

**AIR QUALITY AND GLOBAL CLIMATE
CHANGE IMPACT ANALYSIS**

**BALL ROAD BASIN GENERAL PLAN
AMENDMENT AND ZONE CHANGE
PROJECT**

CITY OF ANAHEIM

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ACRONYMS AND ABBREVIATIONS

AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CO	Carbon monoxide
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
HFCs	Hydrofluorocarbons
hp	Horsepower
IPCC	International Panel on Climate Change
MMTCO _{2e}	Million metric tons of carbon dioxide equivalent
LPG	Liquid propane gas
LST	Localized Significant Thresholds
MATES-III	Multiple Air Toxics Exposure Study III
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NO _x	Nitrogen Oxides
NO ₂	Nitrogen dioxide
O ₃	Ozone
PM	Particle matter
PM ₁₀	Particles that are less than 10 micrometers in diameter
PM _{2.5}	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan

SO _x	Sulfur Oxides
TAC	Toxic air contaminants
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality and Global Climate Change Impact Analysis has been completed to determine the air quality and global climate change impacts associated with the proposed Ball Road Basin General Plan Amendment and Zone Change 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;
- A description of the air quality regulatory framework;
- A description of the air quality thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the short-term construction related and long-term operational air quality impacts; and
- An analysis of the conformity of the proposed Project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP).

1.2 Site Location and Study Area

The Project site is located in the southeastern portion of the City of Anaheim (City). The Project site consists of a recharge basin with a holding capacity of approximately 220 acre-feet of water on approximately 19.5 acres. The basin is approximately 20 feet below the surrounding grade level. The Project site is bounded by Ball Road and Burris Basin to the north across Ball Road; the Santa Ana River Levee and the Santa Ana River (River) to the east; the Union Pacific Railroad to the south; and South Phoenix Club Drive (also referred to as South Auto Club Drive) to the west. The nearest sensitive receptors to the proposed Project are single-family homes on Chantilly Street and are located as close as 900 feet northwest of the Project site. The nearest offsite workers are located as near as 70 feet west of the Project site at the nearby Enterprise Rent-A-Car. The Project Location Map is shown in Figure 1.

According to the SCAQMD's Multiple Air Toxics Exposure Study III (MATES-III), which includes a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the South Coast Air Basin (SCAB), the local study area, which includes the project site and the nearby homes as close as 900 feet northwest of the project site has an estimated cancer risk of 1,034 in one million chance of cancer. In comparison, the average cancer risk for all of Orange County is 724 in one million.

1.3 Proposed Project Description

While there is no specific site development plan proposed, the proposed Project is seeking approval to amend the City's General Plan Land Use Element Map and Zoning Map for the Project site. The Project would change the site's General Plan Land Use designation from Open


Space to General Commercial. The Project site is designated Open Space due to its use as a recharge basin. The proposed Project would also change the zoning designation of the site from the Transitional (T) Zone (APNs 253-473-01 and 253-641-39) and Industrial (I) Zone (APN 253-631-32) to the General Commercial (“C-G”) Zone. The General Plan describes that intent of the C-G Zone is to allow a variety of land uses, including neighborhood-serving food markets, drug stores, restaurants, small hardware stores, child care centers, health clubs, large grocery stores, appliance stores, bakeries, banks, specialty shops, some low intensity civic uses, and other retail and professional uses. In addition, highway-serving uses could also be placed in this zone. The Zoning Code allows a variety of uses on a site in the C-G Zone by right, including commercial retail centers, convenience stores, grocery stores, offices, personal services and restaurants (not to exceed a floor area ratio [FAR] of 0.5) and allows additional uses subject to a Conditional Use Permit.

A portion of the site is also located within the Floodplain (FP) Overlay Zone. However, no change to the overlay zone is included as part of the proposed Project. A 100-foot wide construction and maintenance easement, adjacent to the River, will be retained by the Orange County Flood Control District as a multi-use area.

Based on the City’s maximum FAR of 0.5 for the C-G Zone, up to 425,000 square feet of General Commercial development could be constructed on the 19.5 acre Project site. The impacts of this potential future development on the Project site are examined in the following analysis.



Legend

-  Ball Road Basin
-  Railroad

SOURCE: Chambers Group.

2.0 ATMOSPHERIC SETTING

The Project site is located within the central portion of Orange County in the City of Anaheim, which is part of the SCAB that includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. Orange County is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the SCAB is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern.

Although the SCAB has a semi-arid climate, the air near the surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods of heavy fog are frequent and low stratus clouds, often referred to as “high fog” are a characteristic climate feature.

Winds are an important parameter in characterizing the air quality environment of a project site because they determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in Orange County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean. These winds are usually the strongest in the dry summer months. Nighttime winds in Orange County are a result mainly from the drainage of cool air off of the mountains to the east and they occur more often during the winter months and are usually lighter than the daytime winds. Between the periods of dominant airflow, periods of air stagnation may occur, both in the morning and evening hours. Whether such a period of stagnation occurs is one of the critical determinants of air quality conditions on any given day.

During the winter and fall months, surface high-pressure systems north of the SCAB combined with other meteorological conditions, can result in very strong winds, called “Santa Ana Winds”, from the northeast. These winds normally have durations of a few days before predominant meteorological conditions are reestablished. The highest wind speed typically occurs during the afternoon due to daytime thermal convection caused by surface heating. This convection brings about a downward transfer of momentum from stronger winds aloft. It is not uncommon to have sustained winds of 60 miles per hour with higher gusts during a Santa Ana Wind event.

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

Table A – Anaheim Monthly Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. Max. Temperature (°F)	71	71	73	76	78	81	87	89	87	82	76	70
Avg. Min. Temperature (°F)	48	48	51	53	57	61	65	65	63	58	52	47
Avg. Total Precipitation (in.)	2.86	3.18	1.90	0.80	0.28	0.10	0.03	0.01	0.25	0.72	1.38	2.02

Source: <http://www.weather.com/outlook/health/fitness/wxclimatology/monthly/graph/USCA0027>

3.0 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.

3.1 Criteria Pollutants

The criteria pollutants consist of ozone (O₃), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), lead (Pb), and particulate matter (PM). These pollutants can harm your health and the environment, and cause property damage. The United States Environmental Protection Agency (U.S. 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 NO_x are colorless and odorless, concentrations of nitrogen dioxide (NO₂) 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 react with other pollutants to form, ground-level O₃, nitrate particles, acid aerosols, as well as NO₂, 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

O₃ 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 O₃. Ground-level O₃ is the primary constituent of smog. Sunlight and hot weather cause ground-level O₃ to form with the greatest concentrations usually occurring downwind from urban areas. O₃ is subsequently considered a regional pollutant. Ground-level O₃ 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 O₃ precursors, the health effects associated with O₃ are also indirect health effects associated with significant levels of NO_x and VOC emissions.

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. Wood stoves, 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

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

Pb is a metal found naturally in the environment as well as in manufactured products. The major sources of Pb 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 Pb emissions to the air. High levels of Pb 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

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 10 micrometers in diameter (PM₁₀) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these

particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM_{2.5}) have been designated as a subset of PM₁₀ due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

3.2 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, 1,3-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 less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of 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 2005 *California Almanac of Emissions and Air Quality*, 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 PM_{2.5} 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 the ARB and as a Hazardous Air Pollutant by the U.S. 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. Naturally occurring asbestos is not present in Orange County. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California* prepared by the California Division of Mines and Geology, is located in Santa Barbara County. Due to the distance to the nearest natural occurrences of asbestos, neither the Project site nor the fill material imported to the site is likely to contain asbestos.

3.3 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 emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO₂), methane (CH₄), O₃, water vapor, N₂O, 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 GHGs 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 California's GHG emissions, followed by electricity generation. Emissions of CO₂ and N₂O are byproducts of fossil fuel combustion. Methane, a potent GHG, results from off-gassing associated with agricultural practices and landfills. Sinks of CO₂, where CO₂ is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the GHGs 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 CO₂ 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. CO₂ was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) 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 CO₂. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO₂, N₂O, and CFCs). CH₄ contains 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 CH₄. Other anthropogenic sources of CH₄ include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Concentrations of N₂O 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). N₂O 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. N₂O 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 racecars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in CH₄ 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 O₃, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

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 (CHF₃), HFC-134a (CF₃CH₂F), 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 of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (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 CO₂. 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.

3.4 Global Warming 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, CO₂. 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 IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO₂e. The GWP of CO₂ is by definition, 1. 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 B. The SAR GWPs are used in CARB's California inventory and AB32 Scoping Plan estimates.

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

Gas	Atmospheric Lifetime (years)¹	Global Warming Potential (100 Year Horizon)²	Atmospheric Abundance
Carbon Dioxide (CO ₂)	50-200	1	379 ppm
Methane (CH ₄)	9-15	25	1,774 ppb
Nitrous Oxide (N ₂ O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF ₄)	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C ₂ F ₆)	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF ₆)	3,200	22,800	5.6 ppt

Notes:

¹ Defined as the half-life of the gas.

² Compared to the same quantity of CO₂ emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2016.3.1), which is used in this report (CalEEMod user guide: Appendix A).

Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion

Source: IPCC 2007, EPA 2015

4.0 AIR QUALITY MANAGEMENT

4.1 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 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The agreement will become legally binding if it is ratified by at least 55 countries which together represent at least 55 percent of global greenhouse emissions by April 21, 2017.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete O₃ 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 Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The Environmental Protection Agency (EPA) was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The 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.

Table C – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O ₃)	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.07 ppm, / 8-hour	(a) Decline in pulmonary function 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-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO ₂)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 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-hour 0.04 ppm / 24-hour	75 ppb / 1-hour	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM ₁₀)	50 µg/m ³ / 24-hour 20 µg/m ³ / annual	150 µg/m ³ / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Decline in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.
Suspended Particulate Matter (PM _{2.5})	12 µg/m ³ / annual	35 µg/m ³ / 24-hour 15 µg/m ³ / annual	
Sulfates	25 µg/m ³ / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m ³ / 30-day	1.5 µg/m ³ / calendar quarter	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	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 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.

