day in 2011, the NAAQS N02 design value has not been exceeded. Therefore, the Basin remains in attainment of the N02 NAAQS.

The EPA designated the Los Angeles County portion of the Air Basin as nonattainment for the recently revised (2008) federal lead standard (0.15 J.lg/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. For the most recent 2009-2011 data period, only one of these stations (Vernon) still exceeded the lead standard. The 2012 Lead State Implementation Plan Los Angeles County, prepared by SCAQMD and adopted on May 4, 2012, provides measures to meet attainment of lead by December 31, 20 I 5.

In Massachusetts v. Environmental Protection Agency (Docket No.05-1 120), 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 C02 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 I 10-161), EPA proposed a rule on March I 0, 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 A ir 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 veh icle 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.

The EPA has recently proposed several standards to reduce GHG emissions from power plants and other stationary sources. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,I 00 pounds of C02 per MWh for fossil fuel-fired utility boilers and I ,000 pounds of C02 per MWh for large natural gas-fired combustion units. These new standards make it impossible to construct new coal powered plants based on current available technology.

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 Californ ia. In this capacity, the CARB conducts research, sets the California Ambient A ir Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table B. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter flu id), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The Air Basin has been designated by the CARB as a non-attainment area for ozone, PM I 0, PM2.5 and lead. Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for CO, N02. S02, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM I 0 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 Final) 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.

CARB is also responsible for regulations pertaining to Toxic Air Contaminants (TACs). The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [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 in California. 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.

CARB also proposed interim statewide CEQA thresholds for GHG emissions and released Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act, on October 24, 2008. 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.

Executive Order B-30-15

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius - the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April I, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The order also requires more efficient irrigation systems, the promotion of greywater usage and onsite storm water capture and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulation will reduce GHG emissions by 30 percent from 2002 levels by 2016. The second set of regulations "Pavley II" is currently in development and will be phased in between model years 2017 through 2025 and will reduce emissions by 45 percent by the year 2020. The Pavley II standards are being developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework.

In 2005, the CARB submitted a "waiver" request to the EPA in order to implement the GHG standards and in March of 2008, the U.S. EPA denied the request. However, in June 2009, the decision was reversed and the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles. In September 2009, the Pavley I regulations were adopted by CARB.

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 (CaiEPA) 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 (CAn, 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 Bill32

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 utilize 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 ofC02e (MMTC02e). The 2020 target of 427 MMTC02e requires the reduction of 169 MMTC02e, or approximately 30 percent from the State's projected 2020 business as usual emissions of 596 MMTC02e and the reduction of 42 MMTC02e, or almost I 0 percent from the 2002-2004 average GHG emissions. Under AB 32, CARB was required to adopt regulations by January I, 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 C02 in a calendar year to submit verification of GHG emissions by December I, 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, all of which became enforceable on or before January 1, 2010.

On December 11, 2008 the CARB Board approved a Scoping Plan, with final adoption May II, 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 was not sufficient for informed decision-making and public review under CEQA. In response, CARB appealed the decision. In addition, CARB prepared the Supplement to the AB 32 Scoping Plan Functional Equivalent Document, June 13, 201 I. 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 order.

Senate Bill 1368

Senate Bill 1368 (SB I 368) is the companion Bill of AB 32 and was adopted September 2006. SB 1368 requires that the California Public Utilities Commission (CPUC) establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February I, 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 CPUC and California Energy Commission (CEC).

Executive Order S-I -07

Executive Order S-I-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 AB32.

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 I 6 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 annually 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 during 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 com-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 Bill97

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 Natural Resources 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 I, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January I, 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 incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 20 I 0 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 Xl-2 and Executive Orders S-14-08 and S-21-09 Senate Bill I 078 (SB I 078) 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 20I 0. 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 X I-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 community's strategy or alternate planning strategy for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as "transit priority projects."

Senate Bills 939 and 1374

Senate Bill 939 (SB 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 April23, 2008 and Building Standards Commission approved them for publication on September II, 2008. These updates became effective on August I, 2009. On May 31, 2012 the Energy Commission adopted the proposed 2013 Building Standards that became effective on July 1, 2014. The new building standards are anticipated to reduce energy use in nonresidential buildings by 30 percent and require the use of high performance windows, efficient process equipment in grocery stores and commercial kitchens, advanced multi-level lighting controls that take advantage of day lighting and occupancy, increased solar reflectance of roofing material, and increased cooling tower energy efficiency, as well as other additional measures (http://www.energy.ca. gov/releases/2014 releases/2014-07-0 I new title24 standards nr.html)

California Code of Regulations (CCRl Title 24. Part 11

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 II 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 II 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 through use of low-flow fixtures, a 50 percent construction waste diversion from landfills, and use of building finish materials that emit low levels of volatile organic compounds.

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

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. 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. The Final 2012 Air Quality Management Plan {2012 AQMP) was adopted by the SCAQMD Board on December 7, 2012 and was adopted by CARB via Resolution 13-3 on January 25, 2013. The 2012 AQMP was prepared in order to meet the federal Clean Air Act requirement that all24-hour PM2.5 non-attainment areas prepare a SIP, that were 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 20 I 2 AQM P 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 NO_x 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 NO_x 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 is designed to satisfy the California Clean Air Act's (CCAA) emission reductions of 5 percent per year or adoption of all feasible measures requirements and fulfill the EPA 's requirement to update transportation conformity emissions budgets based on the latest approved motor vehicle emissions model and planning assumptions. The 2012 AQMP updates and revises the previous 2007 AQMP. The

2012 AQMP was prepared to comply with the Federal and State CCAA and amendments, to accommodate growth, to reduce the high pollutant levels in the Basin, to meet Federal and State ambient air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. The purpose of the 20 I 2 AQMP for the Basin is to set forth a comprehensive program that will lead this area into compliance with all federal and state air-quality planning requirements.

The 2012 AQMP builds 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 EMFAC201 1 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. Composting waste was revised and now includes the emissions from green waste composting covered under SCAQMD Rule 1133.3. 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: I) 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.

Although 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 Basin. Instead, this is controlled through local jurisdictions in accordance to 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 SCAQMD, 1993, with the most current updates found at http://www. aqmd.gov/cegalhdbk.html, was developed in accordance with the projections and programs detailed in the AQMPs. 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 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 Basin, and adverse impacts will be minimized.

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 CARS 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 either provides a quantitative annual thresholds of 3,500 MTC02e for residential uses, 1,400 MTC02e for commercial uses, and 3,000 MTC02e for mixed uses. An alternative annual threshold of3,000 MTC02e for all land use types is also proposed.

Rules 2700 and 2701

On December 5, 2008, the SCAQMD adopted Rules 2700 and 2701, 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 - 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 I 00,000 tons per year of C02e are required to apply for a Title V permit. A Title V permit is for facilities that are considered major sources of emissions.

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 Metropolitan Planning Organization (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 RTP/SCS 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 RTP/SCS, RTIP, and AQMP are based on projections originating within the City and County General Plans.

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 2007

AQMP and 2012 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 City 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.

4.0 Atmospheric Setting

4.1 Local Climate

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

The climate of western San Bernardino County, technically called an interior valley sub-climate 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 bum 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 Basin into the interior valleys which become trapped by the mountains that border the eastern edge of the Basin.

The local air quality impacts on the Air Basin, from the operation of the proposed project, would mainly occur from the incremental addition of pollutants resulting from increased traffic.

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 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 project site are shown below in Table D. Table D 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 D – Rancho Cucamonga Monthly Climate Date

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Max. Temperature	68	70	71	76	80	88	95	95	91	83	74	69
Average Min. Temperature	45	47	47	49	53	57	62	63	62	56	49	44
Average Total Precipitation (in.)	3.50	3.55	3.49	0.63	0.19	0.01	0.00	0.11	0.26	0.27	1.26	1.63
Source: http://www.weather.com/weather/wxclimatology/monthly/graph/USCA0911												

4.2 Monitored Local 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 Air Basin provided in the 2012 AQMP, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another I 0 percent of PM2.5 from road dust. SCAQMD has divided the Basin into with a designated ambient air monitoring station representative of each area. The project site is located in Air Monitoring Area 32, which covers the northwestern portion of San Bernardino County. The nearest air monitoring station to the project site is the Upland Monitoring Station (Upland Station), which is located approximately 6.9 miles southwest of the project site at 1350 San Bernardino Road, Upland.

However, it should be noted that due to the air monitoring station's distance from the project site, recorded air pollution levels at the Upland Station reflect with varying degrees of accuracy, local air quality conditions at the project site. Table E

shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below:

Ozone

The State 1-hour concentration standard for ozone has been exceeded between 25 and 42 days each year over the past three years at the Upland Station. The State 8-hour ozone standard has been exceeded between 44 and 66 days each year over the past three years at the Upland Station. The Federal 8-hour ozone standard has been exceeded between 27 and 45 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 N02, 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 Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Nitrogen Dioxide

The Upland Station did not record an exceedance of the Federal 1-hour N02 standard for the last three years.

