III.B. AIR QUALITY

The following analysis of noise impacts is based on the MGA Campus Project, Air Quality Greenhouse Gas and Noise Impact Report prepared by Terry A. Hayes Associates Inc. (TAHA), dated July 2014. This report is included in its entirety as **Appendix C** of this Draft EIR.

This chapter examines the degree to which the proposed project may cause significant adverse changes to air quality. Both short-term construction emissions occurring from activities, such as site grading and haul truck trips, and long-term effects related to the ongoing operation of the proposed project are discussed in this section. This analysis focuses on air pollution from two perspectives: daily emissions and pollutant concentrations. “Emissions” refer to the quantity of pollutants released into the air, measured in pounds per day (ppd). “Concentrations” refer to the amount of pollutant material per volumetric unit of air, measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). This chapter also includes an assessment of greenhouse gas emissions and global climate change.

EXISTING CONDITIONS

POLLUTANTS AND EFFECTS

Criteria air pollutants are defined as pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and State standards have been set at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), particulate matter ten microns or less in diameter (PM_{10}), and lead (Pb).

Carbon Monoxide

CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft and trains. In urban areas such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spacial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February.[1] The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood’s ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

1 Inversion is an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth, preventing the normal rising of surface air.

Ozone

O_3 is a colorless gas that is formed in the atmosphere when reactive organic gases (ROG), which includes volatile organic compounds (VOC) and nitrogen oxides (NO_X) react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of ROG and NO_X, the components of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation. Ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures and cloudless skies. The greatest source of smog-producing gases is the automobile. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue and some immunological changes.

Nitrogen Dioxide

NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10}. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase of bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 ppm.

Sulfur Dioxide

SO_2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Main sources of SO_2 are coal and oil used in power plants and industries. Generally, the highest levels of SO_2 are found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Fine particulate matter, or $PM_{2.5}$, is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles, power generation and industrial facilities), residential fireplaces and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_2, NO_X and VOC. Inhalable particulate matter, or PM_{10}, is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

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

Ultrafine Particulate Matter

Ultrafine PM emissions form during engine combustion and in the atmosphere, immediately after leaving the tail-pipe as emitted gases condense and rapidly dilute and cool. Internal combustion engines have been identified as significant sources of ultrafine PM. A significant proportion of diesel emission particles have diameters smaller than 100 nanometer (nm) or 0.1 micrometer (µm). Particles emitted from gasoline-powered engines are generally less than 80 nm (0.08 µm) in diameter. Particles from compressed natural gas (CNG) fueled engines are smaller than from diesel emissions, with majority between 20 nm and 60 nm (0.02 µm – 0.06 µm).

Numerous studies have associated particulate matter levels with adverse health effects, including increased mortality, hospital admissions, and respiratory disease symptoms. Results from several studies and postulated health effects mechanisms suggest that the ultrafine portion of PM may be important in determining the toxicity of ambient particulates.

For a given mass concentration, ultrafine particulates have much higher numbers and surface areas compared to larger particles. Particles can act as carriers for other agents, such as trace metals and organic compounds which can collect on the particles surfaces; the ultrafine particles with larger surface area may transport more of such toxic agents into the lungs than larger particles. In laboratory toxicity studies, a greater inflammatory and oxidative stress response has been elicited from ultrafine particles compared to larger particles at comparable mass doses. Oxidative stress is a term to describe cell, tissue or organ damage caused by reactive oxygen species. After inhalation, ultrafine particles may penetrate rapidly into lung tissue; and some portions may be translocated to other organs of the body. Additionally, ultrafine particles have been found to penetrate cells and subcellular organelles. In cell cultures exposed to ambient particles, ultrafine particles have been found in mitochondria where they induced structural damage.

Lead

Pb in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturers of batteries, paint, ink, ceramics, ammunition and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95 percent. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities have become lead-emission sources of greater concern.

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

Toxic Air Contaminants

Toxic air contaminants (TACs) are generally defined as those contaminants that are known or suspected to cause serious health problems, but do not have a corresponding ambient air quality standard. TACs are also defined as an air pollutant that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Other factors, such as the amount of the chemical; its toxicity, and how it is released into the air, the weather, and the terrain, all influence whether the emission could be hazardous to human health. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust and may exist as PM_{10} and $PM_{2.5}$ or as vapors (gases). TACs include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources.

The emission of toxic substances into the air can be damaging to human health and to the environment. Human exposure to these pollutants at sufficient concentrations and durations can result in cancer, poisoning, and rapid onset of sickness, such as nausea or difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory problems. Pollutants deposited onto soil or into lakes and streams affect ecological systems and eventually human health through consumption of contaminated food. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of contracting cancer.

The public's exposure to TACs is a significant public health issue in California. The Air Toxics "Hotspots" Information and Assessment Act is a state law requiring facilities to report emissions of TACs to air districts. The program is designated to quantify the amounts of potentially hazardous air pollutants released, the location of the release, the concentrations to which the public is exposed, and the resulting health risks.

The State Air Toxics Program (AB 2588) identified over 200 TACs, including the 188 TACs identified in the federal Clean Air Act. The United States Environmental Protection Agency (USEPA) has assessed this expansive list of toxics and identified 21 TACs as Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and nonroad equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. USEPA also extracted a subset of these 21 MSAT compounds that it now labels as the six priority MSATs: benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene. While these six MSATs are considered the priority transportation toxics, USEPA stresses that the lists are subject to change and may be adjusted in future rules.

Diesel Particulate Matter

According to the 2006 California Almanac of Emissions and Air Quality, the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from the exhaust of diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances.

Diesel exhaust is composed of two phases, gas and particle, and both phases contribute to the health risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine and ultra fine diesel particulates are of the greatest health concern, and may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines; the on road diesel engines of trucks, buses and cars and the off road diesel engines that include locomotives, marine vessels and heavy duty equipment. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

The most common exposure to diesel PM is breathing the air that contains diesel PM. The fine and ultra-fine particles are respirable (similar to $PM_{2.5}$), which means that they can avoid many of the human respiratory system defense mechanisms and enter deeply into the lung. Exposure to diesel PM comes from both on-road and off-road engine exhaust that is either directly emitted from the engines or lingering in the atmosphere.

Diesel exhaust causes health effects from both short-term or acute exposures, and long-term chronic exposures. The type and severity of health effects depends upon several factors including the amount of chemical exposure and the duration of exposure. Individuals also react differently to different levels of exposure. There is limited information on exposure to just diesel PM but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects.

Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat and lungs, some neurological effects such as lightheadedness. Acute exposure may also elicit a cough or nausea as well as exacerbate asthma. Chronic exposure to diesel PM in experimental animal inhalation studies have shown a range of dose-dependent lung inflammation and cellular changes in the lung and immunological effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen. Human epidemiological studies demonstrate an association between diesel exhaust exposure and increased lung cancer rates in occupational settings.