The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table D, the SCAB has been designated by U.S. EPA as a non-attainment area for O₃ and suspended particulates (PM₁₀ and PM_{2.5}) and partial non-attainment for Pb. Currently, the SCAB is in attainment with the national ambient air quality standards for CO, SO₂, and NO₂.

Table D – South Coast Air Basin Attainment Status

Criteria Pollutant	Standard	Averaging Time	Designation ^{a)}	Attainment Date ^{b)}
1-Hour Ozone	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 Originally 11/15/2010 (not attained) ^{e)}
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone ^{d)}	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	7/20/2032
	NAAQS	2015 8-Hour (0.070 ppm)	Designations Pending	~2037
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	1-Hour (20 ppm) 8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO ₂ ^{e)}	NAAQS	1-Hour (0.10 ppm)	Unclassifiable/ Attainment	N/A (attained)
	NAAQS	Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-Hour (0.18 ppm) Annual (0.030 ppm)	Attainment	---
SO ₂ ^{f)}	NAAQS	1-Hour (75 ppb)	Designations Pending (expect Unclassifiable/ Attainment)	N/A (attained)
	NAAQS	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/ Attainment	3/19/1979 (attained)
PM ₁₀	NAAQS	1987 24-hour (150 µg/m ³)	Attainment (Maintenance) ^{g)}	7/26/2013 (attained)
	CAAQS	24-hour (50 µg/m ³) Annual (20 µg/m ³)	Nonattainment	N/A
PM _{2.5} ^{h)}	NAAQS	2006 24-Hour (35 µg/m ³)	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual (15.0 µg/m ³)	Nonattainment	4/5/2015
	NAAQS	2012 Annual (12.0 µg/m ³)	Nonattainment (Serious)	12/31/2025
	CAAQS	Annual (12.0 µg/m ³)	Nonattainment	N/A
Pb	NAAQS	3-Months Rolling (0.15 µg/m ³)	Nonattainment (Partial)	12/31/2015

Notes:

- a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable
- b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration
- c) 1-hour O₃ standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard based on 2008-2010 data and is still subject to anti-backsliding requirements
- d) 1997 8-hour O₃ standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the revoked 1997 O₃ standard is still subject to anti-backsliding requirements
- e) New NO₂ 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO₂ standard retained
- f) The 1971 annual and 24-hour SO₂ standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO₂ 1-hour standard. Area designations are still pending, with Basin expected to be designated Unclassifiable/Attainment.
- g) Annual PM₁₀ standard was revoked, effective December 18, 2006; 24-hour PM₁₀ NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM₁₀ maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.
- h) Attainment deadline for the 2006 24-Hour PM_{2.5} NAAQS (designation effective December 14, 2009) is December 31, 2019 (end of the 10th calendar year after effective date of designations for Serious nonattainment areas). Annual PM_{2.5} standard was revised on January 15, 2013, effective March 18, 2013, from 15 to 12 µg/m³. Designations effective April 15, 2015, so Serious area attainment deadline is December 31, 2025.
- i) Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect to remain in attainment based on current monitoring data

In 2011, the SCAB exceeded federal standards for either O₃ or PM_{2.5} at one or more locations on a total of 124 days, based on the current federal standards for 8-hour O₃ and 24-hour PM_{2.5}. Despite substantial improvements in air quality over the past few decades, some air monitoring stations in the SCAB still exceed the NAAQS for O₃ more frequently than any other stations in the U.S. In 2011, three of the top five stations that exceeded the 8-hour O₃ NAAQS were located in the SCAB (Central San Bernardino Mountains, East San Bernardino Valley, and Metropolitan Riverside County). (SCAQMD 2012).

PM_{2.5} in the SCAB has improved significantly in recent years, with 2010 and 2011 being the cleanest years on record. In 2011, only one station in the SCAB (Metropolitan Riverside County at Mira Loma) exceeded the annual PM_{2.5} NAAQS and the 98th percentile form of the 24-hour PM_{2.5} NAAQS, as well as the 3-year design values for these standards. SCAB-wide, the federal PM_{2.5} 24-hour standard level was exceeded in 2011 on 17 sampling days. (SCAQMD 2012)

The SCAB is currently in attainment for the federal standards for NO₂. While the concentration level of the new 1-hour NO₂ federal standard (100 ppb) was exceeded in the SCAB at two stations (Central Los Angeles and Long Beach) on the same day in 2011, the NAAQS NO₂ design value has not been exceeded. (SCAQMD 2012) Therefore, the SCAB remains in attainment of the NO₂ NAAQS.

Although much of the South Coast Air Basin, including the proposed site location of Orange County, is in attainment for lead, the U.S. EPA designated the Los Angeles County portion of the SCAB as nonattainment for the recently revised (2008) federal Pb standard (0.15 µg/m³, rolling 3-month average). This was 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 revised 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 Pb 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, 2015.

In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the U.S. EPA have authority to regulate GHGs, but the U.S. EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the U.S. EPA should be required to regulate CO₂ and other GHGs as pollutants under the federal Clean Air Act (CAA).

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

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings under section 202(a) of the CAA. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the U.S. EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the U.S. EPA, including proposed GHG emission standards for light-duty vehicles, which were jointly proposed by the U.S. EPA and Department of Transportation on September 15, 2009. On September 13, 2013 the U.S. EPA Administrator signed 40 CFR Part 60, which limits emissions from new sources to 1,100 pounds of CO₂ per MWh for fossil fuel-fired utility boilers and 1,000 pounds of CO₂ per MWh for large natural gas-fired combustion units.

On August 3, 2015, the U.S. EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23, 2015). On February 9, 2016 the Supreme Court stayed implementation of the Clean Power Plan due to a legal challenge from 29 states, until the Supreme Court rules on the case next year.

State – California Air Resources Board

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

The SCAB has been designated by the CARB as a non-attainment area for O₃, PM₁₀, PM_{2.5}, and Pb. Currently, the SCAB is in attainment with the ambient air quality standards for CO, NO₂, SO₂, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

In 2008 the CARB adopted Resolution 08-43, which limits NO_x, PM₁₀ and PM_{2.5} emissions from on-road diesel truck fleets that operate in California. In 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 within California shall meet model 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 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, Senate Bill 32 and Assembly Bill 197

The California Governor issued Executive Order B-30-15 (EO 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. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in EO B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-country levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April 1, 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 Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area 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. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

Assembly Bill 1109

California Assembly Bill 1109 (AB 1109), which also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018. AB 1109 would reduce GHG emissions through reducing the amount of electricity required to be generated by fossil fuels in California.

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 regulations 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 as compared to the 2002 fleet. 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. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, 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

In 2005 the California Governor issued Executive Order S 3-05, GHG Emission, 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 CalEPA to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs. The State achieved its first goal of reducing greenhouse gas emissions to 2000 levels by 2010.

Assembly Bill 32

In 2006, the California State Legislature adopted 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.

In 2007, CARB released the calculated Year 1990 GHG emissions of 431 million metric tons (MMT) of CO₂e (MMTCO₂e). The 2020 target of 431 MMTCO₂e requires the reduction of 78 MMTCO₂e, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 MMTCO₂e (CARB, 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO₂ in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB 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.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the 2050.

The Cap and Trade Program established under Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

Senate Bill (SB) 1368

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

Executive Order S-1-07

Executive Order S-1-07 in 2007 and proclaims that the transportation sector is the main source of GHG emissions in California, 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 10 percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the LCFS. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The LCFS is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The LCFS 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. Reformulated gasoline mixed with corn-derived ethanol 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. 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.

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 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009, the Natural Resources Agency adopted amendments to the State CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and 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, 2010 and are summarized below:

- Climate action plans and other GHG 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 GHGs 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.

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- 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 GHG emissions in Appendix F of the CEQA Guidelines.
 - OPR is clear to state that “to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation.”
 - OPR’s emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
 - Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

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

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

Senate Bill 375

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

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.”

Assembly Bill 341 and 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. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

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 Title 24 standards are updated on a three year schedule, with the most current 2016 standards went into effect on January 1, 2017. The Title 24 standards require the installation of insulated hot water pipes, improved window performance, improved wall insulation, and mandatory duct sealing. Title 24 also requires roofs to be constructed to be solar ready, with cool roofing shingles, a minimum 1-inch air space between roof material and roof deck, and a minimum of R-22 roof/ceiling insulation. All lighting is required to be high efficiency and daylight sensors and motion sensors are required for outdoor lighting, bathrooms, utility rooms and other spaces. The forced air systems are required to limit leakage to 5 percent or less and requires all heat pump systems to be equipped with liquid line filter driers. The 2016 Title 24 Part 6 standards are anticipated to reduce electricity consumption by 281 gigawatt-hours per year and natural gas consumption by 16 million therms per year (<http://www.energy.ca.gov/2015publications/CEC-400-2015-037/CEC-400-2015-037-CMF.pdf>).

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

CCR Title 24, Part 11: *California Green Building Standards* (Title 24) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The most current version is the 2016 California Green Building Standards Code (CalGreen), which became effective on January 1, 2017 and replaced the 2013 CalGreen. One focus of CCR Title 24, Part 11 is clean air vehicles and increasing requirements for electric vehicle charging infrastructure, which would reduce pollutant emissions. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for nonresidential use include providing designated bicycle parking where necessary, providing parking for low-emitting, fuel-efficient, and carpool/van pool vehicles where new construction adds 10 or more parking spaces, and facilitating future installation of electric vehicle supply equipment.

Regional

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the SCAB. To that end, as a regional agency, the SCAQMD works directly with 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 all 24-hour PM_{2.5} 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 PM_{2.5} standard by 2014. The 2012 AQMP demonstrates attainment of the federal 24-hour PM_{2.5} standard by 2014 in the Air 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 O₃ (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 O₃ 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 PM_{2.5} emissions standards.