Table E – Local Area Air Quality Monitoring Summary

	Year[2]		
Pollutant Standard	2012	2013	2014
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.136	0.143	0.126
Days >CAAQS (0.09 ppm)	**42**	**25**	**34**
Maximum 8-Hour Concentration (ppm)	0.111	0.111	0.101
Days >NAAQS (0.075 ppm)	**45**	**27**	**42**
Days >CAAQS (0.070 ppm)	**66**	**44**	**60**
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppb)	66.7	62.1	74.1
Days >NAAQS (100 ppb)	0	0	0
Inhalable Particulates (PM10):			
Maximum 24-Hour California Measurement (µg/m³)	92.7	96.8	80.8
Days >NAAQS (150 µg/m³)	0	0	0
Days >CAAQS (50 µg/m³)	--*	--*	--*
Annual Arithmetic Mean (AAM) (µg/m³)	31.2	30.9	29.4
Annual >NAAQS (50 µg/m³)	No	No	No
Annual >CAAQS (20 µg/m³)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour National Measurement (µg/m³)	40.3	83.2	40.0
Days>NAAQS (35 µg/m³)	--*	--*	--*
Annual Arithmetic Mean (AAM) (µg/m³)	--*	16.5	--*
Annual >NAAQS and CAAQS (12 µg/m³)	--*	No	--*

Notes: Exceedances are listed in bold. CAAQS – California Ambient Air Quality Standards; NAAQS – National Ambient Air Quality Standard; ppm – parts per million; ppb – parts per billion; * - insufficient or no data

[1]Data obtained from Upland Station
Source: http//www.arb.ca.gov/adam/

Particulate Matter

The data was incomplete at the Upland Station for the number of days the State 24-hour concentration standard was exceeded for PM10, however it should be noted that the maximum daily values for each of the past three years exceeded the State 24-hour concentration standard of 50 $\mu g/m^3$.

Over the past three years the Federal 24-hour standard for PM 10 has not been exceeded at the Upland Station. The annual PM I 0 concentration at the Upland Station has exceeded the State standard for the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the data was incomplete at the Upland Station for the number of days the Federal 24-hour concentration standard was exceeded for PM2, however it should be noted that the maximum daily values for each of the past three years exceeded the Federal 24-hour concentration standard of 35 uglml. The data for the annual PM2.5 concentration at the Upland Station for the past three years was only available for 2013 where it did not exceed either the State or Federal standard. There does not appear to be a noticeable trend for PM I 0 or PM2.5 in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM I 0 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 PM I 0 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.

4.3 Toxic Air Contaminant Levels in the Air Basin

In order to determine the Air Basin-wide risks associated with major airborne carcinogens, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES) studies. According to the SCAQMD's MATES-IV study, the project site has an average estimated cancer risk of 367 per million persons.

In order to provide a perspective of risk, it is often estimated that the incidence in cancer over a lifetime for the U.S. population ranges between I in 3 to 4 and I in 3, or a risk of about 300,000 per million persons. The MATES-Ill study referenced a Harvard Report on Cancer Prevention, which estimated that of cancers associated with known risk factors, about 30 percent were related to tobacco, about 30 percent were related to diet and obesity, and about 2 percent were associated

with environmental pollution related exposures that includes hazardous air pollutants.

5.0 MODELING PARAMETERS AND ASSUMPTIONS

5.1 Construction Emissions Modeling

The construction-related criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of CalEEMod Version 2016.3.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2011 computer program to calculate the emission rates specific for San Bernardino County for construction-related employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2011 and OFFROAD2011 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.

The proposed project would consist of construction of two residential homes with up to 3,200 Square Feet of construction between the newly subdivided two equal-sized lots existing lots. (see tentative map in section 1.4, for more information). The construction emissions have been analyzed for both regional and local air quality impacts as well as potentially toxic air impacts. Construction activities are anticipated to start around January2016 and take approximately 6 months to complete.

The construction-related GHG emissions were based on a 30-year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The phases of construction activities that have been analyzed are detailed in Section 8.3 Diagrams from the Caleemod software and include: 1) site preparation, 2) grading, 3) building construction, 4) paving, and 5) application of architectural coatings.

6.0 Thresholds of Significance

6.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the Air 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, 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 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 F.

Table F – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)						
	VOC	NO_X	CO	SO_X	PM10	PM2.5	LEAD
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

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

Total Localized Construction (pounds/day)

Activity	NOx	CO	PM10	PM2.5
Total	11.207671	8.7468493	0.8657534	0.72054794

Source: CalEEmod Model

Total Localized Operation (pounds/day)

Activity	NOx	CO	PM10	PM2.5
Unmitigated Total	2.4476712	3.2043835	0.327671232	0.172054794
Mitigated Total	2.4465753	3.1013698	0.312328767	0.15671232

Source: CalEEmod Model

6.2 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 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. SCAQMD has also provided Final Localized Significance Threshold Methodology (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are N02, CO, PM I 0, and PM2.5.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of the project site and distance to the nearest sensitive receptors. The project site is 41,230 Square foot as detailed above in Section 4.2 and in the tentative site plans, the project site is located in Air Monitoring Area 32, which covers northwest San Bernardino Valley. For PM I 0 and PM2.5, which are based on a 24-hour standard, the NOx, which is based on a 1-hour threshold and CO, which is based on an 8-hour threshold the nearest sensitive receptors are the residential homes located as near as 50 feet (15.24 meters) to the project site. Since the Look- up Tables only provide emissions thresholds for 25, 50, I 00, 200 and 500 meters, the PM10 and PM2.5 emissions thresholds were calculated through interpolation of the 25 meter thresholds.

Table G – SCAQMD Local Air Quality Thresholds of Significance

	Allowable Emissions (pounds/day)[1]			
Activity	NO_X	CO	PM10	PM2.5
Construction	270	863	2	1
Operation	270	863	5	4

[1]The thresholds are based on 25 meters
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for once acre in northwest San Bernardino

Total Localized Construction Emissions (pounds/day)

Activity	NOx	CO	PM10	PM2.5
Total	11.207671	8.7468493	0.8657534	0.72054794

Source: CalEEmod Model

Total Localized Operation Emissions (pounds/day)

Activity	NOx	CO	PM10	PM2.5
Unmitigated Total	2.4476712	3.6383562	0.327671232	0.172054794
Mitigated Total	2.4465753	3.1013698	0.312328767	0.15671232

Source: CalEEmod Model

6.3 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 I 0 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of I or greater.

In order to determine if the proposed project may have a significant impact related to toxic air contaminants (TACs), the Health Risk Assessment Guidance for analyzing Cancer Risks ji·mn 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 TACs 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 TAC and the toxicity of the HAP should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

6.4 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.

6.5 Greenhouse Gases

The proposed project is located within the jurisdiction of the SCAQMD. In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the March 2015 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 threshold of 10,000 MTC02e for all land use types.

Total GHG Emissions (U.S. tons/year)

Total (US tons/yr)	Bio-CO_2	NBio-Co_2	CH_4	N_2O	CO_2e
	0.0 us tons/yr	246.89 us tons/yr	0.0528 us tons/yr	0.0 us tons/yr	248.22 us tons/yr

Source: CalEEmod Model

7.0 IMPACT ANALYSIS

7.1 CEQA Threshold of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality and global climate change would occur if the proposed project is determined to result in:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people.
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

7.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

SCAQMD Air Quality Management Plan

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable GPs and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD 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 GP 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 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 -Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report and data generated through the CalEEmod 2016.3.2 software, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed above in Section 6.1 or local thresholds of significance discussed above in Section 6.2. The long-term operation of the proposed project would not result in significant impacts based on SCAQMD regional thresholds of significance discussed in Section 6.1 and the analysis found that the operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the local thresholds of significance discussed above in Section 6.2. Therefore, no long-term impact would occur and no mitigation would be required.

As such, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2- Exceed Assumptions in the AOMP?

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 2012-2035 Regional Transportation/Sustainable Communities Strategy, prepared by SCAG, consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the Core Chapters of the document. 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 Rancho Cucamonga Land Use Plan defines the assumptions that are represented in the AQMP.

The proposed project is consistent with the current land use designation and would not require a General Plan Amendment or zone change. Therefore, the proposed project would not result in an inconsistency with the current land use designation. The proposed project is not anticipated to 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 will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur.

Level of Significance
Less than significant impact.

SCAQMD Regional Threshold and Localized Significance Thresholds

Operational Activities	Emissions(pounds/day)					
	ROG	NOX	CO	SO2	PM10	PM2.5
Area Source	0.1995	0.005	0.0098	0	0.00121	0. 00121
Energy Source	0.0027	0.0231	0.010	0.00016	0.001863	0.001863
Mobile	0.0535	0.3014	0.7337	0.00252	0.24110	0.056438
Maximum Daily Emissions	**0.256**	**0.3295**	**0.7535**	**0.00268**	**0.24417**	**0.059511**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO

7.3 Rancho Cucamonga's Initial Study Template

AIR QUALITY. *Would the project:* a) Conflict with or obstruct implementation of the applicable air quality plan?	( )	( )	( )	( )
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	( )	( )	( )	( )
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors?	( )	( )	( )	( )
d) Expose sensitive receptors to substantial pollutant concentrations?	( )	( )	( )	( )
e) Create objectionable odors affecting a substantial number of people?	( )	( )	( )	( )

Comments:

a) As discussed in subsection b, the project would not exceed any air quality standards and would not interfere with the region's ability to comply with Federal and State air quality standards for Criterion 1 Increase in the Frequency or Severity of Violations (local air quality impacts) or Criterion 2 Exceed Assumptions in the AQMP (consistency with the 2003 AQMP). Therefore the project is consistent with the 2003 AQMP.

b) Both the State of California and the Federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants. These pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse particulate matter with a diameter or 10 microns or less (PM_{10}), fine particulate matter less than 2.5 ($PM_{2.5}$) microns in diameter and lead. Among these pollutants, ozone and particulate matter (PM_{10} and $PM_{2.5}$) are considered regional pollutants while the others have more localized effects. In addition, the State of California has set standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride and visibility reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

The City of Rancho Cucamonga area is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The California Clean Air Act (CCAA) provides the SCAQMD with the authority to manage transportation activities at indirect sources. Indirect sources of

pollution are generated when minor sources collectively emit a substantial amount of pollution. Examples of this include motor vehicles at an intersection, a mall and on highways. SCAQMD also regulates stationary sources of pollution within a jurisdictional area. Direct emissions from motor vehicles are regulated by the Air Resources Board (ARB).