Unlike other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, California Air Resources Board (CARB) has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM.

Diesel PM poses the greatest health risk among these ten TACs mentioned. Based on receptor modeling techniques, SCAQMD estimated that diesel PM accounts for 84 percent of the total risk in the South Coast Air Basin.

REGULATORY SETTING

The Federal Clean Air Act (CAA) governs air quality in the United States. In addition to being subject to the requirements of CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). At the federal level, CAA is administered by the United States Environmental Protection Agency (USEPA). In California, the CCAA is administered by the California Air Resources Board (CARB) at the State level and by the air quality management districts and air pollution control districts at the regional and local levels.

United States Environmental Protection Agency

The Federal Clean Air Act (CAA) governs air quality in the United States. The USEPA is responsible for enforcing the CAA. USEPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). NAAQS are required under the 1977 CAA and subsequent amendments. USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. USEPA has jurisdiction over emission sources outside State waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in States other than California. Automobiles sold in California must meet stricter emission standards established by CARB.

As required by the CAA, NAAQS have been established for seven major air pollutants: CO, NO_2, O_3, $PM_{2.5}$, PM_{10}, SO_2, and Pb. The CAA requires USEPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The federal standards are summarized in **Table III.B-1**. The USEPA has classified the Basin as attainment for SO_2, maintenance for CO and PM_{10} and nonattainment for O_3, $PM_{2.5}$, and Pb.

California Air Resources Board

In addition to being subject to the requirements of CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). In California, the CCAA is administered by the California Air Resources Board (CARB) at the State level and by the air quality management districts and air pollution control districts at the regional and local levels. The CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the State requirements of the CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS. CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. CARB regulates mobile air pollution sources, such as motor vehicles. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective in March 1996. CARB oversees the functions of local air pollution control districts and air quality management districts, which, in turn, administer air quality activities at the regional and county levels. The State standards are summarized in **Table III.B-1**.

TABLE III.B-1
STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR THE SOUTH COAST AIR BASIN

Pollutant	Averaging Period	California Standards	California Attainment Status	Federal Standards	Federal Attainment Status
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	Nonattainment	--	--
	8-hour	0.070 ppm (137 µg/m^3)	n/a	0.075 ppm (147 µg/m)	Nonattainment
Respirable Particulate Matter (PM_{10})	24-hour	50 µg/m^3	Nonattainment	150 µg/m	Nonattainment
	Annual Arithmetic Mean	20 µg/m^3	Nonattainment	--	--
Fine Particulate Matter ($PM_{2.5}$)	24-hour	--	--	35 µg/m	Nonattainment
	Annual Arithmetic Mean	12 µg/m^3	Nonattainment	15 µg/m	Nonattainment
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 mg/m^3)	Maintenance	9 ppm (10 mg/m)	Maintenance
	1-hour	20 ppm (23 mg/m^3)	Maintenance	35 ppm (40 mg/m)	Maintenance
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Attainment	0.053 ppm (100 µg/m)	Attainment
	1-hour	0.18 ppm (338 µg/m^3)	Attainment	100 ppb (188 µg/m	--
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	--	0.030 ppm (80 µg/m)	Attainment
	24-hour	0.04 ppm (105 µg/m^3)	Attainment	0.14 ppm (365 µg/m)	Attainment
	3-hour	--	--	--	--
	1-hour	0.25 ppm (655 µg/m^3)	Attainment	--	--
Lead (Pb)	30-day average	1.5 µg/m^3	Attainment	--	--
	Calendar Quarter	--	--	1.5 µg/m	Attainment

Note: n/a means not available.
SOURCE: CARB, *Ambient Air Quality Standards*, July 1, 2012; CARB, State Standard Area Designations, http://www.arb.ca.gov/desig/statedesig.htm; USEPA, The Green Book Nonattainment Areas for Criteria Pollutants, http://www.epa.gov/air/oaqps/greenbk/index.html.

The CCAA requires CARB to designate areas within California as either attainment or non-attainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as non-attainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the Los Angeles County portion of the Basin is designated as a nonattainment area for O_3, $PM_{2.5}$, and PM_{10}.[2]

Toxic Air Contaminants (TACs)

CARB's statewide comprehensive air toxics program was established in the early 1980's. The Toxic Air Contaminant Identification and Control Act created California's program to reduce exposure to air toxics. Under the Toxic Air Contaminant Identification and Control Act, CARB is required to use certain criteria in the prioritization for the identification and control of air toxics. In selecting substances for review, CARB must consider criteria relating to "the risk of harm to public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community" [Health and Safety Code Section 39666(f)]. The Toxic Air Contaminant Identification and Control Act also requires CARB to use available information gathered from the Air Toxics "Hot Spots" Information and Assessment Act program to include in the prioritization of compounds.

California has established a two-step process of risk identification and risk management to address the potential health effects from air toxic substances and protect the public health of Californians. During the first step (identification), CARB and the Office of Environmental Health Hazard Assessment (OEHHA) determine if a substance should be formally identified as a TAC in California. During this process, CARB and the OEHHA staff draft a report that serves as the basis for this determination. CARB staff assesses the potential for human exposure to a substance and the OEHHA staff evaluates the health effects. After CARB and the OEHHA staff hold several comment periods and workshops, the report is then submitted to an independent, nine-member Scientific Review Panel (SRP), who reviews the report for its scientific accuracy. If the SRP approves the report, they develop specific scientific findings which are officially submitted to CARB. CARB staff then prepares a hearing notice and draft regulation to formally identify the substance as a TAC. Based on the input from the public and the information gathered from the report, the CARB Board decides whether to identify a substance as a TAC. In 1993, the California Legislature amended the Toxic Air Contaminant Identification and Control Act by requiring CARB to identify 189 federal hazardous air pollutants as State TACs.

In the second step (risk management), CARB reviews the emission sources of an identified TAC to determine if any regulatory action is necessary to reduce the risk. The analysis includes a review of controls already in place, the available technologies and associated costs for reducing emissions, and the associated risk.

The Air Toxics "Hot Spots" Information and Assessment Act (Health and Safety Code Section 44360) supplements the Toxic Air Contaminant Identification and Control Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. The "Hot Spots" Act also requires facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

[2] CARB, Area Designation Maps, available at http://www.arb.ca.gov/desig/adm/adm.htm, accessed July 1, 2014.

California's Diesel Risk Reduction Program

The CARB identified particulate emissions from diesel-fueled engines (diesel PM) TACs in August 1998. Following the identification process, the ARB was required by law to determine if there is a need for further control, which led to the risk management phase of the program.

For the risk management phase, CARB formed the Diesel Advisory Committee to assist in the development of a risk management guidance document and a risk reduction plan. With the assistance of the Advisory Committee and its subcommittees, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. The Board approved these documents on September 28, 2000, paving the way for the next step in the regulatory process: the control measure phase.

During the control measure phase, specific Statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles have and continue to be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions.