The 2012 AQMP is designed to satisfy the California Clean Air Act’s (CCAA) emission reductions of five 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 CAA and CCAA and amendments, to accommodate growth, to reduce the high pollutant levels in the SCAB, 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 2012 AQMP for the SCAB 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 O₃ standards, and highlights the significant amount of reductions needed and the need to engage in interagency coordinated planning of mobile sources to meet all of the federal criteria pollutant standards. Compared with the 2007 AQMP, the 2012 AQMP utilizes revised emissions inventory projections that use 2008 as the base year. On-road emissions are calculated using CARB EMFAC2011 emission factors and the transportation activity data provided by SCAG from their 2012 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 liquid propane gas (LPG) transmission losses, storage tank and pipeline cleaning and degassing, and architectural colorants, were created and included in the emissions inventories.

The 2012 AQMP also includes analysis of several additional sources of GHG emissions such as landfills and could also assist in reaching the GHG target goals in the AB 32 Scoping Plan.

The control measures in the 2012 AQMP consist of three components: 1) SCAB-wide and episodic short-term PM_{2.5} 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.

In June 2016, the SCAQMD released a draft of its forthcoming 2016 Air Quality Management Plan. The plan will develop integrated strategies and measures to meet the following standards:

- 8-hour Ozone (75 ppb) by 2032
- Annual PM_{2.5} (12 µg/m³) by 2021-2025
- 8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)
- 1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP)
- 24-hour PM_{2.5} (35 µg/m³) by 2019 (updated from the 2012 AQMP)

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 SCAB. Instead, this is controlled through local jurisdictions in accordance with CEQA. In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (SCAQMD CEQA Handbook), prepared by SCAQMD in 1993, with the most current updates found at <http://www.aqmd.gov/ceqa/hdbk.html>, was developed in accordance with the projections and programs of the AQMP. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that 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 SCAB, 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 CARB nor the OPR has developed GHG emissions thresholds, 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 MTCO_{2e} for residential uses, 1,400 MTCO_{2e} for commercial uses, and 3,000 MTCO_{2e} for mixed uses. An alternative annual threshold of 3,000 MTCO_{2e} for all land use types is also proposed.

Rules 2700 and 2701

On December 5, 2008, the SCAQMD adopted Rules 2700 and 2701 which establish 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.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated MPO for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), adopted April, 2016 and the *2015 Federal Transportation Improvement Program* (FTIP), adopted October 2013, which addresses regional development and growth forecasts. Although the RTP/SCS and FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. 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, FTIP, and AQMP are based on projections originating within the City and County General Plans.

Local – City of Anaheim

Local jurisdictions, such as the City of Anaheim, have the authority and responsibility to reduce air pollution through their 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 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 CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the County relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

The City's General Plan contains the following air quality-related goals and policies that are applicable to the proposed Project:

Goal 8.1: Reduce locally generated emissions through improved traffic flows and construction management practices.

Policies:

- 2) Regulate construction practices, including grading, dust suppression, chemical management, and encourage pre-determined construction routes that minimize dust and particulate matter pollution.

Goal 9.1: Reduce single-occupancy vehicle trips.

Policies:

- 1) Encourage alternative work schedules for public and private sector workers.
- 2) Encourage development of new commercial and industrial projects that provide on-site amenities that help to lesson vehicle trips such as on-site day care facilities, cafeterias, automated teller machines and bicycle storage facilities.
- 3) Encourage use of vanpools and carpools by providing priority parking through the project design process.
- 4) Encourage bicycle and pedestrian travel by improving the City's trail and bikeway master plan and by providing convenient links between the trail system and desired destinations.
- 5) Encourage the development of commercial, office and residential uses in appropriate mixed-use and multiple use settings.

Goal 11.1: Encourage land planning and urban design that support alternatives to the private automobile such as mixed-use, provision of pedestrian amenities, and transit-oriented development.

Policies:

- 1) Encourage commercial growth and the development of commercial centers in accordance with the Land Use Element.
- 2) Encourage mixed-use development in accordance with the Land Use Element.
- 3) Encourage retail commercial uses in or near residential areas and employment centers to lessen vehicle trips.
- 4) Encourage higher densities and mixed-use development in the vicinity of major rail and transit stops.
- 5) Encourage a diverse mix of retail uses within commercial centers to encourage one-stop shopping.

Goal 15.2: Continue to encourage site design practices that reduce and conserve energy.

Policies:

- 1) Encourage increased use of passive and active solar design in existing and new development (e.g., orientating buildings to maximize exposure to cooling effects of prevailing winds and locating landscaping and landscape structures to shade buildings).

Goal 17.1: Encourage building and site design standards that reduce energy costs.

Policies:

- 1) Encourage designs that incorporate solar and wind exposure features such as daylighting design, natural ventilation, space planning and thermal massing.

4.2 Monitored Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the SCAB. Estimates of the existing emissions in SCAB provided in the 2012 AQMP indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NO_x emissions and 40 percent of directly emitted PM_{2.5}, with another 10 percent of PM_{2.5} from road dust.

SCAQMD has divided SCAB into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The Project site is located in air monitoring area 17, which covers the western central portion of Orange County. The nearest air monitoring station to the Project site is the Anaheim-Pampas Lane Monitoring Station (Anaheim Station), which is located approximately four miles northwest of the Project site at 1630 Pampas Lane, Anaheim. Since historical concentrations of carbon monoxide were found to be well below state and federal limits throughout SCAB, SCAQMD discontinued monitoring of carbon monoxide levels on March 31, 2013. It should also be noted that due to the air monitoring station's distance from the Project site, recorded air pollution levels at the Anaheim Station reflect with varying degrees of accuracy, local air quality conditions at the Project site. Table E presents the monitored pollutant levels from the Anaheim Station.

Table E – Local Area Air Quality Monitoring Summary

Pollutant (Standard)	Year				
	2011	2012	2013	2014	2015
Ozone:					
Maximum 1-Hour Concentration (ppm)	0.088	0.079	0.084	0.111	0.100
Days > CAAQS (0.09 ppm)	0	0	0	2	1
Maximum 8-Hour Concentration (ppm)	0.073	0.068	0.070	0.082	0.081
Days > NAAQS (0.08 ppm)	0	0	0	4	1
Days > CAAQs (0.070 ppm)	1	0	0	6	1
Carbon Monoxide:					
Maximum 1-Hour Concentration (ppm)	2.3	2.9*	3.3*	--*	--*
Days > NAAQS (20 ppm)	0	0	0	--*	--*
Maximum 8-Hour Concentration (ppm)	2.08	2.34	--*	--*	--*
Days > NAAQS (9 ppm)	0	0	--*	--*	--*
Nitrogen Dioxide:					
Maximum 1-Hour Concentration (ppb)	73.8	67.3	81.5	75.8	59.1
Days > NAAQS (100 ppb)	0	0	0	0	0
Inhalable Particulates (PM10):					
Maximum 24-Hour California Measurement (ug/m ³)	53.0	48.0	77.0	84.0	59.0
Days > NAAQS (150 ug/m ³)	0	0	0	0	0
Days > CAAQS (50 ug/m ³)	2	0	1	2	2
Annual Arithmetic Mean (AAM) (ug/m ³)	24.9	22.4	25.4	26.8	25.5
Annual > NAAQS (50 ug/m ³)	No	No	No	No	No
Annual > CAAQS (20 ug/m ³)	Yes	Yes	Yes	Yes	Yes
Ultra-Fine Particulates (PM2.5):					
Maximum 24-Hour National Measurement (ug/m ³)	39.2	50.1	37.8	45.0	45.8
Days > NAAQS (35 ug/m ³)	2	4	1	4	3
Annual Arithmetic Mean (AAM) (ug/m ³)	10.9	10.8	10.1	16.1	14.8
Annual > NAAQS & CAAQS (12 ug/m ³)	No	No	No	Yes	Yes

Notes: Exceedances are listed in **bold**.

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

Data obtained from Anaheim Station.

* Insufficient or no data.

Source: <http://www.arb.ca.gov/adam/>

The monitoring data is presented in Table E and shows the most recent five years of monitoring data. The monitoring data presented in Table E shows that O₃ and PM10 and PM2.5 are the air pollutants of primary concern in the Project area.

Ozone

During the 2011 to 2015 monitoring period, the State 1-hour concentration standard for O₃ has been exceeded between zero and two days each year at the Anaheim Station. The State 8-hour O₃ standard has been exceeded between one and six days each year over the past five years at the Anaheim Station. The Federal 8-hour O₃ standard was exceeded between zero and four days each year over the past five years at the Anaheim Station. The numbers indicate that there is a declining trend of both maximum O₃ concentrations and days of exceedances in the area.

O₃ is a secondary pollutant as it is not directly emitted. O₃ is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO₂, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the O₃ levels experienced at the monitoring station, with the more significant areas being those directly upwind.

Carbon Monoxide

CO is another important pollutant that is due mainly to motor vehicles. The Anaheim Station did not record an exceedance of the state or Federal 1-hour or 8-hour CO standards for the last five years.

Nitrogen Dioxide

The Anaheim Station did not record an exceedance of the State or Federal NO₂ standards for the last five years.

Particulate Matter

The State 24-hour concentration standard for PM₁₀ has been exceeded between zero and two days each year over the past five years at the Anaheim Station. Over the past five years the Federal 24-hour standard for PM₁₀ has not been exceeded at the Anaheim Station. The annual PM₁₀ concentration at the Anaheim Station has exceeded the State's standard for the past five years and has not exceeded the Federal standard over the past five years.

The Federal 24-hour standard for PM_{2.5} was exceeded between one and four days each year over the past five years at the Anaheim Station. The annual PM_{2.5} concentration at the Anaheim Station exceeded both the State and Federal standard for two of the past three years, with the exceedances occurring in 2014 and 2015. There does not appear to be a noticeable trend for PM₁₀ or PM_{2.5} 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 U.S. EPA, some people are much more sensitive than others to breathing fine particles (PM₁₀ and PM_{2.5}). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM₁₀ and PM_{2.5}. 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.