The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States gives the Basin the worst air pollution problem in the nation. The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude); this inversion (coupled with low wind speeds) limits the vertical dispersion of air contaminants, holding them relatively near the ground.

Pursuant to the Federal Clean Air Act (FCAA) of 1970, the EPA established national ambient air quality standards (NAAQS) for six major pollutants, termed criteria pollutants: ozone (O_3), coarse particulate matter with a diameter or 10 microns or less (PM_{10}), fine particulate matter less than 2.5 ($PM_{2.5}$) microns in diameter, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead.

Criteria pollutants are defined as those pollutants for which the Federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health. Data collected at permanent monitoring stations are used by the EPA to classify regions as "attainment" or "non-attainment" depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas have additional restrictions as required by the EPA. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring the Basin's compliance with the FCAA. The South Coast Air Basin is in Non-Attainment Status for Ozone, PM_{10} and $PM_{2.5}$.

Specific criteria for determining whether the potential air quality impacts of a project are significant are set forth in the SCAQMD's CEQA Air Quality Handbook. The criteria include daily emissions thresholds, compliance with State and national air quality standards, and consistency with the current AQMP. As prescribed by SCAQMD, an Air Quality Impact Analysis February 2016 was prepared by Landin & Associates, which utilizes CalEEMod (Version 2013.2.2) to evaluate short-term construction emissions and short-term construction emissions for localized significant thresholds, long-term operational emissions, operation emissions for localized significant thresholds, and Greenhouse Gas Emissions.

Short Term (Construction): Project Emissions and Impacts

The project proposes to subdivide an existing lot into two parcels and construct 2 single-family residences. The project site is currently developed with street improvements, including curb and gutter (no existing sidewalk), no existing on-site construction, and some vegetation including trees and native plant life, which will be removed for development of the proposed project. The potential emissions associated with construction of the project are described in the following sections.

Summary of Peak Construction Emissions (Emissions Summary of Overall Construction with Best Available Control Measures)

Construction Emissions:

SCAQMD Regional Threshold and Localized Significance Thresholds

Activity year	Emissions (pounds/day)					
	ROG	NOX	CO	SO2	PM10	PM2.5
2019 Maximum Daily Emissions	**1.47**	**11.208**	**8.747**	**0.0146**	**0.8658**	**0.7205**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Construction activities associated with the project will result in emissions of CO, VOCs, NO_x, SO_x, PM_{10} and $PM_{2.5}$ and are expected from the following construction activities: demolition, grading (including soil import), building construction, painting (architectural coatings) paving (curb, gutter, flatwork, and parking lot), and construction worker commuting.

Localized Significant Thresholds:

Total Localized Construction Emissions (pounds/day)

On-Site Grading Emissions	Emissions (pounds per day)			
	NOx	CO	PM10	PM2.5
Maximum Daily Emissions	**11.20767123**	**8.746849315**	**0.86575342**	**0.720547945**
SCAQMD Localized Threshold	170	1,232	6	5
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Source: CalEEmod Model

Equipment Exhausts and Related Construction Activities

Construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions; however, as shown in the tables above, the amount will not exceed any threshold of significance.

Fugitive Dust

Fugitive dust emissions are generally emissions associated with land clearing and exposure of soils to the air and wind, and cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by project basis, depending on the level of activity, the specific operation and weather conditions at the time of construction. Construction emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions and other factors. The proposed project will be required to comply with SCAQMD Rules 402 and 403 to control fugitive dust.

Architectural Coatings

Architectural coatings contain VOCs that are similar to ROCs and are part of the O_3 precursors. Based on the proposed project, it is estimated that the proposed project will result in a maximum of approximately *1.332 lbs of VOC per day* (combined for all construction sources) during construction. Therefore, this VOC emission is the principal air emission and is less than the SCAQMD VOC threshold of 75 lbs/day.

Odors

Heavy-duty equipment in the project area during construction would emit odors. However, the construction activity would cease to occur after individual construction is completed. No other sources of objectionable odors have been identified for the proposed project, and no mitigation measures are required. In compliance with SCAQMD Rule 402 the proposed uses are not anticipated to emit any objectionable odors. Therefore, objectionable odors posing a health risk to potential on-site and existing off-site uses would not occur as a result of the proposed project.

Naturally Occurring Asbestos

The proposed project is located in San Bernardino County and it is not among the counties that are found to have serpentine and ultramafic rock in their soils. In addition, there has been no serpentine or ultramafic rock found in the project area. Therefore, the potential risk for naturally occurring asbestos (NOA) during project construction is small and less than significant.

Based on the discussion above and with implementation of the following Best Available Control Measures (BACM) identified in the Air Quality Impact Analysis by Landin & Associates as mitigation measures, short-term, construction impacts will be less-than-significant:

1) **All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25mph per SCAQMD guidelines in order to limit fugitive dust emissions.**

2) **The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the midmorning, afternoon, and after work is done for the day.**

3) **The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less**

Cumulative Impacts: Short-Term Construction Emissions

Continued development will contribute to the pollutant levels in the Rancho Cucamonga area, which already exceed Federal and State standards. During the construction phases of development, on-site stationary sources, heavy-duty construction vehicles, construction worker vehicles, and energy use will generate emissions. In addition, fugitive dust would also be generated during grading and construction activities. While most of the dust would settle on or near the project site, smaller particles would remain in the atmosphere, increasing particle levels within the surrounding area. Construction is an on-going industry in the Rancho Cucamonga area. Construction workers and equipment work and operate at one development site until their tasks are complete. Nevertheless, fugitive dust and equipment emissions are required to be assessed. The General Plan Final Program Environmental Impact Report (FPEIR) analyzed the impacts of Air Quality based on the future build out of the City. Based upon on the Urban Emissions Model (URBEMIS7G) estimates in Table 4.3-3 of the General Plan (FPEIR), Nitrogen Dioxide (NO_2), Ozone (O_3), and Particulate Matter ($PM_{2.5}$ and PM_{10}) would exceed SCAQMD thresholds for significance; therefore, they would all be cumulatively considerable if they cannot be mitigated on a project basis to a level less-than-significant. This city-wide increase in emissions was identified as a significant unavoidable adverse impact for which a Statement of Overriding Considerations was ultimately adopted by the City Council as noted in the Section 4.3 of the General Plan FPEIR.

4) **All construction equipment shall be maintained in good operating condition so as to reduce operational emissions. The contractor shall ensure that all construction equipment is being properly serviced and maintained as per manufacturers' specifications. Maintenance records shall be available at the construction site for City verification.**

5) **Prior to the issuance of any grading permits, the developer shall submit construction plans to the City denoting the proposed schedule and projected equipment use. Construction contractors shall provide evidence that low emission mobile construction equipment will be utilized, or that their use was investigated and found to be infeasible for the project. Contractors shall also conform to any construction measures imposed by the South Coast Air Quality Management District (SCAQMD) as well as City Planning Staff.**

6) **The construction contractor shall utilize electric or clean alternative fuel powered equipment where feasible.**

7) **The construction contractor shall ensure that construction-grading plans include a statement that work crews will shut off equipment when not in use.**

8) All asphalt shall meet or exceed performance standards noted in SCAQMD Rule 1108.

9) All paints and coatings shall meet or exceed performance standards noted in SCAQMD Rule 1113. Paints and coatings shall be applied either by hand or high-volume, low-pressure spray.

10) All construction equipment shall comply with SCAQMD Rules 402 and 403. Additionally, contractors shall include the following provisions:

- Reestablish ground cover on the construction site through seeding and watering.
- Pave or apply gravel to any on-site haul roads.
- Phase grading to prevent the susceptibility of large areas to erosion over extended periods of time.
- Schedule activities to minimize the amounts of exposed excavated soil during and after the end of work periods.
- Dispose of surplus excavated material in accordance with local ordinances and use sound engineering practices.
- Sweep streets according to a schedule established by the City if silt is carried over to adjacent public thoroughfares or occurs as a result of hauling. Timing may vary depending upon the time of year of construction.
- Suspend grading operations during high winds (i.e., wind speeds exceeding 25mph) in accordance with Rule 403 requirements.
- Maintain a minimum 24-inch freeboard ratio on soils haul trucks or cover payloads using tarps or other suitable means.