South Coast Air Quality Management District

The 1977 Lewis Air Quality Management Act created the SCAQMD to coordinate air quality planning efforts throughout Southern California. This Act merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in Southern California. Under the Act, renamed the Lewis-Presley Air Quality Management Act in 1988, the SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, the SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. The SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

The SCAQMD monitors air quality within the project area. The SCAQMD has jurisdiction over an area of 10,743 square miles, consisting of Orange County; the non-desert portions of Los Angeles, Riverside, and San Bernardino counties; and the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a subregion of the SCAQMD and covers an area of 6,745 square miles. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino and San Jacinto mountains to the north and east; and the San Diego County line to the south (**Figure III.B-1**).

SOURCE: South Coast Air Quality Monitoring District, 2014

Figure III.B-1

South Coast Air Basin

The SCAQMD is responsible for preparing the regional Air Quality Management Plan (AQMP). The AQMP is the SCAQMD plan for improving regional air quality. It addresses CAA and CCAA requirements and demonstrates attainment with State and federal ambient air quality standards. The AQMP is prepared by SCAQMD and the Southern California Association of Governments (SCAG). The AQMP provides policies and control measures that reduce emissions to attain both State and federal ambient air quality standards by their applicable deadlines. Environmental review of individual projects within the Basin must demonstrate that daily construction and operational emissions thresholds, as established by the SCAQMD, would not be exceeded. The environmental review must also demonstrate that individual projects would not increase the number or severity of existing air quality violations.

On December 7, 2012, the SCAQMD Governing Board adopted the 2012 AQMP to continue the progression toward clean air and compliance with State and federal requirements. It includes a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on- and off-road mobile sources and area sources. The 2012 AQMP proposes attainment demonstration of the federal 24-hour $PM_{2.5}$ standard by 2014 in the Basin through adoption of all feasible measures while incorporating current scientific information and meteorological air quality models. It also updates the USEPA approved eight-hour O_3 control plan with new commitments for short-term NO_X and VOC reductions.

*SCAG 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).*While Southern California is a leader in reducing emissions, and ambient levels of air pollutants are improving, the SCAG region continues to have the worst air quality in the nation. SCAG completed the RTP/SCS, which includes a strong commitment to reduce emissions from transportation sources to comply with SB 375. Goals and policies included in the RTP/SCS to reduce air pollution consist of adding density in proximity to transit stations, mixed-use development and encouraging active transportation (i.e., non-motorized transportation such as bicycling). SCAG promotes the following policies and actions related to active transportation to help the region confront congestion and mobility issues and consequently improve air quality:

- Implement Transportation Demand Management (TDM) strategies including integrating bicycling through folding bikes on buses programs, triple racks on buses, and dedicated racks on light and heavy rail vehicles;

- Encourage and support local jurisdictions to develop "Active Transportation Plans" for their jurisdiction if they do not already have one;

- Expand Compass Blueprint program to support member cities in the development of bicycle plans;

- Expand the Toolbox Tuesday's program to encourage local jurisdictions to direct enforcement agencies to focus on bicycling and walking safety to reduce multimodal conflicts;

- Support local advocacy groups and bicycle-related businesses to provide bicycle-safety curricula to the general public;

- Encourage children, including those with disabilities, to walk and bicycle to school;

- Encourage local jurisdictions to adopt and implement the proposed SCAG Regional Bikeway Network; and
- Support local jurisdictions to connect all of the cities within the SCAG region via bicycle facilities.

EXISTING AIR QUALITY

Air Pollution Climatology

The project site is located within the Los Angeles County portion of the Basin. Ambient pollution concentrations recorded in Los Angeles County are among the highest in the four counties comprising the Basin.

The Basin is in an area of high air pollution potential due to its climate and topography. The general region lies in the semi-permanent high pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. This Basin experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of its perimeter. The mountains and hills within the area contribute to the variation of rainfall, temperature and winds throughout the region.

The Basin experiences frequent temperature inversions. Temperature typically decreases with height. However, under inversion conditions, temperature increases as altitude increases, thereby preventing air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, air quality problems are created due to the interaction between the ocean surface and the lower layer of the atmosphere. This interaction creates a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons and NO_2 react under strong sunlight, creating smog. Light, daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to CO and NO_2 emissions. CO concentrations are generally worse in the morning and late evening (around 10:00 p.m.). In the morning, CO levels are relatively high due to cold temperatures and the large number of cars traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the Basin are associated with heavy traffic. NO_2 levels are also generally higher during fall and winter days.

Local Climate

The mountains and hills within the Basin contribute to the variation of rainfall, temperature, and winds throughout the region. Within the project site and its vicinity, the average wind speed, as recorded at the Reseda Wind Monitoring Station, is approximately 2.5 miles per hour, with calm winds occurring approximately 2.5% of the time. Wind in the vicinity of the project site predominately blows from the east.[3]

[3] SCAQMD, Meteorological Data, available at http://www.aqmd.gov/smog/metdata/MeteorologicalData.html, accessed July 1, 2014.

The annual average temperature in the project area is 64.4 degrees Fahrenheit (°F). The project area experiences an average winter temperature of approximately 54.3 °F and an average summer temperature of approximately 77.7°F. Total precipitation in the project area averages approximately 13.4 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer. Precipitation averages approximately 8.2 inches during the winter, approximately 3.3 inches during the spring, approximately 1.9 inches during the fall, and 0.1 inch during the summer.[4]