5.0 AIR QUALITY STANDARDS

5.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the SCAB, often occur hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as O₃. 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 SCAB 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 Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)						
	VOC	NO _x	CO	SO _x	PM10	PM2.5	Pb
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>

5.2 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 SCAB. 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, that details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO₂, CO, PM10, 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 approximately 19.5-acres, however because the Look-Up Tables only provide thresholds for 1, 2, and 5-acre sites, the 5-acre threshold was utilized in this analysis. As detailed above in Section 4.2, the Project site is located in Air Monitoring Area 17, which covers central Orange County. For PM10 and PM2.5, which are based on a 24-hour standard, the nearest sensitive receptors are the single-family homes located as near as 900 feet (274 meters) northwest of the Project site. Since the Look-Up Tables only provide emissions thresholds for 25, 50, 100, 200 and 500 meters, the PM10 and PM2.5 emissions thresholds were calculated through interpolation of the 200 and 500 meter thresholds. For NO_x, which is based on a 1-hour threshold and CO, which is based on an 8-hour threshold, the nearest sensitive receptors are the offsite workers located as near as 72 feet (22 meters) west of the Project site in a car rental center. According to LST

Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25 meter thresholds and is what was utilized for CO and NOx. Table G below shows the LSTs for NO₂, CO, and PM10 and PM2.5 for both construction and operational activities.

Table G – SCAQMD Local Air Quality Thresholds of Significance

Activity	Allowable Emissions (pounds/day) ¹			
	NOx	CO	PM10	PM2.5
Construction	183	1,253	113	51
Operation	183	1,253	28	13

Notes:

¹ For PM10 and PM2.5 the thresholds are based on 274 meters, which is the distance to the nearest single-family homes to the northwest. For NOx and CO the thresholds are based on 25 meters, since all receptors closer than 25 meters are based on the 25 meter threshold and the nearest offsite workers are as near as 22 meters west of the project site.

Source: Calculated from SCAQMD’s Mass Rate Look-Up Tables for five acres in Air Monitoring Area 17, Central Orange County.

5.3 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 10 in one million or greater; or
- Toxic air contaminants from the proposed Project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed Project may have a significant impact related to hazardous air pollutants (HAP), the *Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed Project is anticipated to create HAPs 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 HAP and the toxicity of the HAP should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

5.4 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.

5.5 Greenhouse Gases

The CARB and SCAQMD have issued proposed standards and guidelines for GHG emissions for a variety of land uses. 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 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 MTCO_{2e} for residential uses, 1,400 MTCO_{2e} for commercial uses, and 3,000 MTCO_{2e} for mixed uses. An alternative annual threshold of 3,000 MTCO_{2e} for all land use types was also proposed. Although the SCAQMD provided substantial evidence supporting the use of the above thresholds, as of December 2016, the SCAQMD Board has not yet considered or approved the Working Group's thresholds. Originally SCAQMD had stated that they were waiting to approve the Working Group's thresholds dependent on the outcome of the State Supreme Court decision of the California Building Industry Association v. Bay Area Air Quality Management District (BAAQMD), which was filed on December 17, 2015. However, since that court decision has been decided for some time now, the most likely time for the SCAQMD Board to consider the Working Group thresholds will be in combination with the consideration of the updated CEQA Air Quality Handbook that is currently being revised by SCAQMD staff. In order to provide a conservative analysis, the Working Group's draft thresholds have been utilized. Therefore, this analysis has utilized the annual threshold of 3,000 MTCO_{2e} for all land use types.

6.0 IMPACT ANALYSIS

6.1 CEQA Thresholds 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:

- 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 O₃ 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.

6.2 Air Quality Compliance

The proposed Project would not conflict with or obstruct implementation of SCAQMD's AQMP. The following section discusses the proposed Project's consistency with SCAQMD's AQMP.

SCAQMD Air Quality Management Plan

CEQA requires a discussion of any inconsistencies between a proposed Project and applicable general plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed Project is the SCAQMD's AQMP. Therefore, this section discusses any potential inconsistencies of the proposed Project with the AQMP.

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

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key criteria which indicate 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 (except as provided for CO in Section 9.4 for relocating CO hot spots).
 - (2) Whether the project will exceed the assumptions in the AQMP in 2010 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 – Does the Project Result in an Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, with implementation of Mitigation Measure 1, 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 ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance discussed above in Section 6.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, no long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, with implementation of Mitigation Measure 1, the proposed project would be consistent with the first criterion.

Criterion 2 – Does the Project Exceed the Assumptions in the AQMP?

No. 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. SCAG's *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)* 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's General Plan Land Use Element defines the assumptions that are represented in the AQMP.

The proposed Project includes a request to amend the Land Use Element Map and Zoning Map for the Project site. The Project would change the site's General Plan Land Use designation from Open Space to General Commercial and would change the zoning designation of the site from the T Zone and I Zone to the C-G Zone. Although the proposed Project is currently inconsistent with the General Plan land use designation for the proposed site, it would be in substantial compliance with the Land Use Element goals and polices, since it would match the existing land use designation on the west side of Phoenix Club Drive and is located near major transportation corridors (i.e., SR-57 and Ball Road). As the proposed Project would amend the City's General Plan and change the Project site zoning designation to eliminate potential conflicts with any

applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect the proposed Project would have a less than significant impact relating to conflicting with applicable land use plans, policies, and regulations. Therefore, with the approval of the proposed amendments, a less than significant impact would occur for the second criterion and no mitigation would be required.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1

The project applicant shall require during grading and import of material to the project site that large off-road diesel equipment with a horsepower (hp) rating of 160 hp or higher shall meet the U.S. EPA-Certified emission standard for Tier 3 off-road equipment or higher. Any model year 2006 or latter off-road diesel equipment meets the Tier 3 standard. A list of construction equipment by type and model year shall be maintained by the construction contractor on-site. This measure shall not apply to any equipment that is utilized on the project site that is licensed to operate on public roadways, such as water trucks.

Level of Significance After Mitigation

Less than significant impact.

6.3 Air Quality Standard Violation

The proposed Project may violate any air quality standard or contribute substantially to an existing or projected air quality violation. The following section calculates the potential air emissions associated with the construction and operations of the proposed Project and compares the emissions to the SCAQMD standards.

While there is no specific site development plan proposed, as stated previously, the proposed Project is seeking approval to amend the City's General Plan Land Use Element Map and Zoning Map to change the site's General Plan Land Use designation from Open Space to C-G and to change the zoning designation of the site from the T Zone and I Zone to the C-G Zone.

In order to determine the worst-case air emissions that could result from the proposed Project, construction and operation of a 425,000 square foot commercial development, based on the City's maximum FAR of 0.5 for the C-G Zone, was analyzed on the approximately 19.5-acre Project site.

Construction Emissions

The construction emissions have been analyzed for both regional and local air quality impacts as well as potential toxic air impacts and odor impacts.

Construction-Related Regional Impacts

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

Methodology

Typical emission rates from construction activities were obtained from CalEEMod Version 2016.3.1. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2014 computer program to calculate the emission rates specific for Orange County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2014 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. Using CalEEMod, the peak daily air pollutant emissions during each phase was calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions. The construction emissions printouts from CalEEMod are provided in Appendix A.

The phases of construction activities which have been analyzed below are: 1) grading, 2) trenching, 3) building construction, 4) paving, and 5) application of architectural coatings.

Grading

The grading phase was modeled as occurring over two years and starting in 2020. During the grading phase an estimated 386,000 cubic yards are anticipated to be imported to the Project site in order to backfill the existing detention basin. The grading activities are anticipated to require a total of 48,250 two-way haul trips, 20 miles in length. The import of 386,000 cubic yards of material is anticipated to occur over 527 days, and require an average of 46 haul truck deliveries per day (92 two-way trips), which was based on observations of the number of haul trucks received by other soil receiving centers in the project vicinity. This analysis also analyzed expedited grading periods that are detailed in the analysis below.

The grading activities would also require up to 20 worker trips per day. In order to account for water truck emissions, six daily vendor truck trips were added to the grading phase. and the simultaneous operation of two excavators, two graders, two rubber tired dozers, three scrapers, and two of either a tractor, loader or backhoe, which are an increase of one grader, one rubber tired dozer and one scraper over the CalEEMod default equipment mix in order to account for the increase in grading due to the import of fill. According to SCAQMD staff, application of the Rule 403 minimum requirements would provide a 55 percent reduction over the default calculated fugitive dust emission rates, which has been applied to the CalEEMod model.

Trenching

The trenching for utilities would occur after the completion of the grading phase. The trenching phase was included since the proposed Project would require the Chantilly Storm Drain and two storm drains from Phoenix Club Drive that currently drain into the Project site be extended so that they discharge into the River instead. The trenching activities would occur over one month,

would require up to 10 worker trips per day. In order to account for water truck emissions, six daily vendor trips were also added to the trenching phase. The mitigation of water all exposed areas three times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control measures be utilized to reduce fugitive dust emissions. The onsite equipment would consist of two excavators, one rubber tired loader, and one of either a tractor, loader, or backhoe.

Building Construction

The building construction would occur after the completion of the trenching phase. In order to provide a worst-case analysis, the maximum allowed development of 425,000 square feet was analyzed as being built over a 14 month period. The building construction would require up to 255 worker trips and 116 vendor trips per day. The on-site equipment would consist of the simultaneous operation of one crane, three forklifts, one generator set, one welder, and three of either a tractor, loader, or backhoe.

Paving

The paving would occur after the completion of the building construction phase. The paving phase was modeled based on the paving of the onsite roads and parking lots, which are anticipated to cover 6.5 acres of the Project site. The paving activities would occur over one month and would require up to 15 worker trips per day. The onsite equipment would consist of the simultaneous operation of two pavers, two paving equipment, and two rollers.

Architectural Coating

The application of architectural coatings would occur after the completion of the paving phase. The architectural coating phase was modeled based on covering 212,500 square feet of non-residential exterior area, 637,500 square feet of non-residential interior area and 16,988 square feet of parking area that includes striping on the streets, painting of signs, and other architectural coatings in public areas. The architectural coating phase would occur over three months and would require up to 51 worker trips per day. The onsite equipment would consist of one air compressor. Architectural coatings is defined in Rule 1113 as “any coatings applied to stationary structures and their appurtenances”.