11) The site shall be treated with water or other soil-stabilizing agent (approved by SCAQMD and Regional Water Quality Control Board (RWQCB)) daily to reduce PM_{10} emissions, in accordance with SCAQMD Rule 403.

12) Chemical soil-stabilizers (approved by SCAQMD and RWQCB) shall be applied to all inactive construction areas that remain inactive for 96 hours or more to reduce PM_{10} emissions.

Project Long Term (Operational) Emissions and Impacts

Long-term air pollutant emissions are those associated with stationary sources and mobile sources involving any project-related changes. The proposed project would result in a net increase in the amount of development in the area; therefore, the proposed project would result in net increases in both stationary and mobile source emissions. The stationary source emissions would come from additional natural gas consumption for on-site buildings and electricity for the lighting in the buildings and at the parking area. As shown in the following tables, project implementation will not exceed any significance thresholds. No long-term, operational impacts will occur as a result of the project.

Summary of Peak Operational Emissions

SCAQMD Regional Threshold and Localized Significance Thresholds

Operational Activities	Emissions(pounds/day)					
	ROG	NOX	CO	SO2	PM10	PM2.5
Area Source	0.1995	0.005	0.0098	0	0.00121	0. 00121
Energy Source	0.0027	0.0231	0.010	0.00016	0.001863	0.001863
Mobile	0.0535	0.3014	0.7337	0.00252	0.24110	0.056438
Maximum Daily Emissions	**0.256**	**0.3295**	**0.7535**	**0.00268**	**0.24417**	**0.059511**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO

Cumulative Impacts (Long Term/Operational Emissions)

The General Plan Final Program Environmental Impact Report (FPEIR) analyzed the potential impacts to air quality based on the future build out of the City. In the long-term, continued development would result in significant operational vehicle emissions based upon on the URBEMIS7G model estimates in Table 4.3-3 of the General Plan FPEIR; therefore, all developments would be cumulatively significant if they cannot be mitigated on a project basis to a less-than-significant level. This City-wide increase in emissions was identified as a significant unavoidable adverse impact for which a Statement of Overriding Considerations was ultimately adopted by the City Council as noted in the Section 4.3 of the General Plan FPEIR.

With implementation of the following mitigation measures from the City's 2010 General Plan FPEIR that are designed to minimize long-term, operational air quality impacts, the project's contribution to cumulative impacts will be less-than-significant:

13) Provide adequate ingress and egress at all entrances to public facilities to minimize vehicle idling at curbsides.
14) Provide preferential parking to high occupancy vehicles and shuttle services.
15) Schedule truck deliveries and pickups during off-peak hou
16) Improve thermal integrity of the buildings and reduce thermal load with automated time clocks or occupant sensors.
17) Landscape with native and/or drought-resistant species to reduce water consumption and to provide passive solar benefits.
18) Provide lighter color roofing and road materials and tree planting programs to comply with the AQMP Miscellaneous Sources MSC-01 measure.
19) Comply with the AQMP Miscellaneous Sources PRC-03, and Stationary Sources Operations Enhanced Inspection and Maintenance and ADV-MISC to reduce emissions of restaurant operations.
20) All industrial and commercial facilities shall post signs requiring that trucks shall not be left idling for prolonged periods (i.e., in excess of 10 minutes).
21) All industrial and commercial facilities shall designate preferential parking for vanpools.
22) All industrial and commercial site tenants with 50 or more employees shall be required to post both bus and Metrolink schedules in conspicuous areas.
23) All industrial and commercial site tenants with 50 or more employees shall be required to configure their operating schedules around the Metro link schedule to the extent reasonably feasible.
24) All residential and commercial structures shall be required to incorporate high-efficiency/low-polluting heating, air conditioning, appliances, and water heaters.

25) All residential and commercial structures shall be required to incorporate thermal pane windows and weather-stripping.

c) As noted in the General Plan FEIR (Section 4.3), continued development would contribute to the pollutant levels in the Rancho Cucamonga area, which already exceed Federal and State standards. The General Plan FPEIR identified the citywide increase in emissions as a significant and adverse impact for which a Statement of Overriding Considerations was ultimately adopted by the City Council.

d) Sensitive receptors are defined as populations that are more susceptible to the effects of pollution than the population at large. The SCAQMD identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities. According to the SCAQMD, projects have the potential to create significant impacts if they are located within 1/4 mile of sensitive receptors and would emit toxic air contaminants identified in SCAQMD Rule 1401. The project site is located within ¼ mile of the following sensitive receptor: **Residences**

During construction, there is the possibility of fugitive dust to be generated from grading the site. The mitigation measures listed under subsection b above and the following mitigation measure will reduce any potential impact to less-than-significant levels.

26) All new development in the City of Rancho Cucamonga shall comply with South Coast Air Quality Management District's Rule 445, Wood Burning Devices. Rule 445 was adopted in March 2008 to reduce emissions of $PM_{2.5}$ and precludes the installation of indoor or outdoor wood burning devices (i.e. fireplaces/hearths) in new development on or after March 9, 2009.

e) Construction odors (Short-term) may include odors associated with equipment use including diesel exhaust or roofing, painting and paving. These odors are temporary and would dissipate rapidly. Operational odors (Long-term) are/are not typically associated with the type of use. Odors from the proposed single-family residence use would most likely be from activities such as paint/coating and indirect emissions from vehicle trips; however, these odors would be minimal and not considered to be significant. No adverse impacts are anticipated.

7.	**GREENHOUSE GAS EMISSIONS.** *Would the project:*				
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	( )	( )	( )	( )
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	( )	( )	( )	( )

a) Regulations and Significance – The Federal government began studying the phenomenon of global warming as early as 1979 with the National Climate Protection Act (92 Stat. 601). In June of 2005, Governor Schwarzenegger

established California's Green House Gas (GHG) emissions reduction target in Executive Order (EO) S-3-05. The EO created goals to reduce GHG emissions for the State of California to 2000 levels by 2010; GHG emissions reduced to 1990 levels by 2020; and GHG emissions reduced to 80 percent below 1990 levels by 2050. Additionally, on December 7, 2009 the U.S. Environmental Protection Agency (USEPA) issued findings regarding GHGs under rule 202(a) of the Clean Air Act: (1) that GHGs endanger human health; and (2) that this will be the first steps to regulating GHGs through the Federal Clean Air Act. The USEPA defines 6 key GHGs (carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)). The combined emissions of these well-mixed greenhouse gases from new motor vehicles and engines contribute to GHG pollution.

The western states, including Arizona, California, New Mexico, Oregon, Utah, and Washington, already experience hotter, drier climates. California is a substantial contributor of GHGs and is expected to see an increase of 3 to 4 degrees Fahrenheit (°F) over the next century.

Assembly Bill (AB) 32 requires that the California Air Resources Board (ARB), the lead agency for implementing AB 32, determine what the statewide GHG emission level was in 1990 and approve a statewide GHG emissions limit (427 million metric tons of CO_2 equivalent) to be achieved by 2020 and prepare a Scoping Plan to outline the main strategies for meeting the 2020 deadline. Significant progress can be made toward the 2020 goal through existing technologies and improving the efficiency of energy use. Other solutions would include improving the State's infrastructure, and transitioning to cleaner and more efficient sources of energy.

The ARB estimates that 38 percent of the State's GHG emissions in 2004 was from transportation sources followed by electricity generation (both in-State and out-of-State) at 28 percent and industrial at 20 percent. Residential and commercial activities account for 9 percent, agricultural uses at 6 percent, high global warming potential gases at 3 percent, and recycling and waste at 1 percent.

It is not anticipated that any single development project would have a substantial effect on global climate change but that GHG emissions from the project would combine with emissions across California, the United States, and the world to cumulatively contribute to global climate change. Therefore, consistent with the ARB's Climate Change Scoping Plan, the proposed project was evaluated for consistency with the Early Action Measures (Scoping Plan

is a recommendation until adopted through normal rulemaking). The proposed project is assessed by determining its consistency with the 37 Recommended Actions identified by ARB. In compliance with Senate Bill (SB) 97 and CEQA, the project has been analyzed based on a qualitative analysis (CEQA 15064.4). Additionally, the ARB was directed through SB 375 to develop regional GHG emission reduction targets to be achieved within the automobile and light truck sectors for 2020 and 2035.

SCAQMD and ARB maintain ambient air quality monitoring stations in the Basin. The stations closest to the project site are the Upland station and the Fontana-Arrow Highway station. The Upland station monitors all criteria pollutants except PM_{10}, $PM_{2.5}$, and SO_2 which are monitored at the Fontana-Arrow Highway station. The ambient air quality in the project area for CO, NO_2, and SO_2 are consistently below the relevant State and Federal standards (based on ARB and EPA from 2007, 2008, and 2009 readings). Ozone, PM_{10}, and $PM_{2.5}$ levels all exceed State and Federal standards regularly.

Project Related Sources of GHG's – Based on the *Guidelines for the Implementation of California Environmental Quality Act*, Appendix G, a project would normally be considered to have a significant effect on air quality if the project would violate any ambient air quality standards, contribute substantially to an existing air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with adopted environmental plans and goals of the community. However, neither the CEQA statutes, Office of Planning and Research (OPR) guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis. Significance criteria are left to the judgment and discretion of the Lead Agency.