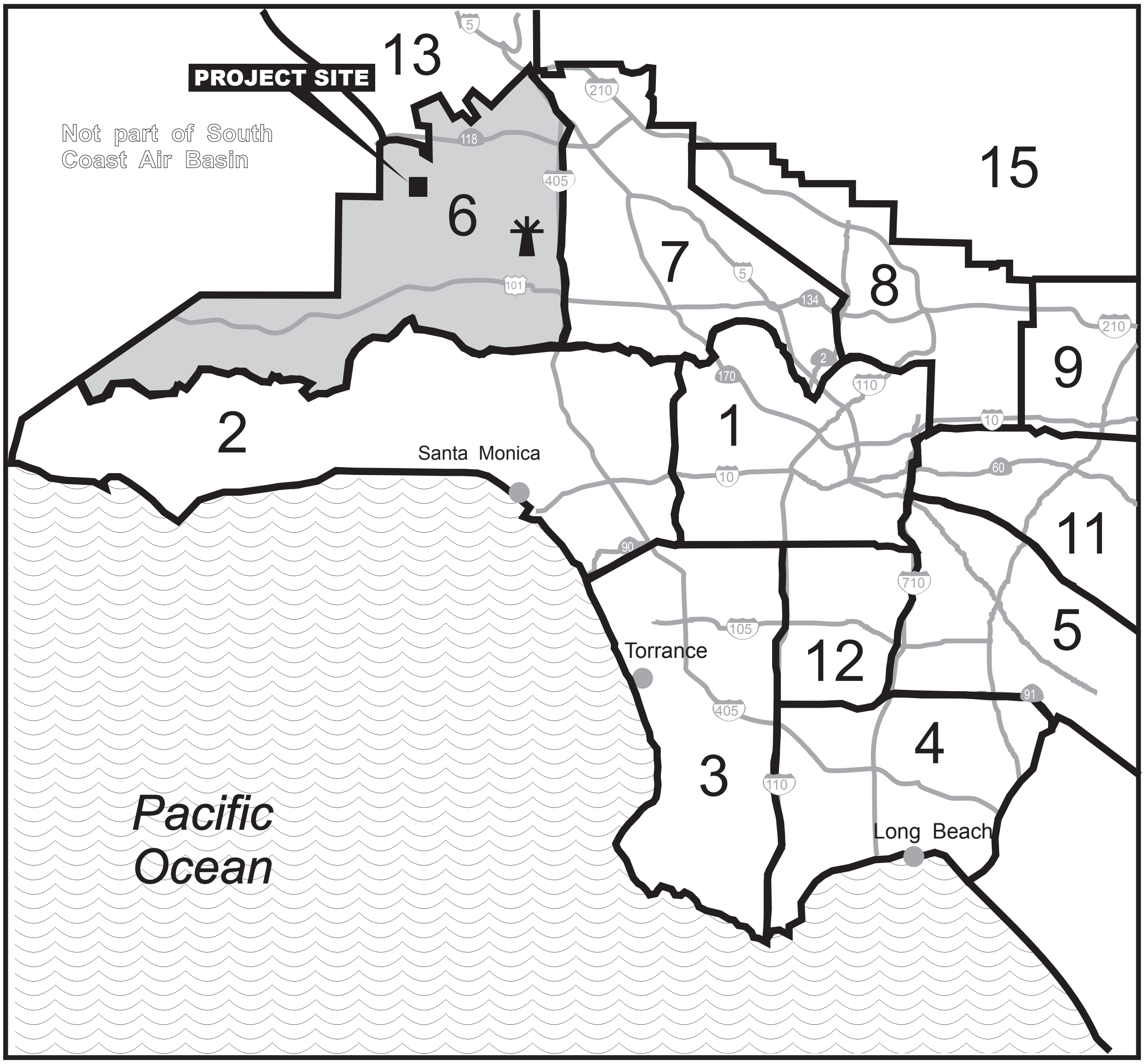
Air Monitoring Data

The SCAQMD monitors air quality conditions at 40 locations throughout the Basin. The project site is located in SCAQMD's East San Fernando Valley Air Monitoring Subregion, which is served by the Reseda–Gault Street Monitoring Station. The Reseda–18330 Gault Street Monitoring Station is located approximately 3.5 miles southeast of the project site near the intersection of Sherman Way and Reseda Boulevard (**Figure III.B-2**). Historical data from the Pasadena Monitoring Station were used to characterize existing conditions in the vicinity of the project area. Criteria pollutants monitored at the Pasadena Monitoring Station include O_3, CO, NO_2, and $PM_{2.5}$. Historical data from this Monitoring Station were used to characterize existing conditions in the vicinity of the project area. SO_2 is no longer a pollutant of concern in the Basin, and monitored data was not available.

Table III.B-2 shows pollutant levels, the State standards, and the number of exceedances recorded at the Reseda Monitoring Station from 2011 to 2013.[5] As **Table III.B-2** indicates criteria pollutants CO, NO_2, did not exceed the State standards from 2011 to 2013. However, the one-hour State standard for O_3 was exceeded 7 to 17 times during this period. The eight-hour State standard for O_3 was exceeded 21 to 39 times. The 24-hour State standard for PM_{10} was exceeded four times during this time period; the annual State standard for $PM_{2.5}$ was exceeded each year from 2011 to 2013.

4 Western Regional Climate Center, Historical Climate Information, available at http://www.wrrc.dri.edu, accessed July 1, 2014.

5 Monitored data for 2011 was not available when this analysis was completed.



LEGEND: Reseda Monitoring Station

Air Monitoring Areas in Los Angeles County:

1. Central Los Angeles
2. Northwest Coastal
3. Southwest Coastal
4. South Coastal
5. Southeast Los Angeles County
6. West San Fernando Valley
7. East San Fernando Valley
8. West San Gabriel Valley
9. East San Gabriel Valley
10. Pomona/Walnut Valley (not shown)
11. South San Gabriel Valley
12. South Central Los Angeles
13. Santa Clarita Valley
15. San Gabriel Mountains

Not to Scale

N

SOURCE: South Coast Air Quality Monitoring District, 2014

Figure III.B-2

Reseda Air Quality Monitoring Station

TABLE III.B-2 2011-2013 AMBIENT AIR QUALITY DATA IN PROJECT VICINITY				
		Reseda-Gault Street Monitoring Station		
		Number of Days Above State Standard		
Pollutant	**Pollutant Concentration & Standards**	**2011**	**2012**	**2013**
Ozone	Maximum 1-hr Concentration (ppm) Days > 0.09 ppm (State 1-hr standard) Maximum 8-hr Concentration (ppm) Days > 0.07 ppm (State 8-hr standard)	0.13 17 0.10 35	0.13 18 0.10 39	0.12 7 0.09 21
Carbon Monoxide	Maximum 8-hr concentration (ppm) Days > 9.0 ppm (State 8-hr standard)	2.8 0	2.9 0	-- --
Nitrogen Dioxide	Maximum 1-hr Concentration (ppm) Days > 0.18 ppm (State 1-hr standard)	0.070 0	0.071 0	0.060 0
Respirable Particulate Matter (PM_{10})[1]	Maximum 24-hr concentration ($\mu g/m^3$) Days > 50 $\mu g/m^3$ (State 24-hr standard)	60 2	54 1	51 1
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-hr concentration ($\mu g/m^3$) Exceed State Standard (12 $\mu g/m^3$)	52.7 Yes	41.6 Yes	44.4 Yes