Project Impacts

The construction-related criteria pollutant emissions for each phase are shown below in Table H.

Table H – Construction-Related Criteria Pollutant Emissions prior to Mitigation

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO ₂	PM10	PM2.5
Grading						
On-Site ¹	7.00	79.61	45.36	0.09	10.76	6.31
Off-Site ²	0.85	26.19	7.73	0.07	3.57	0.99
Total	7.85	105.80	53.09	0.17	14.33	7.30
Trenching						
On-Site	1.40	13.93	12.31	0.02	0.67	0.62
Off-Site	0.05	0.55	0.43	0.00	0.15	0.04
Total	1.45	14.48	12.74	0.02	0.83	0.66

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO ₂	PM10	PM2.5
Building Construction						
On-Site	1.71	15.62	16.36	0.03	0.81	0.76
Off-Site	1.29	10.82	10.08	0.05	3.63	1.01
Total	3.00	26.43	26.44	0.08	4.44	1.77
Paving						
On-Site	1.88	10.19	14.58	0.02	0.51	0.47
Off-Site	0.06	0.03	0.40	0.00	0.17	0.05
Total	1.94	10.22	14.98	0.02	0.68	0.51
Architectural Coatings						
On-Site	67.17	1.30	1.81	0.00	0.07	0.07
Off-Site	0.19	0.10	1.35	0.00	0.57	0.15
Total	67.35	1.40	3.16	0.00	0.64	0.23
SCQAMD Thresholds						
Exceeds Threshold?	Yes	Yes	No	No	No	No

Notes:

¹ On-site emissions from equipment not operated on public roads.

² Off-site emissions from vehicles operating on public roads.

Source: CalEEMod Version 2016.3.1.

Table H shows that only NOx would exceed the SCAQMD thresholds of significance for the grading phase, all other criteria pollutant emissions and phases would be within the SCAQMD thresholds described above in Section 5.2. This would be considered a significant impact.

Mitigation Measure 1 requires that during grading and import of material to the project site, all large off-road diesel equipment with a hp rating of 160 hp or higher shall meet the U.S. EPA-certified emission standard for Tier 3 off-road equipment or higher. Any model year 2006 or latter off-road diesel equipment meets the Tier 3 standard. Table I shows that with application of Mitigation Measure 1, the construction-related criteria pollutant emissions would be reduced to less than significant.

Table I – Mitigated Construction-Related Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day) ¹					
	VOC	NOx	CO	SO ₂	PM10	PM2.5
Grading						
On-Site	2.53	45.11	52.72	0.09	9.23	5.04
Off-Site	0.85	26.19	7.73	0.07	3.57	0.99
Total	3.38	71.30	60.45	0.17	12.81	6.03
Trenching						
On-Site	1.40	13.93	12.31	0.02	0.67	0.62
Off-Site	0.05	0.55	0.43	0.00	0.15	0.04
Total	1.45	14.48	12.74	0.02	0.83	0.66
Building Construction						
On-Site	1.71	15.62	16.36	0.03	0.81	0.76
Off-Site	1.29	10.82	10.08	0.05	3.63	1.01
Total	3.00	26.43	26.44	0.08	4.44	1.77
Paving						

Activity	Pollutant Emissions (pounds/day) ¹					
	VOC	NOx	CO	SO ₂	PM10	PM2.5
On-Site	1.88	10.19	14.58	0.02	0.51	0.47
Off-Site	0.06	0.03	0.40	0.00	0.17	0.05
Total	1.94	10.22	14.98	0.02	0.68	0.51
Architectural Coatings						
On-Site	67.17	1.30	1.81	0.00	0.07	0.07
Off-Site	0.19	0.10	1.35	0.00	0.57	0.15
Total	67.35	1.40	3.16	0.00	0.64	0.23
SCQAMD Thresholds	75	100	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Notes:

¹ Calculated from CalEEMod with application of Mitigation Measure 1.

Source: CalEEMod Version 2016.3.1..

The project applicant has requested additional optional mitigation be provided in case there is a need to complete the import of fill in less time than the anticipated rate of 527 days, which was detailed above in the grading details. The additional optional mitigation would consist of requiring all haul trucks to be either model year 2010 or newer. In order to determine the reduction in air emissions associated with the optional mitigation, the EMFAC2011 model was utilized and was run based on the same parameters that were used in the CalEEMod model. The EMFAC2011 model printouts are provided in Appendix B. The increase in haul trucks per day is not anticipated to change the number of on-site workers or the amount of on-site equipment. In order to account for the vehicle emissions from the workers driving to and from the project site, the off-site emissions from the trenching phase which consist solely of the emissions from 10 worker trips per day was doubled, since there is anticipated to be twice the number of worker trips (20 worker trips) during the grading phase.

Multiple scenarios were run in order to find the maximum number of haul truck trips that can operate per day, while remaining under the SCAQMD's significance thresholds and it was found that through requiring all haul trucks to be model year 2010 or newer that would allow up to 190 haul truck deliveries (380 two-way) trips per day and would allow the grading phase to be shortened to 127 work days. Table J shows the criteria pollutant emissions levels with implementation of the Optional Mitigation Measure A.

Table J – Alternate Mitigation for Import of Fill Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day) ¹					
	VOC	NOx	CO	SO ₂	PM10	PM2.5
Grading With all Haul Trucks Model Year 2010 or Newer and 190 Haul Truck Deliveries per Day						
On-Site	2.38	43.57	52.62	0.09	32.28	14.94
Off-Site	1.88	54.65	27.67	0.27	7.08	2.01
Total	4.26	98.21	80.29	0.36	39.35	16.95
SCQAMD Thresholds	75	100	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Notes:

¹ Calculated from CalEEMod with application of Mitigation Measure 1 and Optional Mitigation Measure A.

Source: CalEEMod Version 2016.3.1..

Construction-Related Local Impacts

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

Local Air Quality Impacts from Construction

The local air quality emissions from construction were analyzed through utilizing the methodology described in the LST Methodology, prepared by SCAQMD, revised October 2009. The LST Methodology found the primary criteria emissions of concern are NO_x, CO, PM₁₀, and PM_{2.5}. In order to determine if any of these pollutants require a detailed analysis of the local air quality impacts, each phase of construction was screened using the SCAQMD's Mass Rate LST Look-up Tables. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily onsite emissions of CO, NO_x, PM₁₀, and PM_{2.5} from the proposed Project could result in a significant impact to the local air quality.

The emission thresholds were calculated based on the Central Orange County source receptor area and a disturbance of five acres, which is the nearest acreage available to the daily disturbed area. The nearest residents are located as near as 900 feet northwest of the Project site and the nearest offsite workers as located as near as 70 feet (22 meters) west of the Project site. Table K shows the onsite emissions from the CalEEMod model for the different construction phases and the calculated emissions thresholds.

Table K – Local Construction Emissions at the Nearest Sensitive Receptors

Phase	Pollutant Emissions (pounds/day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
Grading ¹	45.11	52.72	9.23	5.04
Trenching ¹	13.93	12.31	0.67	0.62
Paving	15.62	16.36	0.81	0.76
Building Construction	10.19	14.58	0.51	0.47
Architectural Coatings	1.30	1.81	0.07	0.07
SCAQMD Threshold for 25 meters (82 feet) and 275 meters (900 feet) ²	183	1,253	113	51
Exceeds Threshold?	No	No	No	No

Notes:

¹ Grading and Trenching based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.

² For PM₁₀ and PM_{2.5} the thresholds are based on 274 meters, which is the distance to the nearest single-family homes to the northwest. For NO_x and CO the thresholds are based on 25 meters, since all receptors closer than 25 meters are based on the 25 meter threshold and the nearest offsite workers are as near as 22 meters west of the project site.

Source: Vista Environmental, calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for five acres in Air Monitoring Area 17, Central Orange County.

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

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

Construction-Related Toxic Air Contaminant Impacts

The greatest potential for TAC emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed Project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. “Individual cancer risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the proposed Project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions and corresponding individual cancer risk. Therefore, no significant short-term TAC impacts would occur during construction of the proposed Project.

Operational Emissions

The on-going operation of the proposed Project would result in a long-term increase in criteria pollutant emissions. This increase would be due to emissions from the Project-generated vehicle trips and through operational emissions from the on-going use of the proposed Project. The following section provides an analysis of potential long-term air quality impacts due to: regional air quality and local air quality impacts with the on-going operations of the proposed Project. The potential operations-related air emissions have been analyzed below for the regional and local criteria pollutant emissions and cumulative impacts.

Operations-Related Criteria Pollutant Analysis

The air quality impacts created by vehicle trips associated with the proposed Project have been analyzed by inputting the Project-generated vehicular trips from the *Draft Traffic Impact Analysis Update Ball Road Basin General Plan Amendment and Zone Change Project* (Traffic Impact Analysis), prepared by TranspoGroup, November 16, 2016, into the CalEEMod Model. The Traffic Impact Analysis found that the proposed Project would create 10,148 vehicular trips per day. The CalEEMod default vehicle mix was utilized in the analysis, which found that the project would generate 184 semi-truck trips per day and 267 vendor truck trips per day. The program then applies the emission factors for each trip which is provided by the EMFAC2014 model to determine the vehicular traffic pollutant emissions. The operating emissions were based on the year 2025, which has been assumed as the earliest practical opening year for a commercial project on the Project site. The Project setting was set to Suburban Center in the CalEEMod, which is defined by areas with transit headways of 20-30 minutes during peak hours and the jobs per acre created was set to 28, which was based on the difference between the AM peak hour inbound trips and outbound trips in the Traffic Impact Analysis. Currently, OCTA Bus Route 46 has a bus stop at the Project site and any development that occurs at the Project site would be required to provide sidewalks, which have been entered into the CalEEMod model.