The City of Rancho Cucamonga has not adopted a threshold of significance for GHG emissions. However, a screening threshold of 3,000 MTCO2e per year is based upon South Coast Air Quality Management District staff's proposed GHG screening threshold for stationary sources emissions for non-industrial projects, as described in the SCAQMD's Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans.

Project related GHG's would include emissions from direct and indirect sources. Based on the **Greenhouse Gas Analysis by Landin & Associates October 2018**, total project related emissions would be 181.14666 U.S. tons/year, or 164.3335 $MTCO_2eq$/year, as shown in the following table:

(Include **GHG Emissions Table** from study):

Total GHG Emissions (U.S. tons/year)

Total (us tons/yr)	Co2	CH4	N2O	CO2e
Area	0.7704	0.000066	0.000011	0.7760
Energy	14.5836	0.000485	0.000176	14.6485
Mobile	46.9892	0.002403	0.0	47.04918
Water Usage	1.44303	0.007077	0.000176	1.67298
Waste	0.0	0.0	0.00	0.0
Total Co2e (All Sources)	181.14666			

Source: CalEEmod Model

As shown in the table, direct and indirect operational emissions associated with the project as compared to the SCAQMD's interim threshold of significance of 3,000 MTCO2e per year would result in a less than significant impact with respect to GHG emissions.

Cumulative Short Term (Construction) GHG Emissions – The General Plan FPEIR (Section 4.5) indicates that GHG emissions result from construction activities associated with diesel-powered construction equipment and other combustion sources (i.e. Generators, workers vehicles, material delivery, etc.). The GHG emitted by construction equipment is primarily carbon dioxide (CO_2). The highest levels of construction related GHG's occur during site preparation including demolition, grading and excavation. Construction related GHG's are also emitted from off-site haul trucks and construction workers traveling to the job site. Exhaust emissions from construction activities would vary each day with the changes in construction activity on site. The combustion of fossil-based fuels creates GHG's such as CO_2, Ch_4, and N_2O. CH_4 is emitted during the fueling of heavy equipment. Based on the **Greenhouse Gas Analysis by Landin & Associates in October 2018**, no Significant impacts to GHGs from short-term construction impacts would occur as a result of the project as shown in the table above. Because the project would result in minimal emissions that do not exceed the SCAQMD's interim threshold of significance, the project's contribution to cumulative impacts is also considered minimal. The proposed project would have less than a significant short-term cumulative impact with implementation of the following enforceable actions, which are included as mitigation measures in accordance with Mitigation Measure 4.5-1 of the 2010 General Plan Update FPEIR:

1) **The project must comply with all rules that assist in reducing short-term air pollutant emission in compliance with SCAQMD Rule 403 regarding fugitive dust including treating the site with water or other soil-stabilizing agent twice daily or replanting disturbed areas as quickly as possible.**

2) **The construction contractor shall select construction equipment**

3) **Based on low-emission factors and high energy efficiency and submit a statement on the grading plan that ensures all construction equipment will be tuned and maintained in accordance with the manufactures' specification.**
3) **Trucks shall not idle continuously for more than 5 minutes.**
4) **Alternative fuel powered equipment shall be utilized in lieu of gasoline- or diesel-powered engines where feasible.**
5) **Construction should be timed so as not to interfere with peak-hour traffic.**
6) **Ridesharing and transit incentives shall be supported and encouraged for the construction crew.**

<u>Cumulative Long Term (Operational) GHG's Emissions</u> – The primary source of GHG emissions generated by the proposed project would be from motor vehicles, combustion of natural gas for space and water heating, as well as off-site GHG emissions from generation of electricity consumed by the proposed land use development over a long term. CEQA requires the Lead Agency to review the project for "adequacy, completeness, and a good faith effort at full disclosure," to determine potential impacts of GHG's. Therefore the project has been analyzed based on methodologies and information available to the City at the time this document was prepared. Estimates are based on past performance and represent a scenario that is a worst case with the understanding that technology changes may reduce GHG emissions in the future. To date, there is no established quantified GHG emission threshold.

The project involves the construction of two single-family residences and therefore would result in an increase in the net increases of both stationary and mobile source emissions. The majority of energy consumption typically occurs during project operation (more than 80 percent and less than 20 percent during construction activities). The proposed project will incorporate several design features that are consistent with the California Office of the Attorney General's recommended measures to reduce GHG emission including: water efficient landscaping, shade trees, and walkways that provide accessibility to public sidewalks.

The project is consistent with the California Environmental Protection Agency Climate Action Team proposed early action measures to mitigate climate change included in the CARB Scoping Plan mandated under AB 32. The proposed project will incorporate several design features including: water efficient landscaping, shade trees, and walkways that provide accessibility to public sidewalks. Additionally, the City is participating in the development of a Sustainable Communities Strategy (SCS) with SANBAG for the San Bernardino County area pursuant to Senate Bill (SB) 375.

Based on the **Greenhouse Gas Analysis by Landin & Associates in October 2018** no significant impacts to GHGs from long-term, operational impacts would occur as a result of the project as shown in the table above. Because the project would result in minimal emissions that do not exceed the SCAQMD's interim threshold of significance, the project's contribution to cumulative impacts is also considered minimal. The proposed project would have less than a significant long-term operational impact with implementation of the following enforceable actions, which are included as mitigation measures in accordance with Mitigation Measure 4.5-1 of the 2010 General Plan Update FPEIR:

7) **Construction and Building materials shall be produced and/or manufactured locally. Use "Green Building Materials" such as materials that are resource efficient, recycled and manufactured in an environmentally friendly way including low-volatile-organic-compound (VOC) materials.**
8) **Design all buildings to exceed California Building Code Title 24 energy standard including but not limited to any combination of;**

- **Increased insulation.**
- **Limit air leakage through the structure.**
- **Incorporate Energy Star or better rated windows, space heating and cooling equipment, light fixtures, and appliances.**
- **Landscape and develop site utilizing shade, prevailing winds and landscaping.**
- **Install efficient lighting and lighting control systems.**
- **Install light colored "cool" roofs and cool pavements.**
- **Install solar or light emitting diodes (LED's) for outdoor lighting.**

9) **Prepare a comprehensive water conservation strategy appropriate for the project and include the following;**
    - **Install water efficient landscapes and irrigation systems and devices in compliance with the City of Rancho Cucamonga Water Efficient Landscape Ordinance.**
    - **Use reclaimed water for landscaping within the project if available or as required by the Cucamonga Valley Water District (CVWD).**
    - **Design building to be water efficient by installing water efficient fixtures and appliances including low flow faucets, dual flush toilets and waterless urinals/water heaters.**
    - **Design irrigation to control runoff and to remove water to non-vegetated surfaces.**

10) **Reuse and recycle construction and demolition waste. Provide interior and exterior storage areas for recyclables and green waste in public areas. Educate employees about reducing waste and about recycling.**

b) The project involves the development of 2 single family residences, which is consistent with the General Plan.

No other applicable plans, policies, or regulations adopted for the purpose of reducing GHG emission apply to the project. The 2010 General Plan Update includes adopted policies and Standard Conditions that respond to the Attorney General and the California Air Pollution Control Officers Association (CAPCOA). The General Plan policies and Standard Conditions guide infill and sustainable development reliant on pedestrian connections, re-use and rehabilitation of existing structures, link transportation opportunities, promote development that is sensitive to natural resources and incentivizes denser mixed use projects that maximizes diverse opportunities. The proposed project includes water efficient landscaping, shade trees, and walkways that provide accessibility to public sidewalks and therefore is consistent with the sustainability and climate change policies of the General Plan. The General Plan Final Program Environmental Impact Report (FPEIR) analyzed the impacts of GHG's and determined that GHG emissions would be cumulatively considerable, which would be a significant, unavoidable adverse cumulative impact. A Statement of Overriding Considerations was ultimately adopted by the City Council. Based on the **Greenhouse Gas Analysis by Landin & Associates on October 2018,** no significant impacts to GHGs from short-term, construction impacts or long-term, operational impacts would occur as a result of the project. Because the project would result in minimal emissions that do not exceed the SCAQMD's interim threshold of significance, the project's contribution to GHGs from short-term construction and long-term operational cumulative impacts is also considered minimal. With implementation of the mitigation measures listed in subsection a), less than significant impacts would occur as a result of the project. In addition, the proposed project would not hinder the State's GHG reduction goals established by AB 32 and therefore would be less than a significant impact.

Hillside Subdivision

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	3.00	Dwelling Unit	2.82	9,000.00	9

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
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 - actual acreage and sq ftg. is known

Construction Phase - Actual dates shown are more accurate than default dates.