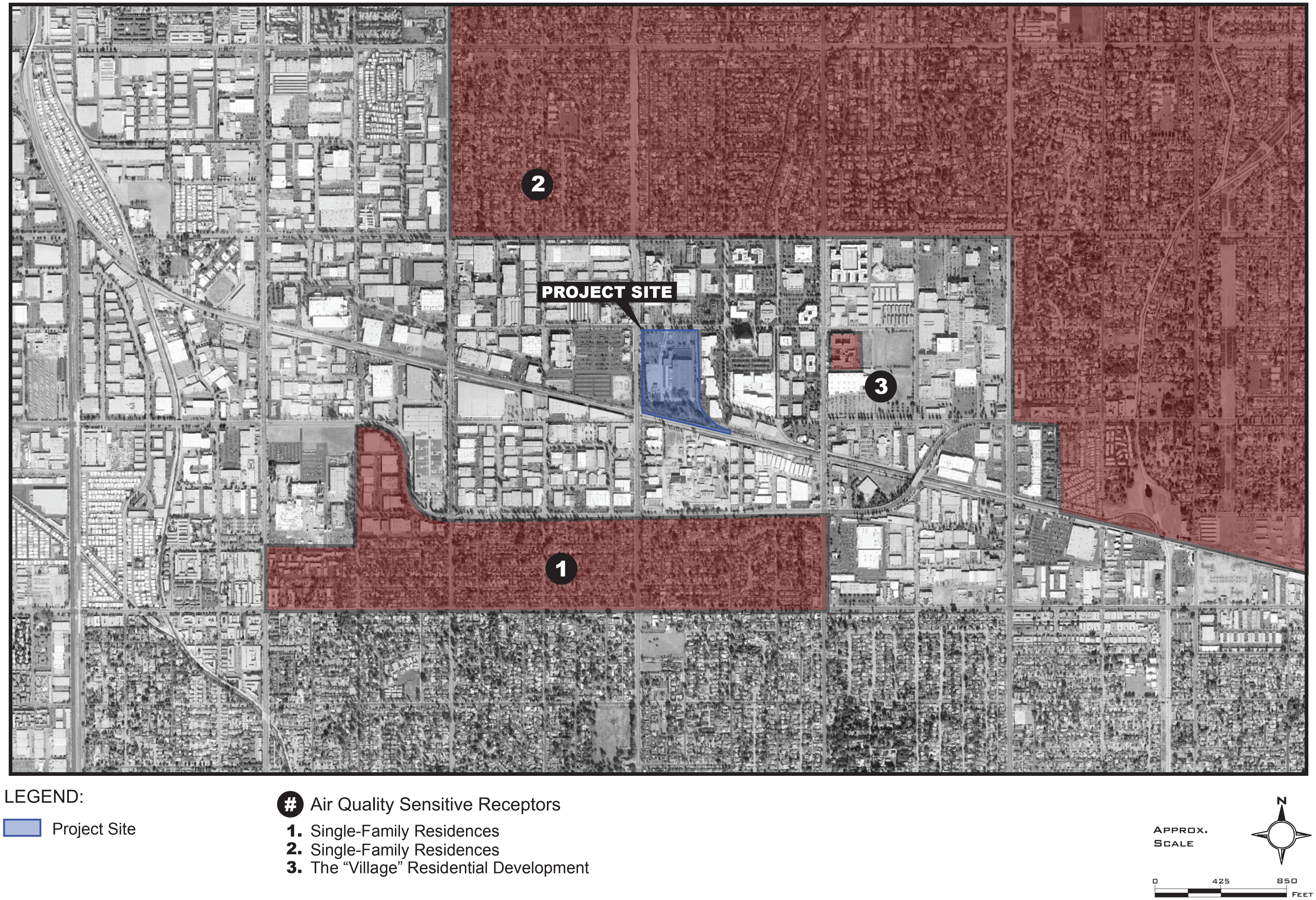
[1] 24-hr PM_{10} concentrations were obtained from the Simi Valley-Cochran Street Air Monitoring Station that is the next closest air monitoring station to the proposed project site, since Reseda- Gault Street Monitoring station does has not reported PM_{10} data.

SOURCE: CARB, Air Quality Data Statistics, *Top 4 Summary*, http://www.arb.ca.gov/adam/topfour/topfour1.php, accessed March 14, 2014.
CO pollutant concentration was obtained from SCAQMD, Historical Data by Year, available at http://www.aqmd.gov/smog/historicaldata.htm, accessed March 14, 2014.

Air Quality Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. CARB has identified the following groups who are most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers and retirement homes. As shown in **Figure III.B-3**, sensitive receptors within approximately one-quarter mile (1,320 feet) of the project site include the following:

- Single-family residences located 1,300 feet to the north of Plummer Street
- Single-family residences located approximately 1,500 feet to the south of Nordhoff Street
- The "Village" residential development located approximately 1,900 feet to the east at the corner of Corbin Avenue and Prairie Street



SOURCE: Google Earth and TAHA, 2014

Figure III.B-3

Air Quality Sensitive Receptors

The above sensitive receptors represent the nearest residential land uses with the potential to be impacted by the proposed project. Additional sensitive receptors are located further from the project site in the surrounding community and would be less impacted by air emissions than the above sensitive receptors.

ENVIRONMENTAL IMPACTS

METHODOLOGY

This air quality analysis is consistent with the methods described in the SCAQMD *CEQA Air Quality Handbook* (1993 edition), as well as the updates to the CEQA Air Quality Handbook, as provided on the SCAQMD website.

Construction

Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod). CalEEMod is a Statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operational from a variety of land use projects. The model quantifies direct emissions from construction and operation (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Construction assumptions used in the CalEEMod analysis include:

Phase 1: Demolition

- Duration: 4 weeks
- Demolition Amount: 170,500 cubic feet of debris

Phase 2: Grading

- Duration: 4 weeks
- Full-time Operating Equipment: 5

Phase 3: Construction

- Duration: 148 weeks
- Full-time Operating Equipment: 9

Phase 4: Asphalt Paving

- Duration: 4 weeks
- Total Operating Equipment: 6

Phase 5: Agricultural Coating

- Duration: 148 weeks
- Total Operating Equipment: 1

Localized emissions, or on-site, emissions were also estimated using CalEEMod. The area disturbed per day was estimated based on the anticipated equipment to be used during the grading phase and the area that each equipment could disturb per day based on data provided in the CalEEMod technical Appendix. It is anticipated that 1.5 acres would be disturbed per day. Emissions were compared to the SCAQMD Lookup Tables to assess the level of significance.

Operations

CalEEMod version 2013.2.2 was used to calculate operational emissions associated with land use development (e.g., energy use). Mobile source emissions were estimated using vehicle miles traveled (VMT) developed by Overland Traffic Consultants, Inc. and Crain & Associates (see **Appendix H**). Trip generation was based on the Institute of Transportation Engineers Multi-Use Development Trip Generation and Internal Capture guidance. It was estimated that the proposed project would generate a daily VMT of 62,291 without implementation of Project Design Features (shuttle and Transit Demand Management Program). Automobile emissions were estimated using the VMT and emission factors from EMFAC2011.

In order to illustrate the effect of Project Design Features (PDF), emissions reductions from PDF are not included in the initial calculations, but PDF are included in the after mitigation/with implementation of Project Design Features analysis/discussion.

Localized CO emissions were calculated utilizing the Caltrans's CALINE4 dispersion model and the CARB's EMFAC2011 model. CALINE4 is a Gaussian line dispersion model, developed by Caltrans; it is used to predict localized vehicle emissions such as CO and other pollutant concentrations from motor vehicle emissions at roadway intersections.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact if it would:

- Conflict with or obstruct implementation of applicable air quality plan of the SCAQMD;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors); and/or
- Expose sensitive receptors to substantial pollutant concentrations.