The air quality impacts created by the major on-site pollutant emitters associated with the ongoing use of 425,000 square feet of commercial uses has also been analyzed using the CalEEMod model. The CalEEMod model has standardized emission rates for electrical usage, natural gas appliances, landscape maintenance equipment, and architectural coatings. The program then multiplies these rates by the number of units of each land use type for the project being analyzed. The worst-case summer or winter VOC, NO_x, CO, SO₂, PM₁₀, and PM_{2.5} emissions created from the proposed Project's long-term operations have been calculated and are summarized below in Table L.

Table L – Operational Regional Air Pollution Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Area Sources ¹	9.62	0.00	0.04	0.00	0.00	0.00
Energy Usage ²	0.02	0.22	0.19	0.00	0.02	0.02
Mobile Sources ³	10.03	34.49	100.15	0.39	38.06	10.38
Total Emissions	19.67	34.72	100.38	0.39	38.08	10.40
SCQAMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Notes:

¹ Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

² Energy usage consist of emissions from electricity and natural gas usage.

³ Mobile sources consist of emissions from vehicles and road dust.

Source: Vista Environmental, calculated from CalEEMod Version 2016.3.1.

The data provided in Table L above shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

Operations-Related Local Air Quality Impacts

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

Local CO Emission Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with Project CO levels to the State and Federal CO standards of 20 ppm over one hour or 9 ppm over eight hours.

At the time of the 1993 Handbook, the SCAB was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and

implementation of control technology on industrial facilities, CO concentrations in the SCAB and in the state have steadily declined. In 2007, the SCAB was designated in attainment for CO under both the CAAQS and NAAQS. SCAQMD conducted a CO hot spot analysis for attainment at the busiest intersections in Los Angeles during the peak morning and afternoon periods and did not predict a violation of CO standards¹. Since the nearby intersections to the proposed Project are smaller with less traffic than what was analyzed by the SCAQMD, no local CO Hotspot are anticipated to be created from the proposed project and no CO Hotspot modeling was performed. Therefore, a less than significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed Project.

Local Air Quality Impacts from On-Site Operations

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances may have the potential to create emissions areas that 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 SCAB. The nearest sensitive receptors that may be impacted by the proposed Project are single-family homes located as near as 900 feet northwest of the Project site and offsite workers located as near as 70 feet west of the Project site.

The local air quality emissions from on-site operations were analyzed using the SCAQMD’s Mass Rate LST Look-up Tables and the methodology described in *Localized Significance Threshold Methodology* (LST Methodology), prepared by SCAQMD, revised October 2009. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed Project could result in a significant impact to the local air quality. The proposed Project was analyzed based on the Central Orange County source receptor area and a five acre project site. As detailed above in Section 5.2, the thresholds for PM10 and PM2.5, which are based on a 24-hour standard, were calculated through interpolation of the 200 and 500 meter LST thresholds. The emissions thresholds for NOx, which is based on a 1-hour threshold and CO, which is based on an 8-hour threshold, shall be based on the 25 meter LST thresholds according to LST methodology. Table M shows the on-site emissions from the CalEEMod model that includes area sources, energy usage, and vehicles operating on-site and the calculated emissions thresholds.

Table M – Operational Local Criteria Pollutant Emissions

On-Site Emission Source	Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Area Sources	0.00	0.04	0.00	0.00
Energy Usage	0.22	0.19	0.02	0.02
Onsite Vehicle Emissions ¹	4.31	12.52	4.76	1.30
Total Emissions	4.53	12.75	4.78	1.31
SCAQMD Thresholds for 25 meters and 274 meters²	183	1,253	28	13
Exceeds Threshold?	No	No	No	No

Notes:

¹ The four intersections analyzed by the SCAQMD were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning and LOS F in the evening peak hour.

¹ Onsite vehicle emissions based on 1/8 of the gross vehicular emissions, which is the estimated portion of vehicle emissions occurring within a quarter mile of the project.

² For PM10 and PM2.5 the thresholds are based on 274 meters, which is the distance to the nearest single-family homes to the northwest. For NOx and CO the thresholds are based on 25 meters, since all receptors closer than 25 meters are based on the 25 meter threshold and the nearest offsite workers are as near as 22 meters west of the Project site.

Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for five acres in Air Monitoring Area 17, Central Orange County.

The data provided in Table M shows that the on-going operation of the proposed Project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 5.2. Therefore, the proposed Project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Operations-Related Toxic Air Contaminant Impacts

Particulate matter from diesel exhaust is the predominate TAC in urban areas and, based on a statewide average in 2000, it was estimated to represent about two-thirds of cancer risk from TACs. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal Hazardous Air Pollutants program. Diesel particulate matter (DPM) is not directly measured but is indirectly estimated based on fine particulate matter measurements and special studies on the chemical speciation of ambient data along with receptor modeling techniques. The DPM modeling requires inputs of the geographical locations of sensitive receptors and the placement of each source of DPM, which includes stationary places such as loading docks where trucks idle and transport refrigeration units (TRUs) would operate for extended periods of time and both on-site and off-site roads where running emissions from trucks would create DPM. Although the locations of nearby sensitive receptors, offsite workers as near as 70 feet west and single-family homes as near as 900 feet northwest of the Project site, is known, the location of the on-site DPM sources is unknown at this time, since this Project is a program level analysis that is limited to amendments to the General Plan Land Use Element Map and Zoning Map and does not provide project level details for the Project site. Therefore, it is not possible to provide a quantitative analysis of the operational DPM levels and resultant cancer risks at the nearby receptors from the proposed Project at this time.

According to the *Health Risk Assessments for Proposed Land Use Projects*, prepared by CAPCOA, July 2009, this Report recommends that sensitive receptors should not be located within 1,000 feet of a distribution center that accommodates more than 100 trucks per day or more than 40 trucks per day with operating transport refrigeration units (TRUs). As detailed above in the operational criteria pollutant analysis, the CalEEMod default vehicle mix found that the project would generate 184 semi-truck trips per day and 267 vendor truck trips per day. Therefore, potential future development on the project site may exceed CAPCOA screening thresholds of where potential cancer and non-cancer (acute and chronic) health risks may occur from project-related TAC emissions. This would be considered a significant impact.

Mitigation Measure 2 is provided that requires any future development on the project site that has the potential to generate 100 or more diesel truck trips per day or have 40 or more truck trips with operational transport refrigeration units (TRUs) to submit a health risk assessment (HRA) to the Planning Department, prior to the issuance of building permits. The HRA shall assess the cancer and non-cancer (acute and chronic) health risks from project generated TAC emissions at

the nearby sensitive receptors and if potential health risks are identified, best available control technologies for toxics (T-BACTs) shall be identified in the HRA to reduce the risk to less than significant levels. Through implementation of Mitigation Measure 2, operational TAC impacts would be reduced to less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1 provided in Section 6.2.

Optional Mitigation Measure A

If the project applicant would like to reduce the import of fill and grading of the project site to 127 work days, which would require up to 190 haul truck deliveries per day (import up to 3,800 cubic yards per day), the project applicant shall require that all haul trucks used to import fill to the project site are model year 2010 or newer.

Mitigation Measure 2

Prior to the issuance of building permits for any future development on the project site that has the potential to generate 100 or more diesel truck trips per day or have 40 or more truck trips per day with operational transport refrigeration units (TRUs).

The property owner/developer shall submit a health risk assessment (HRA) to the Planning Department. The HRA shall be prepared in accordance with policies and procedures of the State of California's Office of Environmental Health Hazard Assessment (OEHHA) and the South Coast Air Quality Management District (SCAQMD).

If the HRA shows that the incremental cancer risk exceeds one in one hundred thousand (1.0E-05), PM concentrations would exceed 2.5 $\mu\text{g}/\text{m}^3$, or the appropriate noncancer hazard index exceeds 1.0, the applicant will be required to identify and demonstrate that best available control technologies for toxics (T-BACTs) are capable of reducing potential cancer and noncancer risks to an acceptable level, including appropriate enforcement mechanisms. T-BACTs may include, but are not limited to, restricting idling onsite or electrifying loading docks to reduce diesel particulate matter, or requiring use of newer equipment and/or vehicles. The property owner/developer shall record a covenant on the property that requires ongoing implementation of T-BACTs identified in the HRA. The form of the covenant shall be approved by the City Attorney's Office prior to recordation.

Level of Significance After Mitigation

Less than significant impact.

6.4 Net Increase in Non-Attainment Pollution

The proposed Project would not 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 O₃ precursors).

Cumulative projects include local development as well as general growth within the Project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel throughout the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the Project's air quality must be generic by nature. The Project area is out of attainment for O₃, PM₁₀ and PM_{2.5} particulate matter. In accordance with CEQA Guidelines Section 15130(b), this analysis of cumulative impacts incorporates a three-tiered approach to assess cumulative air quality impacts.

- Consistency with the SCAQMD project specific thresholds for construction and operations;
- Project consistency with existing air quality plans; and
- Assessment of the cumulative health effects of the pollutants.

Consistency with Project Specific Thresholds

Construction-Related Impacts

The Project site is located in the SCAB, which is currently designated by the EPA for federal standards as a non-attainment area for O₃, PM₁₀, and PM_{2.5}. The regional O₃, PM₁₀, and PM_{2.5} emissions associated with construction of the proposed Project have been calculated above in Section 6.3. The analysis in Section 6.3 found that development of the proposed Project would result in less than significant regional emissions of VOC and NO_x (ozone precursors), PM₁₀, and PM_{2.5} during construction of the proposed Project. Therefore, a less than significant cumulative impact would occur from construction of the proposed Project.

Operational-Related Impacts

The greatest cumulative operational impact on the quality of the SCAB will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development. In accordance with SCAQMD methodology, projects that do not exceed SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The regional zone, PM₁₀, and PM_{2.5} emissions created from the on-going operation of the proposed Project have been calculated above in Section 6.3. The analysis in Section 6.3 found that the development of the proposed project would result in less than significant regional emissions of VOC and NO_x (ozone precursors), PM₁₀, and PM_{2.5} during operation of the proposed Project. With respect to long-term emissions, this Project would create a less than significant cumulative impact.