Operational Off-Road Equipment - Info shown is more accurate than default

Sequestration -

Mobile Commute Mitigation -

Area Mitigation -

Water Mitigation -

Waste Mitigation -

Hillside Subdivision - South Coast AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	4.00
tblConstructionPhase	NumDays	220.00	330.00
tblConstructionPhase	NumDays	20.00	2.00
tblConstructionPhase	NumDays	6.00	12.00
tblConstructionPhase	NumDays	10.00	9.00
tblConstructionPhase	PhaseEndDate	3/2/2020	2/21/2020
tblConstructionPhase	PhaseEndDate	2/3/2020	7/8/2020
tblConstructionPhase	PhaseEndDate	3/19/2019	2/21/2019
tblConstructionPhase	PhaseEndDate	4/1/2019	4/9/2019
tblConstructionPhase	PhaseEndDate	2/17/2020	2/14/2020
tblGrading	AcresOfGrading	6.00	3.00
tblLandUse	LandUseSquareFeet	5,400.00	9,000.00
tblLandUse	LotAcreage	0.97	2.82
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	10.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	1.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	10.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	10.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	3.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.50	0.50
tblOperationalOffRoadEquipment	OperLoadFactor	0.42	0.42
tblOperationalOffRoadEquipment	OperLoadFactor	0.30	0.30
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblSequestration	NumberOfNewTrees	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2687	2.0454	1.5963	2.6600e-003	0.0421	0.1159	0.1580	0.0208	0.1107	0.1315	0.0000	223.9789	223.9789	0.0479	0.0000	225.1771
2020	0.1877	1.2240	1.0600	1.7800e-003	1.4800e-003	0.0667	0.0682	3.9000e-004	0.0639	0.0642	0.0000	147.9384	147.9384	0.0305	0.0000	148.7015
Maximum	0.2687	2.0454	1.5963	2.6600e-003	0.0421	0.1159	0.1580	0.0208	0.1107	0.1315	0.0000	223.9789	223.9789	0.0479	0.0000	225.1771

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					
2019	0.2687	2.0454	1.5962	2.6600e-003	0.0421	0.1159	0.1580	0.0208	0.1107	0.1315	0.0000	223.9786	223.9786	0.0479	0.0000	225.1768
2020	0.1877	1.2240	1.0600	1.7800e-003	1.4800e-003	0.0667	0.0682	3.9000e-004	0.0639	0.0642	0.0000	147.9382	147.9382	0.0305	0.0000	148.7014
Maximum	0.2687	2.0454	1.5962	2.6600e-003	0.0421	0.1159	0.1580	0.0208	0.1107	0.1315	0.0000	223.9786	223.9786	0.0479	0.0000	225.1768

Hillside Subdivision - South Coast AQMD Air District, Annual

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-20-2019	5-19-2019	0.5709	0.5709
2	5-20-2019	8-19-2019	0.7057	0.7057
3	8-20-2019	11-19-2019	0.7057	0.7057
4	11-20-2019	2-19-2020	0.7365	0.7365
5	2-20-2020	5-19-2020	0.6456	0.6456
6	5-20-2020	8-19-2020	0.3382	0.3382
		Highest	0.7365	0.7365

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	0.0461	1.1400e-003	0.0501	5.0000e-005		3.0400e-003	3.0400e-003		3.0400e-003	3.0400e-003	0.3187	0.6629	0.9815	1.0000e-003	2.0000e-005	1.0130
Energy	4.9000e-004	4.2300e-003	1.8000e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	13.2300	13.2300	4.4000e-004	1.6000e-004	13.2889
Mobile	9.7600e-003	0.0550	0.1339	4.6000e-004	0.0368	4.7000e-004	0.0373	9.8600e-003	4.4000e-004	0.0103	0.0000	42.6279	42.6279	2.1800e-003	0.0000	42.6823
Offroad	0.0374	0.3863	0.3990	6.5000e-004		0.0191	0.0191		0.0177	0.0177	0.0000	56.8930	56.8930	0.0175	0.0000	57.3308
Waste						0.0000	0.0000		0.0000	0.0000	0.7490	0.0000	0.7490	0.0443	0.0000	1.8557
Water						0.0000	0.0000		0.0000	0.0000	0.0620	1.2471	1.3091	6.4200e-003	1.6000e-004	1.5177
Total	0.0937	0.4467	0.5848	1.1900e-003	0.0368	0.0230	0.0598	9.8600e-003	0.0216	0.0314	1.1297	114.6609	115.7906	0.0718	3.4000e-004	117.6883

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	0.0364	9.2000e-004	0.0313	1.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	0.6989	0.6989	6.0000e-005	1.0000e-005	0.7040
Energy	4.9000e-004	4.2300e-003	1.8000e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	13.2300	13.2300	4.4000e-004	1.6000e-004	13.2889
Mobile	9.7600e-003	0.0550	0.1339	4.6000e-004	0.0368	4.7000e-004	0.0373	9.8600e-003	4.4000e-004	0.0103	0.0000	42.6279	42.6279	2.1800e-003	0.0000	42.6823
Offroad	0.0374	0.3863	0.3990	6.5000e-004		0.0191	0.0191		0.0177	0.0177	0.0000	56.8930	56.8930	0.0175	0.0000	57.3308
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0620	1.2471	1.3091	6.4200e-003	1.6000e-004	1.5177
Total	**0.0840**	**0.4465**	**0.5660**	**1.1500e-003**	**0.0368**	**0.0202**	**0.0570**	**9.8600e-003**	**0.0187**	**0.0286**	**0.0620**	**114.6969**	**114.7589**	**0.0266**	**3.3000e-004**	**115.5236**

	ROG	NOx	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	**10.42**	**0.05**	**3.22**	**3.36**	**0.00**	**12.27**	**4.72**	**0.00**	**13.09**	**8.98**	**94.51**	**-0.03**	**0.09**	**62.95**	**2.94**	**1.84**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	2.8320
Total	2.8320

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	2/20/2019	2/21/2019	5	2	
2	Site Preparation	Site Preparation	3/20/2019	3/22/2019	5	3	
3	Grading	Grading	3/23/2019	4/9/2019	5	12	
4	Building Construction	Building Construction	4/2/2019	7/6/2020	5	330	
5	Paving	Paving	2/4/2020	2/14/2020	5	9	
6	Architectural Coating	Architectural Coating	2/18/2020	2/21/2020	5	4	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 18,225; Residential Outdoor: 6,075; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
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
Grading	Graders	1	8.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
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
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	0.00	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
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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	2.3000e-003	0.0227	0.0149	2.0000e-005		1.2900e-003	1.2900e-003		1.2000e-003	1.2000e-003	0.0000	2.1416	2.1416	5.5000e-004	0.0000	2.1552
Total	2.3000e-003	0.0227	0.0149	2.0000e-005		1.2900e-003	1.2900e-003		1.2000e-003	1.2000e-003	0.0000	2.1416	2.1416	5.5000e-004	0.0000	2.1552

3.2 Demolition - 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	6.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1325	0.1325	0.0000	0.0000	0.1326
Total	6.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1325	0.1325	0.0000	0.0000	0.1326

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3000e-003	0.0227	0.0149	2.0000e-005		1.2900e-003	1.2900e-003		1.2000e-003	1.2000e-003	0.0000	2.1416	2.1416	5.5000e-004	0.0000	2.1552
Total	2.3000e-003	0.0227	0.0149	2.0000e-005		1.2900e-003	1.2900e-003		1.2000e-003	1.2000e-003	0.0000	2.1416	2.1416	5.5000e-004	0.0000	2.1552

3.2 Demolition - 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	6.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1325	0.1325	0.0000	0.0000	0.1326
Total	6.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1325	0.1325	0.0000	0.0000	0.1326

3.3 Site Preparation - 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					
Fugitive Dust					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6300e-003	0.0323	0.0179	4.0000e-005		1.2800e-003	1.2800e-003		1.1800e-003	1.1800e-003	0.0000	3.3020	3.3020	1.0400e-003	0.0000	3.3281
Total	2.6300e-003	0.0323	0.0179	4.0000e-005	2.3900e-003	1.2800e-003	3.6700e-003	2.6000e-004	1.1800e-003	1.4400e-003	0.0000	3.3020	3.3020	1.0400e-003	0.0000	3.3281

3.3 Site Preparation - 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	6.0000e-005	5.0000e-005	5.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1223	0.1223	0.0000	0.0000	0.1224
Total	6.0000e-005	5.0000e-005	5.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1223	0.1223	0.0000	0.0000	0.1224

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					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6300e-003	0.0323	0.0179	4.0000e-005		1.2800e-003	1.2800e-003		1.1800e-003	1.1800e-003	0.0000	3.3020	3.3020	1.0400e-003	0.0000	3.3281
Total	2.6300e-003	0.0323	0.0179	4.0000e-005	2.3900e-003	1.2800e-003	3.6700e-003	2.6000e-004	1.1800e-003	1.4400e-003	0.0000	3.3020	3.3020	1.0400e-003	0.0000	3.3281

3.3 Site Preparation - 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	6.0000e-005	5.0000e-005	5.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1223	0.1223	0.0000	0.0000	0.1224
Total	6.0000e-005	5.0000e-005	5.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1223	0.1223	0.0000	0.0000	0.1224

3.4 Grading - 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					
Fugitive Dust					0.0377	0.0000	0.0377	0.0200	0.0000	0.0200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0122	0.1365	0.0609	1.2000e-004		6.4400e-003	6.4400e-003		5.9200e-003	5.9200e-003	0.0000	11.1108	11.1108	3.5200e-003	0.0000	11.1987
Total	0.0122	0.1365	0.0609	1.2000e-004	0.0377	6.4400e-003	0.0442	0.0200	5.9200e-003	0.0260	0.0000	11.1108	11.1108	3.5200e-003	0.0000	11.1987