Because of the SCAQMD's regulatory role in the Basin, the significance criteria and analysis methodologies in the SCAQMD's Air Quality Guidance Handbook are used in evaluating project impacts. The following presents these significance criteria for both construction and operational emissions:

Construction Phase Significance Criteria

The proposed project would have a significant impact if:

- Daily localized or regional, construction emissions were to exceed SCAQMD thresholds presented in in **Table III.B-3**;
- The proposed project would generate TAC emissions that generate a health risk that exceeds ten persons in one million; and/or:
- The proposed project would create an odor nuisance.

TABLE III.B-3
SCAQMD DAILY CONSTRUCTION EMISSIONS THRESHOLDS

Criteria Pollutant	Regional Emissions (Pounds Per Day)	Localized Emissions (Pounds Per Day)[1]
Volatile Organic Compounds (VOC)	75	--
Nitrogen Oxides (NO_X)	100	227
Carbon Monoxide (CO)	550	5,546
Sulfur Oxides (SO_X)	150	--
Fine Particulates ($PM_{2.5}$)	55	61
Particulates (PM_{10})	150	127

[1] Localized thresholds based on 400-meter receptor distance and 1.5 acre project site.
SOURCE: *SCAQMD, CEQA Air Quality Guidelines, 2014.*

Operational Phase Significance Criteria

The proposed project would have a significant impact if:

- Daily operational emissions were to exceed SCAQMD operational emissions thresholds presented in **Table III.B-4**;

TABLE III.B-4
SCAQMD DAILY OPERATIONAL EMISSIONS THRESHOLDS

Criteria Pollutant	Pounds Per Day
Volatile Organic Compounds (VOC)	55
Nitrogen Oxides (NO_X)	55
Carbon Monoxide (CO)	550
Sulfur Oxides (SO_X)	150
Fine Particulates ($PM_{2.5}$)	55
Particulates (PM_{10})	150

SOURCE: *SCAQMD, CEQA Air Quality Guidelines, 2014.*

- Project-related traffic causes CO concentrations at study intersections to violate the CAAQS for either the one- or eight-hour period. The CAAQS for the one- and eight-hour periods are 20 ppm and 9.0 ppm, respectively;

- The proposed project would generate TAC emissions that generate a health risk that exceeds ten persons in one million;

- The proposed project would create an odor nuisance; and/or

- The proposed project would not be consistent with the AQMP.

CONSTRUCTION IMPACTS

Regional Impacts

Construction of the proposed project has the potential to create air quality impacts through the use of heavy-duty construction equipments and through vehicle trips generated by construction workers traveling to and from the project site. Fugitive dust emissions would primarily result from demolition and site preparation (e.g., excavation) activities. NO_X emissions would primarily result from the use of construction equipment. During the finishing phase, paving operations and the application of architectural coatings (e.g., paints) and other building materials would release VOCs. The assessment of construction air quality impacts considers each of these potential sources. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions.

It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site, and maintaining effective cover over exposed areas. Compliance with Rule 403 would reduce regional $PM_{2.5}$ and PM_{10} emissions associated with construction activities by approximately 61 percent.

Table III.B-5 shows the estimated daily emissions associated with each construction phase. Daily construction emissions for NO_X, CO, SO_X, $PM_{2.5}$ and PM_{10} would not exceed the SCAQMD regional thresholds. However, daily construction emissions would exceed the SCAQMD regional thresholds for VOC. Therefore, without mitigation, the proposed project would result in a significant impact related to regional construction emissions.

TABLE III.B-5 ESTIMATED DAILY CONSTRUCTION EMISSIONS - UNMITIGATED						
	Pounds Per Day					
Construction Phase	**VOC**	**NO_X**	**CO**	**SO_X**	**$PM_{2.5}$[1]**	**PM_{10}[1]**
Bridge – Demolition						
On-Site Emissions	2	25	18	<1	1	1
Off-Site Emissions	<1	<1	1	<1	<1	<1
Total Emissions	3	25	19	<1	1	1
Bridge – Grading						
On-Site Emissions	2	20	11	<1	1	1
Off-Site Emissions	<1	<1	1	<1	<1	<1
Total Emissions	2	20	11	<1	1	1
Bridge – Installation						
On-Site Emissions	3	23	11	<1	1	1
Off-Site Emissions	5	18	60	<1	2	8
Total Emissions	7	41	72	<1	4	9
Demolition						
On-Site Emissions	4	44	33	<1	3	5
Off-Site Emissions	1	12	9	<1	<1	1
Total Emissions	5	56	42	<1	3	6
Grading						
On-Site Emissions	3	34	22	<1	3	5
Off-Site Emissions	<1	<1	1	<1	<1	<1
Total Emissions	3	34	23	<1	3	5
Site Preparation						
On-Site Emissions	3	36	27	<1	4	7
Off-Site Emissions	<1	<1	1	<1	<1	<1
Total Emissions	3	36	28	<1	4	7
Building Construction						
On-Site Emissions	4	31	19	<1	2	2
Off-Site Emissions	5	18	60	<1	2	8
Total Emissions	8	49	79	<1	4	10
Paving						
On-Site Emissions	2	20	15	<1	1	1
Off-Site Emissions	<1	<1	1	<1	<1	<1
Total Emissions	2	20	16	<1	1	1
Architectural Coatings						
On-Site Emissions	124	2	2	<1	<1	<1
Off-Site Emissions	<1	1	6	<1	<1	1
Total Emissions	124	3	8	<1	1	2
Maximum Regional Total[1]	**124**	**85**	**108**	**<1**	**9**	**17**
Regional Significance Threshold	**75**	**100**	**550**	**150**	**55**	**150**
Exceed Threshold?	**Yes**	No	No	No	No	No
Maximum On-Site Total	124	67	46	<1	6	9
Localized Significance Threshold [2]	**--**	**227**	**5,546**	**--**	**61**	**127**
Exceed Threshold?	--	No	No	--	No	No

[1] The maximum daily emissions are calculated based on overlap between Grading and Site Preparation phases and overlap between Site Preparation and Building Construction phases.
[2] Localized thresholds based on 400-meter receptor distance and 1.5 acre project site.
SOURCE: Terry A. Hayes Associates Inc., *2014.*

Localized Impacts

Emissions for the localized construction air quality analysis of $PM_{2.5}$, PM_{10}, CO, ROG, and NO_2 were compiled using LST methodology promulgated by the SCAQMD.[6] Localized on-site emissions were calculated using similar methodology to the regional emission calculations. LSTs were developed based upon the size or total area of the emissions source, the ambient air quality in each source receptor area, and the distance to the sensitive receptor. As shown in **Table III.B-5**, estimated daily localized emissions associated with each construction phase would not exceed the SCAQMD localized thresholds. Therefore, the proposed project would result in a less-than-significant impact related to localized construction emissions.