Consistency with Air Quality Plans

The proposed Project includes a request to amend the Land Use Element Map and Zoning Map for the Project site. The Project would change the site's General Plan Land Use designation from Open Space to General Commercial and would change the zoning designation of the site from the T Zone and I Zone to the C-G Zone. Although the proposed Project is currently inconsistent with the General Plan land use designation for the proposed site, it would be in substantial

compliance with the Land Use Element goals and polices, since it would match the existing land use designation on the west side of Phoenix Club Drive and is located near major transportation corridors (i.e., SR-57 and Ball Road). As the proposed Project would amend the City's General Plan and change the Project site zoning designation to eliminate potential conflicts with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect the proposed Project would have a less than significant impact relating to conflicting with applicable land use plans, policies, and regulations. Therefore, with the approval of the proposed amendments, the proposed Project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPS.

Cumulative Health Impacts

The SCAB is designated as nonattainment zone for O₃, PM₁₀, and PM_{2.5}, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (elderly, children, and the sick). Therefore, when the concentrations of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience health effects. The regional analysis detailed above in Section 6.3 found that the proposed Project would not exceed the SCAQMD regional significance thresholds for VOC and NO_x (ozone precursors), PM₁₀, and PM₂. As such, the proposed Project would result in a less than significant cumulative health impact.

Level of Significance

Less than significant impact.

6.5 Sensitive Receptors

The proposed Project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of emissions produced in the nearby vicinity of the proposed Project, which may expose sensitive receptors to substantial concentrations have been calculated in Section 6.3 for both construction and operations, which are discussed separately below.

Construction-Related Sensitive Receptor Impacts

The nearest sensitive receptors that may be impacted by the proposed Project are single-family homes located as near as 900 feet northwest of the Project site and offsite workers located as near as 70 feet west of the Project site. The above analysis found that none of the analyzed criteria pollutants would exceed the calculated local emissions thresholds at the nearest sensitive receptors for construction activities. Therefore, the exposure of sensitive receptors to substantial pollutant concentrations would be reduced to a less than significant impact during construction activities.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the proposed Project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the project-generated vehicular tips and from the potential local air quality impacts from on-site operations.

The nearest sensitive receptors that may be impacted by the proposed Project are single-family homes located as near as 900 feet northwest of the Project site and offsite workers located as near as 70 feet west of the Project site. The analysis provided in Section 6.3 found that none of the analyzed criteria pollutants would exceed the calculated local emissions thresholds at the nearest sensitive receptors to the Project site for operational activities.

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The analysis provided in Section 6.3 shows that no local CO Hotspots are anticipated to be created at any nearby intersections from the vehicle traffic generated by the proposed Project. Therefore, operation of the proposed Project would result in a less than significant the exposure of offsite sensitive receptors to substantial pollutant concentrations.

Level of Significance

Less than significant impact.

6.6 Objectionable Odors

The proposed Project would not create objectionable odors affecting a substantial number of people. Potential odor impacts have been analyzed separately for construction and operations below.

Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement, paints and solvents and from emissions from diesel equipment. The objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the Project site's boundaries. Odor emission during construction would be short-term in nature and limited to the operational time of diesel equipment and the amounts of odor producing materials being utilized. Therefore, no impact would occur and no mitigation would be required.

Potential Operations-Related Odor Impacts

Potential sources that may emit odors during the on-going operations of the proposed Project would primarily occur from odor emissions from the trash storage areas. Pursuant to City regulations, permanent trash enclosures that protect trash bins from rain as well as limit air circulation would be required for the trash storage areas. In addition, the nearest off-site worker to the proposed Project would be located as near as 70 feet west of the Project site and the nearest off-site residence would be located approximately 900 feet northwest of the Project site and north of Ball Road. Due to the distance of the nearest receptors from the Project site and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed Project. Therefore, no impact would be anticipated and no mitigation measures would be required.

Level of Significance

Less than significant impact.

6.7 Generation of Greenhouse Gas Emissions

While there is no specific site development plan proposed, the proposed Project is seeking approval to amend the City's General Plan Land Use Element Map and Zoning Map to change the site's General Plan Land Use designation from Open Space to General Commercial and to change the zoning designation of the site from the T Zone and I Zone to the C-G Zone. The intent of the C-G Zone is to allow a variety of land uses, including retail, restaurant, entertainment, and office uses.

Program-level analyses typically are not analyzed based on quantitative thresholds of significance; however, in order to determine the worst-case air emissions from the proposed Project, construction and operation of a 425,000 square foot commercial development was analyzed.

The CalEEMod model run used in Section 6.3 for the criteria pollutant analysis was also used to calculate the GHG emissions from the proposed Project's construction and operational activities detailed below.

Project Construction-Related GHG Emissions

The construction-related GHG emissions for each year that construction activities are anticipated to occur are shown in Table Q and CalEEMod model run for the proposed Project is provided in Appendix D.

Table N – Project Construction Greenhouse Gas Annual Emissions

Construction Year	Greenhouse Gas Emissions (Metric Tons per Year) ¹					
	Bio-CO ₂	NonBio-CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
2020	0.00	1,805.59	1,805.59	0.39	0.00	1,815.40
2021	0.00	2,018.78	2,018.78	0.44	0.00	2,029.78
2022	0.00	1,026.16	1,026.16	0.15	0.00	1,029.85
2023	0.00	396.96	396.96	0.05	0.00	398.13
Threshold of Significance						3,000

Notes:

¹ Calculates GHG emissions includes implementation of Mitigation Measures 1.

Source: CalEEMod Version 2016.3.1.

The data provided in Table Q shows that the maximum GHG emissions from construction activities would occur in the year 2021, when the Project would create 2,029.78 metric tons of GHG emissions. This is within the 3,000 metric tons per year significance threshold described in Section 5.5. Therefore, GHG emissions from construction activities associated with the proposed Project would be less than significant and no mitigation measures would be required.

Project Operation-Related GHG Emissions

The proposed Project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste, and water. The operational GHG emissions are based on the year 2025, which has been assumed as the earliest practical opening year for a commercial project on the Project site. Each source of GHG emissions is described in greater detail below.

Area Sources

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

Energy Usage

Energy usage includes emissions from the electricity and natural gas used on-site. The energy usage was based on the CalEEMod default emissions for a 425,000 square foot commercial development. No changes were made to the CalEEMod default energy usage emissions.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed Project. The vehicle trips associated with the proposed Project have been analyzed based on the Traffic Impact Analysis that found that the proposed Project would create 10,148 vehicular trips per day. The CalEEMod default vehicle mix was utilized in the analysis, which found that the project would generate 184 semi-truck trips per day and 267 vendor truck trips per day. The Project setting was set to Suburban Center in the CalEEMod, which is defined by areas with transit headways of 20-30 minutes during peak hours, and the jobs per acre created was set to 28, which was based on the typical amount of employment that would be generated from a 425,000 square foot commercial development. Currently, OCTA Bus Route 46 has a bus stop at the Project site and any development that occurs at the Project site would be required to provide sidewalks, which have been entered into the CalEEMod model.

Solid Waste

Waste includes the GHG emissions associated with disposal of solid waste from the proposed Project into landfills. The solid waste generation was based on the default rate of 446.25 tons per year for a 425,000 square foot commercial development. All other emission factors were based on the default emission levels in the CalEEMod model.

Water and Wastewater

Water includes the GHG emissions from the treatment of water and conveyance of water to the Project site. The proposed Project would be required to meet the water reduction measures included in SB 610 and requires projects of this size to develop a Water Supply Assessment. However, since the proposed Project is limited to a zone change and General Plan Amendment and no specific development of the project site is proposed the City has not yet required the preparation of a Water Supply Assessment. Therefore, the analysis was based on the default CalEEMod water usage rate of 31,480,822 gallons per year of interior water usage and 19,294,697 gallons per year of outdoor water usage from the proposed Project. In order to account for the California 2016 Green Building Code water conservation requirements, the use of low flow fixtures and toilets and water efficient irrigation systems were included in the model. All other emission factors were based on the default emission levels in the CalEEMod model.

Project Operational Impacts

The Project's operational GHG emissions have been calculated with CalEEMod model based on the parameters detailed above. A summary of the results are shown in Table O and CalEEMod model run for the proposed Project is provided in Appendix D.

Table O – Project Operational Greenhouse Gas Annual Emissions Prior to Mitigation

Category	Greenhouse Gas Emissions (Metric Tons per Year)					
	Bio-CO ₂	NonBio-CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Area Sources ¹	0.00	0.00	0.00	0.00	0.00	0.00
Energy Usage ²	0.00	4,060.11	4,060.11	0.08	0.02	4,066.94
Mobile Sources ³	0.00	7,662.10	7,662.10	0.31	0.00	7,669.88
Solid Waste ⁴	90.58	0.00	90.58	5.35	0.00	224.42
Water and Wastewater ⁵	9.99	437.01	446.99	1.03	0.03	480.57
Total Emissions	100.57	12,159.22	12,259.80	6.77	0.04	12,441.82
Threshold of Significance						3,000

Notes:

¹ Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.

² Energy usage consist of GHG emissions from electricity and natural gas usage.

³ Mobile sources consist of GHG emissions from vehicles.

⁴ Waste includes the CO₂ and CH₄ emissions created from the solid waste placed in landfills.

⁵ Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

Source: CalEEMod Version 2016.3.1 for year 2025.

The data provided in Table O shows that the proposed Project would create 12,441.82 metric tons per year of GHG emissions. This would exceed the 3,000 metric tons per year significance threshold described above in Section 5.5. This would be considered a significant impact.