3.4 Grading - 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	2.9000e-004	2.3000e-004	2.5000e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6116	0.6116	2.0000e-005	0.0000	0.6121
Total	2.9000e-004	2.3000e-004	2.5000e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6116	0.6116	2.0000e-005	0.0000	0.6121

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0377	0.0000	0.0377	0.0200	0.0000	0.0200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0122	0.1365	0.0609	1.2000e-004		6.4400e-003	6.4400e-003		5.9200e-003	5.9200e-003	0.0000	11.1108	11.1108	3.5200e-003	0.0000	11.1986
Total	0.0122	0.1365	0.0609	1.2000e-004	0.0377	6.4400e-003	0.0442	0.0200	5.9200e-003	0.0260	0.0000	11.1108	11.1108	3.5200e-003	0.0000	11.1986

3.4 Grading - 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	2.9000e-004	2.3000e-004	2.5000e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6116	0.6116	2.0000e-005	0.0000	0.6121
Total	2.9000e-004	2.3000e-004	2.5000e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6116	0.6116	2.0000e-005	0.0000	0.6121

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2507	1.8532	1.4949	2.4500e-003		0.1068	0.1068		0.1024	0.1024	0.0000	205.5592	205.5592	0.0428	0.0000	206.6283
Total	0.2507	1.8532	1.4949	2.4500e-003		0.1068	0.1068		0.1024	0.1024	0.0000	205.5592	205.5592	0.0428	0.0000	206.6283

3.5 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.8000e-004	4.0900e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9989	0.9989	3.0000e-005	0.0000	0.9997
Total	4.7000e-004	3.8000e-004	4.0900e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9989	0.9989	3.0000e-005	0.0000	0.9997

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	0.2507	1.8532	1.4949	2.4500e-003		0.1068	0.1068		0.1024	0.1024	0.0000	205.5590	205.5590	0.0428	0.0000	206.6281
Total	0.2507	1.8532	1.4949	2.4500e-003		0.1068	0.1068		0.1024	0.1024	0.0000	205.5590	205.5590	0.0428	0.0000	206.6281

3.5 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.8000e-004	4.0900e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9989	0.9989	3.0000e-005	0.0000	0.9997
Total	4.7000e-004	3.8000e-004	4.0900e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9989	0.9989	3.0000e-005	0.0000	0.9997

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1533	1.1681	0.9981	1.6800e-003		0.0635	0.0635		0.0609	0.0609	0.0000	139.1218	139.1218	0.0282	0.0000	139.8276
Total	0.1533	1.1681	0.9981	1.6800e-003		0.0635	0.0635		0.0609	0.0609	0.0000	139.1218	139.1218	0.0282	0.0000	139.8276

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.3000e-004	2.5400e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.4000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6617	0.6617	2.0000e-005	0.0000	0.6622
Total	3.0000e-004	2.3000e-004	2.5400e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.4000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6617	0.6617	2.0000e-005	0.0000	0.6622

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	0.1533	1.1681	0.9981	1.6800e-003		0.0635	0.0635		0.0609	0.0609	0.0000	139.1216	139.1216	0.0282	0.0000	139.8275
Total	0.1533	1.1681	0.9981	1.6800e-003		0.0635	0.0635		0.0609	0.0609	0.0000	139.1216	139.1216	0.0282	0.0000	139.8275

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.3000e-004	2.5400e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.4000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6617	0.6617	2.0000e-005	0.0000	0.6622
Total	3.0000e-004	2.3000e-004	2.5400e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.4000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6617	0.6617	2.0000e-005	0.0000	0.6622

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.2000e-003	0.0521	0.0531	8.0000e-005		2.9500e-003	2.9500e-003		2.7200e-003	2.7200e-003	0.0000	6.9776	6.9776	2.2100e-003	0.0000	7.0329
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.2000e-003	0.0521	0.0531	8.0000e-005		2.9500e-003	2.9500e-003		2.7200e-003	2.7200e-003	0.0000	6.9776	6.9776	2.2100e-003	0.0000	7.0329

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.3000e-004	2.5600e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6667	0.6667	2.0000e-005	0.0000	0.6672
Total	3.0000e-004	2.3000e-004	2.5600e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6667	0.6667	2.0000e-005	0.0000	0.6672

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.2000e-003	0.0521	0.0531	8.0000e-005		2.9500e-003	2.9500e-003		2.7200e-003	2.7200e-003	0.0000	6.9776	6.9776	2.2100e-003	0.0000	7.0329
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.2000e-003	0.0521	0.0531	8.0000e-005		2.9500e-003	2.9500e-003		2.7200e-003	2.7200e-003	0.0000	6.9776	6.9776	2.2100e-003	0.0000	7.0329

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.3000e-004	2.5600e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6667	0.6667	2.0000e-005	0.0000	0.6672
Total	3.0000e-004	2.3000e-004	2.5600e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6667	0.6667	2.0000e-005	0.0000	0.6672

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0282					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.3700e-003	3.6600e-003	1.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	0.5107	0.5107	4.0000e-005	0.0000	0.5116
Total	0.0286	3.3700e-003	3.6600e-003	1.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	0.5107	0.5107	4.0000e-005	0.0000	0.5116

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0282					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.3700e-003	3.6600e-003	1.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	0.5107	0.5107	4.0000e-005	0.0000	0.5116
Total	0.0286	3.3700e-003	3.6600e-003	1.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	0.5107	0.5107	4.0000e-005	0.0000	0.5116

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement School Bus Program

	ROG	NOx	CO	SO2	Fugitive 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	9.7600e-003	0.0550	0.1339	4.6000e-004	0.0368	4.7000e-004	0.0373	9.8600e-003	4.4000e-004	0.0103	0.0000	42.6279	42.6279	2.1800e-003	0.0000	42.6823
Unmitigated	9.7600e-003	0.0550	0.1339	4.6000e-004	0.0368	4.7000e-004	0.0373	9.8600e-003	4.4000e-004	0.0103	0.0000	42.6279	42.6279	2.1800e-003	0.0000	42.6823

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	28.56	29.73	25.86	96,847	96,847
Total	28.56	29.73	25.86	96,847	96,847

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
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

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	8.3318	8.3318	3.4000e-004	7.0000e-005	8.3616
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8.3318	8.3318	3.4000e-004	7.0000e-005	8.3616
NaturalGas Mitigated	4.9000e-004	4.2300e-003	1.8000e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8982	4.8982	9.0000e-005	9.0000e-005	4.9273
NaturalGas Unmitigated	4.9000e-004	4.2300e-003	1.8000e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8982	4.8982	9.0000e-005	9.0000e-005	4.9273

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					
Single Family Housing	91788.5	4.9000e-004	4.2300e-003	1.8000e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8982	4.8982	9.0000e-005	9.0000e-005	4.9273
Total		4.9000e-004	4.2300e-003	1.8000e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8982	4.8982	9.0000e-005	9.0000e-005	4.9273

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					
Single Family Housing	91788.5	4.9000e-004	4.2300e-003	1.8000e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8982	4.8982	9.0000e-005	9.0000e-005	4.9273
Total		4.9000e-004	4.2300e-003	1.8000e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8982	4.8982	9.0000e-005	9.0000e-005	4.9273

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	26149.4	8.3318	3.4000e-004	7.0000e-005	8.3616
Total		8.3318	3.4000e-004	7.0000e-005	8.3616

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	26149.4	8.3318	3.4000e-004	7.0000e-005	8.3616
Total		8.3318	3.4000e-004	7.0000e-005	8.3616

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use only Natural Gas Hearths

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive 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	0.0364	9.2000e-004	0.0313	1.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	0.6989	0.6989	6.0000e-005	1.0000e-005	0.7040
Unmitigated	0.0461	1.1400e-003	0.0501	5.0000e-005		3.0400e-003	3.0400e-003		3.0400e-003	3.0400e-003	0.3187	0.6629	0.9815	1.0000e-003	2.0000e-005	1.0130

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	2.8200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.8300e-003	7.8000e-004	0.0191	5.0000e-005		2.8600e-003	2.8600e-003		2.8600e-003	2.8600e-003	0.3187	0.6124	0.9310	9.5000e-004	2.0000e-005	0.9612
Landscaping	9.5000e-004	3.6000e-004	0.0310	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0505	0.0505	5.0000e-005	0.0000	0.0518
Total	0.0461	1.1400e-003	0.0501	5.0000e-005		3.0300e-003	3.0300e-003		3.0300e-003	3.0300e-003	0.3187	0.6629	0.9816	1.0000e-003	2.0000e-005	1.0130

6.2 Area by SubCategory

Mitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Architectural Coating	2.8200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.0000e-005	5.6000e-004	2.4000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6484	0.6484	1.0000e-005	1.0000e-005	0.6522
Landscaping	9.5000e-004	3.6000e-004	0.0310	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0505	0.0505	5.0000e-005	0.0000	0.0518
Total	0.0364	9.2000e-004	0.0313	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	0.6989	0.6989	6.0000e-005	1.0000e-005	0.7040

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3091	6.4200e-003	1.6000e-004	1.5177
Unmitigated	1.3091	6.4200e-003	1.6000e-004	1.5177

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.195462 / 0.123226	1.3091	6.4200e-003	1.6000e-004	1.5177
Total		1.3091	6.4200e-003	1.6000e-004	1.5177

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.195462 / 0.123226	1.3091	6.4200e-003	1.6000e-004	1.5177
Total		1.3091	6.4200e-003	1.6000e-004	1.5177