Toxic Air Contaminant Impacts

The greatest potential for TAC emissions during construction would be diesel particulate emissions associated with heavy-duty equipment operations. According to SCAQMD methodology, health effects from carcinogenic air toxics are described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer based on the use of standard risk assessment methodology. The majority of heavy-duty construction equipment activity would take during the brief eight week demolition and site preparation period. These short-term emissions would not substantially contribute to a significant construction health risk. No residual emissions and corresponding individual cancer risk are anticipated after construction. Therefore, the proposed project would result in a less-than-significant impact related to construction TAC emissions.

Odor Impacts

Potential sources that may emit odors during construction activities include equipment exhaust and architectural coatings. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The proposed project would utilize typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. Therefore, the proposed project would result in a less-than-significant impact related to construction odors.

OPERATIONAL IMPACTS

Regional Impacts

Motor vehicles that access the project site would be the predominant source of long-term project emissions. Operational emissions are expected to be emitted primarily from vehicles accessing the project site for the on-site residences. The proposed project would generate 8,328 net daily vehicle trips and 69,942 daily vehicle miles travelled (VMT).[7] **Table III.B-6** shows future project emissions. Regional operational emissions would exceed the SCAQMD thresholds for NO_X under future with project conditions Therefore, without mitigation, the proposed project would result in a significant impact related to operational emissions.

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6 The concentrations of SO_2 are not estimated because construction activities would generate a small amount of SO_X emissions. No State standard exists for VOC. As such, concentrations for VOC were not estimated.

7 Overland Traffic Consultants, Inc., Traffic Impact Analysis for a Proposed Mixed-Use Development, February 5, 2014 and VMT analysis prepared by Crain and Associates. See Appendix H of this EIR.

TABLE III.B-6 ESTIMATED DAILY OPERATIONS EMISSIONS – WITHOUT PROJECT DESIGN FEATURES						
	Pounds per Day					
Emission Source	**VOC**	**NO_X**	**CO**	**SO_X**	**$PM_{2.5}$**	**PM_{10}**
FUTURE WIITH PROJECT CONDITIONS (2019)						
Area Source	26	3	60	0	1	1
Mobile Source	8	62	194	1	4	9
Total	34	65	254	1	5	10
SCAQMD Threshold	**55**	**55**	**550**	**150**	**55**	**150**
Exceed Threshold?	No	**Yes**	No	No	No	No
SOURCE: TAHA, 2014.						

Localized Impacts

CO concentrations in the future are expected to be lower than existing conditions due to stringent State and federal mandates for lowering vehicle emissions. Although traffic volumes would be higher in the future both without and with the implementation of the proposed project, CO emissions from mobile sources are expected to be much lower due to technological advances in vehicle emissions systems, as well as from normal turnover in the vehicle fleet. Accordingly, increases in traffic volumes are expected to be offset by increases in cleaner-running cars as a percentage of the entire vehicle fleet on the road.[8]

The State one- and eight-hour CO standards may potentially be exceeded at congested intersections with high traffic volumes. An exceedance of the State CO standards at an intersection is referred to as a CO hotspot. The SCAQMD recommends a CO hotspot evaluation of potential localized CO impacts when volume-to-capacity (V/C) ratios are increased by two percent at intersections with a LOS of D or worse. SCAQMD also recommends a CO hotspot evaluation when an intersection decreases in LOS by one level beginning when LOS changes from C to D.

Based on the traffic study, the intersections that require a localized CO analysis include Corbin Avenue and Plummer Street (AM Peak Hour) under existing plus project conditions and Winnetka Avenue and Nordhoff Street, Winnetka Avenue and Parthenia Street, Winnetka Avenue and Roscoe Boulevard, Corbin Avenue and Plummer Street (AM Peak Hour) and Corbin Avenue and Plummer Street and Mason Avenue and Plummer Street (PM Peak Hour) under Future with Project. The Caltrans CALINE4 guassian dispersion model was used to calculate CO concentrations. As shown in **Table III.B-7**, one- and eight-hour CO concentrations would be approximately 1.0 and 0.7 ppm at worst-case sidewalk receptors, respectively. The State one-and eight-hour standards of 20 and 9.0 ppm, respectively, would not be exceeded at the study intersections. Therefore, the proposed project would result in a less-than-significant impact related to operational localized impacts.

8 Consistent with CARB's vehicle emissions inventory.

TABLE III.B-7 ESTIMATED CARBON MONOXIDE CONCENTRATIONS		
Intersection	**1-hour (Parts per Million)**	**8-hour (Parts per Million)**
Future with Project (2019)		
Mason Ave. and Plummer St.- PM Peak Hour	0.9	0.6
Winnetka Ave. and Nordhoff St. - AM Peak Hour	0.8	0.6
Winnetka Ave. and Parthenia St.- AM Peak Hour	0.9	0.6
Winnetka Ave. and Roscoe Blvd.- AM Peak Hour	0.9	0.6
Winnetka Ave. and Roscoe Blvd.- PM Peak Hour	1.0	0.7
Corbin Ave. and Plummer St.- AM Peak Hour	0.9	0.6
Corbin Ave. and Plummer St.- PM Peak Hour	0.9	0.6
State Standard	**20.0**	9.0
SOURCE: TAHA, *2014.*		

Toxic Air Contaminant Impacts

The SCAQMD recommends that health risk assessments be conducted for substantial sources of diesel particulate emissions (e.g., truck stops and warehouse distribution facilities) and has provided guidance for analyzing mobile source diesel emissions.[9] The proposed project's mix of corporate and creative office, residential and neighborhood serving commercial uses are not anticipated to generate a substantial number of daily truck trips. Based on the limited activity of TAC sources, the proposed project would not warrant the need for a health risk assessment associated with on-site activities, and potential TAC impacts are expected to be less than significant.

Typical sources of acutely and chronically hazardous TACs include industrial manufacturing processes and automotive repair facilities. The proposed project would not include any of these potential sources, although minimal emissions may result from the use of consumer products (e.g., aerosol sprays). It was expected that the proposed project would not release substantial amounts of TACs, and no significant impact on human health would occur.

The CARB has published guidance for locating new sensitive receptors (e.g., residences) out of harm's way with respect to nearby sources of air pollution.[10] Relevant recommendations include avoid locating new sensitive land uses within 500 feet of a freeway (defined as an urban roads with 100,000 vehicles per day) or 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). The project site is located approximately 4,000 feet from Interstate 101 and approximately 755 feet from the nearest gas station (Arco at 12500 Ventura Boulevard). Additional guidelines in the handbook include avoiding locating new sensitive receptors near rail yards, ports, refineries, distribution centers and dry cleaners. The proposed project would not be located near these air polluting sources. The project site is located adjacent to the Southern Pacific Railroad Right of Way. While the CARB guidance includes recommendations related to rail yards and associated TAC emissions (e.g., diesel particulate matter), CARB does not recommend against locating new land uses adjacent to rail tracks. As the location of the proposed project would be consistent with the CARB

9 SCAQMD, Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions, December 2002.

10 CARB, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005.

recommendations for the placement of new sensitive receptors, the proposed project would have a less-than-significant impact related to TACs.