The GHG emissions would be primarily created from additional motor vehicles that would be generated from operation of the proposed commercial Project. GHG emissions from motor

vehicles operated on public roads are regulated by the State and not by local jurisdictions. The regulatory breakdown has been discussed in Section 4.0. Therefore, in order to build a commercial Project of this size, there is no feasible mitigation available to a local jurisdiction that could be incorporated to reduce the GHG emission levels from the on-going operations of the proposed Project to a less than significant level. The GHG emissions may be reduced through incorporation of the reduction measures in Mitigation Measures 3 and 4, however not to a less than significant level. Mitigation Measure 3 requires that all future tenants implement a CTR, in order to reduce employee vehicle trips and Mitigation Measure 4 requires that the Property Owner/Developer of any future development of the Project site to demonstrate compliance with all GHG emissions thresholds at the time of issuance of permits. This mitigation measures provides examples of possible reduction measures.

Table P – Mitigated Project Operational Greenhouse Gas Annual Emissions

Category	Greenhouse Gas Emissions (Metric Tons per Year) ¹					
	Bio-CO ₂	NonBio-CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Area Sources	0.00	0.01	0.01	0.00	0.00	0.01
Energy Usage	0.00	3,091.85	3,091.85	0.06	0.01	3,097.08
Mobile Sources	0.00	6,308.61	6,308.61	0.26	0.00	6,315.20
Solid Waste	45.29	0.00	45.29	2.68	0.00	112.21
Water and Wastewater	8.43	383.09	391.52	0.87	0.02	419.88
Total Emissions	53.72	9,783.56	9,837.29	3.87	0.03	9,944.38
Threshold of Significance						3,000

Notes:

¹ Includes implementation of the example GHG reduction measures in Mitigation Measures 3 and 4.

Source: CalEEMod Version 2016.3.1 for year 2025.

Table P shows that with application of the example reduction measures in Mitigation Measures 3 and 4, the operation-related GHG emissions would be reduced; however, not to a less than significant level and would remain a significant unavoidable impact.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 3

The project applicant or applicable designee (e.g., building manager), for future tenants on the project site that employ 20 or more people, which is typically equivalent to 16,000 square feet of retail space, shall implement an employee commute trip reduction (CTR) program. The CTR shall identify alternative modes of transportation to the Project, including transit schedules, bike and pedestrian routes, and carpool/vanpool availability. Information with regard to these programs shall be readily available to employees and clients (e.g., Go511.com). The project applicant or designee shall consider the following incentives for commuters as part of the CTR program:

- Ride-matching assistance (e.g., subsidized public transit passes);

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- Vanpool assistance or employer-provided vanpool/shuttle (The Orange County Transportation Authority (OCTA) vanpool program provides a subsidy of \$400 to each vanpool);
 - Car-sharing program (e.g., Zipcar or other similar companies); and/or
 - Bicycle end-trip facilities, including bike parking and lockers.

Mitigation Measure 4

Prior to issuance of issuance of building permits, the Property Owner/Developer shall demonstrate that the proposed project will meet all applicable GHG emissions thresholds at the time of issuance of permits or if these thresholds cannot be met, the Property Owner/Developer will implement measures to reduce the GHG emissions to the greatest extent feasible. Examples of quantifiable reduction measures are provided below:

- Require all future tenants to implement a recycling program that diverts 50 percent of the Project waste from landfills;
- Require all building structures be designed to exceed the current Title 24 standards at the time of construction;
- Require all lighting used on the Project site to be high efficiency lighting that is a minimum of 15 percent more efficient than standard lighting;
- Require all dishwashers, fans, refrigerators, and other appliances to be energy star appliances; and
- Require the on-site generation of the Project electricity usage through use of photovoltaic panels, co-generation plants, fuel cells or other means.

Level of Significance After Mitigation

Significant unavoidable impact for operational GHG emissions.

6.8 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The applicable plans for the proposed project consist of the City of Anaheim's *Greenhouse Gas Reduction Plan* (GHG Reduction Plan), adopted July 2015, and the SCAQMD Working Group's draft GHG thresholds.

City of Anaheim

The City of Anaheim's GHG Reduction Plan provides reduction targets for energy usage, water conservation, photovoltaic (PV) rooftop installations, and transportation emissions. For energy usage, the GHG Reduction Plan provides a target of a 15 percent reduction by 2020 and a 30 percent reduction by 2030 of the energy utilized by businesses and homes in Anaheim. This target will be met through implementation of Mitigation Measures 1 and 2 that are detailed above in Section 6.7.

In addition to Mitigation Measures 1 and 2, the proposed project would be required to meet State regulations that include Title 24, Part 6 California's Energy Efficiency Standards for Buildings and Title 24, Part 11, California's Green Building Standards, which require a variety of energy

efficiency measures to be installed on new businesses that will reduce energy usage by 25 percent over the prior 2008 Title 24 Building Standards. New Title 24 Building Standards are anticipated to be released in 2016 and 2019 and the 2019 Title 24 Building Standards are required to meet a zero-net energy goal. Therefore, through implementation of Mitigation Measures 1 and 2 and State regulations, the proposed project will meet the energy use reduction targets provided in the GHG Reduction Plan.

The GHG Reduction Plan also includes water conservation targets of a 30 percent reduction by 2020 and a 25 percent reduction by 2030. The proposed Project will be required to adhere to Executive Order B-29-15 that requires that new development projects adhere to the State's Model Water Efficient Landscape Ordinance and CCR Title 24, Part 11, that requires all new commercial developments to install low-flow water fixtures as well as other water reduction measures. These State regulations would reduce the amount of water utilized and the proposed Project would comply with this measure.

The GHG Reduction Plan also includes a 2020 target of 27,000 kW of PV systems installed by 2020 and 37,000 kW of PV systems installed by 2030. This target will be met through application of Mitigation Measure 2 that requires any future development on the project site to install on-site generation of electricity that could be met through use of a PV system. In addition, the 2013 Title 24 Building Standards require that new non-residential buildings are constructed to be solar ready to facilitate the installation of rooftop solar systems. This requirement is typically met through structural design to ensure that rooftops are designed to handle the weight of PV systems and through installation of electrical conduit from the main circuit panel area to the roof. Therefore, through implementation of Mitigation Measure 2 and State regulations, the proposed Project in association with future commercial projects in the City, will meet the PV rooftop targets provided in the GHG Reduction Plan.

The GHG Reduction Plan also includes a 2020 target of a 6,000 MTCO_{2e} reduction in vehicle emissions and a 2030 target of 20,000 MTCO_{2e} reduction in vehicle emissions. Future CalGreen Building Standards are anticipated to require that all new non-residential projects provide electric vehicle charging stations. Therefore, through implementation of State regulations, the proposed Project would comply with the vehicle emission reduction targets provided in the GHG Reduction Plan.

SCAQMD

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 September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 MTCO_{2e} for all land use types. Although the SCAQMD provided substantial evidence supporting the use of the above thresholds, as of February 2017, the SCAQMD Board has not yet considered or approved the Working Group's thresholds. Originally SCAQMD had stated that they were waiting to approve the Working Group's thresholds dependent on the outcome of the State Supreme Court decision of the California Building Industry Association v. Bay Area Air Quality Management District (BAAQMD), which was filed on December 17, 2015. However, since that court decision has

been decided for some time now, the most likely time for the SCAQMD Board to consider the Working Group thresholds will be in combination with the consideration of the updated CEQA Air Quality Handbook that is currently being revised by SCAQMD staff. Therefore, this analysis has utilized the annual threshold of 3,000 MTCO_{2e} for all land use types.

Section 6.7 found that with implementation of the example measures provided in Mitigation Measures 3 and 4, the proposed Project would generate 9,944.38 MTCO_{2e} per year, which would exceed the annual 3,000 MTCO_{2e} threshold. The GHG emissions would be primarily created from additional motor vehicles that would be generated from operation of the proposed commercial Project. GHG emissions from motor vehicles operated on public roads are regulated by the State and not by local jurisdictions. The regulatory breakdown has been discussed in Section 4.0. Therefore, in order to build a commercial Project of this size, there is no feasible mitigation available to a local jurisdiction that could be incorporated to reduce the GHG emission levels from the on-going operations of the proposed Project to a less than significant level. The proposed Project would result in a conflict with the SCAQMD adopted threshold of 3,000 MTCO_{2e}. With implementation of Mitigation Measures 3 and 4, the operation-related GHG emissions would be reduced; however not to within the adopted thresholds and would remain a significant unavoidable impact.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 3 and 4 provided in Section 6.7.

Level of Significance After Mitigation

Significant unavoidable impact.

7.0 REFERENCES

- California Air Resources Board, *Appendix VII Risk Characterization Scenarios*, October 2000.
- California Air Resources Board, *Climate Change Scoping Plan*, December 2008.
- California Air Resources Board, *Resolution 08-43*, December 12, 2008.
- California Department of Conservation, *A General Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos*, August, 2000.
- City of Anaheim, *2010 Urban Water Management General Plan*, June 2011.
- City of Anaheim, *City of Anaheim General Plan*, May 2004.
- Environmental Protection Agency, *Nonattainment Major New Source Review Implementation Under 8-Hour Ozone National Ambient Air Quality Standard: Reconsideration*, June 30, 2005.
- South Coast Air Quality Management District, *2007 Air Quality Management Plan*, June 1, 2007.
- South Coast Air Quality Management District, *Revised Draft 2012 Air Quality Management Plan*, September, 2012.
- South Coast Air Quality Management District, *Appendix A Calculation Details for CalEEMod*, February 2011.
- South Coast Air Quality Management District, *CEQA Air Quality Handbook*, April 1993.
- South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, Revised July 2008.
- South Coast Air Quality Management District, *Rule 402 Nuisance*, Adopted May 7, 1976.
- South Coast Air Quality Management District, *Rule 403 Fugitive Dust*, Amended June 3, 2005.
- South Coast Air Quality Management District, *Draft Report Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES III*, January 2008.
- South Coast Air Quality Management District, *Draft Report Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES-IV*, October 2014.
- Southern California Association of Governments, *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy*, April 2016.
- Transpo Group, *Ball Road Basin General Plan Amendment and Zone Change Project*, November 2016.
- University of California, Davis, *Transportation Project-Level Carbon Monoxide Protocol*, December 1997.

APPENDIX A

CalEEMod Model Daily Printouts

APPENDIX B

CalEEMod Model Annual Printouts