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.7490	0.0443	0.0000	1.8557

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	3.69	0.7490	0.0443	0.0000	1.8557
Total		0.7490	0.0443	0.0000	1.8557

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing		0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Air Compressors	2	8.00	10	78	0.48	Diesel
Bore/Drill Rigs	1	3.00	1	221	0.50	Diesel
Cement and Mortar Mixers	1	8.00	10	9	0.56	Diesel
Pavers	1	8.00	260	130	0.42	Diesel
Surfacing Equipment	0	8.00	10	263	0.30	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Air Compressors	3.2300e-003	0.0225	0.0244	4.0000e-005		1.4800e-003	1.4800e-003		1.4800e-003	1.4800e-003	0.0000	3.4043	3.4043	2.6000e-004	0.0000	3.4109
Bore/Drill Rigs	5.0000e-005	6.6000e-004	3.9000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.1555	0.1555	5.0000e-005	0.0000	0.1568
Cement and Mortar Mixers	2.9000e-004	1.8400e-003	1.5400e-003	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.2291	0.2291	2.0000e-005	0.0000	0.2297
Pavers	0.0338	0.3613	0.3727	6.0000e-004		0.0176	0.0176		0.0162	0.0162	0.0000	53.1040	53.1040	0.0172	0.0000	53.5334
Surfacing Equipment	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0373	0.3863	0.3990	6.4000e-004		0.0191	0.0191		0.0177	0.0177	0.0000	56.8930	56.8930	0.0175	0.0000	57.3308

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

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	2.8320	0.0000	0.0000	2.8320

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	4	2.8320	0.0000	0.0000	2.8320
Total		2.8320	0.0000	0.0000	2.8320

9.0 GHG Emissions Reduction Recommendations

9.1. GHG – Operational Standards.

The developer shall implement the following as greenhouse gas (GHG) mitigation during the operation of the approved project:

a) Waste Stream Reduction. The "developer" shall provide to all tenants and project employees County-approved informational materials about methods and need to reduce the solid waste stream and listing available recycling services.

b) Vehicle Trip Reduction. The "developer" shall provide to all tenants and homeowners County-approved informational materials about the need to reduce vehicle trips and the program elements this project is implementing. Such elements may include: participation in established ride-sharing programs, creating a new ride-share employee vanpool, and/or providing a web site or message board for coordinating rides.

c) Provide Educational Materials. The developer shall provide to all tenants and employees education materials and about reducing waste and available recycling services. The education materials shall be submitted to County Planning for review and approval.

d) Landscape Equipment. The developer shall require in the landscape maintenance contract and/or in onsite procedures that a minimum of 20% of the landscape maintenance equipment shall be electric-powered.

9.2. GHG – Construction Standards.

The developer shall submit for review and obtain approval from County Planning of a signed letter agreeing to include as a condition of all construction contracts/subcontracts requirements to reduce impacts to GHG and submitting documentation of compliance. The developer/construction contractors shall do the following:

a) Implement both the approved Coating Restriction Plans.

b) Select construction equipment based on low-emissions factors and high-energy efficiency. All diesel/gasoline-powered construction equipment shall be replaced, where possible, with equivalent electric or CNG equipment.

c) Grading plans shall include the following statements:

- "All construction equipment engines shall be properly tuned and maintained in accordance with the manufacturers specifications prior to arriving on site and throughout construction duration."
- "All construction equipment (including electric generators) shall be shut off by work crews when not in use and shall not idle for more than 5 minutes."

d) Schedule construction traffic ingress/egress to not interfere with peak-hour traffic and to minimize traffic obstructions. Queuing of trucks on and off site shall be firmly discouraged and not scheduled. A flag person shall be retained to maintain efficient traffic flow and safety adjacent to existing roadways.
e) Recycle and reuse construction and demolition waste (e.g. soil, vegetation, concrete, lumber, metal, and cardboard) per County Solid Waste procedures.
f) The construction contractor shall support and encourage ridesharing and transit incentives for the construction crew and educate all construction workers about the required waste reduction and the availability of recycling services.

9.3. GHG – Design Standards.

The developer shall submit for review and obtain approval from County Planning that the following measures have been incorporated into the design of the project. These are to reduce potential project impacts on greenhouse gases (GHGs): Proper installation of the approved design features and equipment shall be confirmed by County Building and Safety prior to final inspection of each structure.

a) Meet Title 24 Energy Efficiency requirements implemented July 1, 2014
The Developer shall document that the design of the proposed structures meets the current Title 24 energy-efficiency requirements. County Planning shall coordinate this review with the County Building and Safety. Any combination of the following design features may be used to fulfill this requirement, provided that the total increase in efficiency meets or exceeds the cumulative goal (100%+ of Title 24) for the entire project (Title 24, Part 6 of the California Code of Regulations; Energy Efficiency Standards for Residential and Non Residential Buildings, as amended January 24, 2013; Cool Roof Coatings performance standards as amended January 24, 2013):

- Incorporate dual paned or other energy efficient windows,
- Incorporate energy efficient space heating and cooling equipment,
- Incorporate energy efficient light fixtures, photocells, and motion detectors,
- Incorporate energy efficient appliances,
- Incorporate energy efficient domestic hot water systems,
- Incorporate solar panels into the electrical system,
- Incorporate cool roofs/light colored roofing,
- Incorporate other measures that will increase energy efficiency.
- Increase insulation to reduce heat transfer and thermal bridging.
- Limit air leakage throughout the structure and within the heating and cooling distribution system to minimize energy consumption.

b) Plumbing.

All plumbing shall incorporate the following:

- All showerheads, lavatory faucets, and sink faucets shall comply with the California Energy Conservation flow rate standards.
- Low flush toilets shall be installed where applicable as specified in California State Health and Safety Code Section 17921.3.
- All hot water piping and storage tanks shall be insulated. Energy efficient boilers shall be used.
- If possible, utilize grey water systems and dual plumbing for recycled water.
- Lighting:
  - Lighting design for building interiors shall support the use of:
- Compact fluorescent light bulbs or equivalently efficient lighting.
- Natural day lighting through site orientation and the use of reflected light.
- Skylight/roof window systems.
- Light colored building materials and finishes shall be used to reflect natural and artificial light with greater efficiency and less glare.
- A multi-zone programmable dimming system shall be used to control lighting to maximize the energy efficiency of lighting requirements at various times of the day.
- The developer shall ensure that a minimum of 2.5 percent of the project's electricity needs is provided by on-site solar panels.

d) Building Design.

Building design and construction shall incorporate the following elements:

- Orient building locations to best utilize natural cooling/heating with respect to the sun and prevailing winds/natural convection to take advantage of shade, day lighting and natural cooling opportunities.
- Utilize natural, low maintenance building materials that do not require finishes and regular maintenance..
- Roofing materials shall have a solar reflectance index of 78 or greater.
- All supply duct work shall be sealed and leak-tested. Oval or round ducts shall be used for at least 75 percent of the supply duct work, excluding risers.
- Energy Star or equivalent equipment shall be installed.
- A building automation system including outdoor temperature/humidity sensors will control public area heating, vent, and air conditioning units

e) Landscaping.

The developer shall submit for review and obtain approval from County Planning of landscape and irrigation plans that are designed to include drought tolerant and smog tolerant trees, shrubs, and groundcover to ensure the long-term viability and to conserve water and energy. The landscape plans shall include shade trees around main buildings, particularly along southern and western elevations, where practical.

f) Irrigation.
The developer shall submit irrigation plans that are designed, so that all common area irrigation areas shall be capable of being operated by a computerized irrigation system, which includes either an on-site weather station, ET gauge or ET-based controller capable of reading current weather data and making automatic adjustments to independent run times for each irrigation valve based on changes in temperature, solar radiation, relative humidity, rain and wind. In addition, the computerized irrigation system shall be equipped with flow sensing capabilities, thus automatically shutting down the irrigation system in the event of a mainline break or broken head. These features will assist in conserving water, eliminating the potential of slope failure due to mainline breaks and eliminating over-watering and flooding due to pipe and/or head breaks.

g) Recycling.
Exterior storage areas for recyclables and green waste shall be provided. Adequate recycling containers shall be located in public areas. Construction and operation waste shall be collected for reuse and recycling.

h) Transportation Demand Management (TDM) Program.
The project shall include adequate bicycle parking near building entrances to promote cyclist safety, security, and convenience. If available, mass transit facilities shall be provided (e.g. bus stop bench/shelter). The developer shall publish ride-sharing information for ride-sharing vehicles and provide a website or message board for coordinating rides. The Program shall ensure that appropriate bus route information is available to tenants and homeowners.

9.4. GHG – Installation/Implementation Standards.

The developer shall submit for review and obtain approval from County Planning of evidence that all applicable GHG performance standards have been installed, implemented properly and that specified performance objectives are being met to the satisfaction of County Planning and County Building and Safety. These installations/ procedures include the following:

a) Design features and/or equipment that cumulatively increases the overall compliance of the project to exceed Title 24 minimum standards by five percent.
b) All interior building lighting shall support the use of fluorescent light bulbs or equivalent energy-efficient lighting.
c) Installation of both the identified mandatory and optional design features or equipment that have been constructed and incorporated into the facility/structure.

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