Odor Impacts

According to the SCAQMD *CEQA Air Quality Handbook*, land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies and fiberglass molding. The project site would be developed with residences and land uses that are not typically associated with odor complaints. On-site trash receptacles would have the potential to create adverse odors. Trash receptacles would be located and maintained in a manner that promotes odor control and no adverse odor impacts are anticipated from these types of land uses. Therefore, the proposed project would result in a less-than-significant impact related to operational odors.

Consistency with the Air Quality Management Plan

The overall control strategy for the 2012 AQMP is designed to meet applicable federal and State requirements, including attainment of ambient air quality standards. The focus of the 2012 AQMP is to demonstrate attainment of the federal 2006 24-hour $PM_{2.5}$ ambient air quality standard, as well as an update to further define measures to meet the federal and state 8-hour ozone standards. The attainment demonstration for the recent 8-hour ozone standard (75 ppb) will be addressed in the 2015 ozone plan.

The 2012 AQMP provides base year emissions and future baseline emission projections. In doing so, the 2012 AQMP relies upon the most recent planning assumptions and the best available information including CARB's latest emission factors (EMFAC2011) for the on-road mobile source emissions inventory, CARB's 2011 in-use fleet inventory for the off-road mobile source emission inventory, the latest point source inventory, updated area source inventories, and SCAG's forecast growth assumptions based on its recent 2012-2035 RTP/SCS. The baseline emission projections provide a snapshot of the future air quality conditions, including the effects from already adopted rules and regulations, but without a proposed control strategy. Unanticipated growth could result in inaccurate baseline emission projections.

While the proposed project would represent a change in land use from the designated Parking and Light Industrial Zones, the proposed project is consistent with the 2012-2035 RTP/SCS in locating mixed uses adjacent to other uses near transit (approximately 0.3 miles). The proposed project would also include a shuttle to assist employees with transit opportunities. While the proposed project would increase local VMT and emissions, it would reduce regional VMT and emissions because development that occurs as mixed-use infill near transit is an efficient method of minimizing vehicle trips and emissions. From this perspective, the proposed project is consistent with the 2012-2035 RTP/SCS and 2012 AQMP.

The proposed project would be consistent with applicable goals of the 2012-2035 RTP/SCS. Specifically, the proposed project would encourage the use of non-motorized transportation, bicycling, and walking. This would protect the environment and health of residents by improving air quality and encouraging active transportation. This would also be consistent with the 2012-2035 RTP/SCS goal of encouraging land use and growth patterns that facilitate transit and non-motorized transportation. Therefore, the proposed project would result in a less-than-significant impact related to the AQMP. The proposed project would not conflict with or obstruct implementation of the AQMP.

PROJECT DESIGN FEATURES

As detailed in **Section III.K Transportation and Circulation**, the project includes project design features (**PDF-III.K-2** and **PDF-III.K-3**) to reduce trips (project shuttles and Transportation Demand Management). These features were considered in the above analysis and would also reduce air emissions. While they are integral components of the project, they would be monitored as mitigation measures to ensure that they are fully implemented and are as effective as anticipated.

PDF-III.B-1 The proposed project would reduce its energy usage by 2,557,071 kilowatt-hours per year[11] by implementing Project Design Features that would include, at a minimum, the following measures, or equivalent measures capable of achieving the same results:

- Installation of energy efficient heating and cooling systems, equipment, and control systems.
- Installation of efficient lighting and lighting control systems.
- Installation of light colored “cool” roofs to more effectively reflect the sun’s energy from the roof’s surface to reduce the roof surface temperature, and use of shade structures such as awnings or canopies around soundstages and mills to reduce the heat island effect.
- Incorporation of energy saving features into building design, as appropriate (e.g., use of passive controls, shading, solar energy, ventilation, appropriate building materials, etc.).
- Prohibition of HVAC, refrigeration, and fire suppression equipment that contains banned chlorofluorocarbons.
- Use of Energy Star appliances.
- Use of photovoltaic technology.

REGULATORY COMPLIANCE MEASURES

RC-III.B-1 Project construction shall comply with SCAQMD Rule 403 that requires the following:

- Water or a stabilizing agent shall be applied to exposed surfaces at least three times per day to prevent generation of dust plumes.
- Construction contractor shall utilize at least one or more of the following measures at each vehicle egress from the project site to a paved public road in order to effectively reduce the migration of dust and dirt offsite:

11 Brummitt Energy Associates, Inc., *MGA Campus Building Greenhouse Gas Emissions Summary*, April 16, 2014. See **Appendix K**.

  - Install a pad consisting of washed gravel maintained in clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long;
  - Pave the surface extending at least 100 feet and at least 20 feet wide;
  - Utilize a wheel shaker/wheel spreading device consisting of raised dividers at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages; or
  - Install a wheel washing system to remove bulk material from tires and vehicle undercarriages.

- All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).

- Construction activity on unpaved surfaces shall be suspended when wind speed exceed 25 miles per hour (such as instantaneous gusts).

- Ground cover in disturbed areas shall be replaced as quickly as possible.

RC-III.B-2 The Applicant shall obtain a permit to construct and a permit to operate any standby generators or boilers under SCAQMD Rules 201, 202, and 203. Potential emissions from these sources are subject to SCAQMD Regulation XIII (New Source Review) and must meet Best Available Control Technology requirements to minimize emissions of PM_{10}, VOC, and NO_X emissions.

MITIGATION MEASURES

CONSTRUCTION

MM-III.B-1 The construction contractor shall use architectural coatings with a volatile organic compound content of 30 grams per liter or less for all interior surfaces and all exterior surfaces in order to minimize VOC emissions from painting.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

CONSTRUCTION

Mitigation Measure **MM-III.B-1** would reduce project-related architectural coating VOC emissions from 124 pounds per day, to 36 pounds per day, which would be less than the SCAQMD regional significance threshold of 55 pounds per day. Therefore, with mitigation, the proposed project would result in a less-than-significant impact related to regional VOC construction emissions, see **Table III.B-8** below.

TABLE III.B-8 ESTIMATED DAILY CONSTRUCTION EMISSIONS - MITIGATED						
	Pounds Per Day (lbs/day)					
Construction Phase	VOC	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
Architectural Coating						
On-Site Emissions	36	2	2	<1	<1	<1
Off-Site Emissions	<1	1	6	<1	<1	1
Total Emissions	36	3	8	<1	1	2
REGIONAL SIGNIFICANCE THRESHOLD	**75**	**100**	**550**	**150**	**55**	**150**
Exceed Threshold?	No	No	No	No	No	No
SOURCE: TAHA, 2014.						

OPERATION

The proposed project includes a detailed Project Design Feature (**PDF-III.B-1**) that would reduce energy use by approximately 2,557,071 kilowatt-hours per year.[12] In addition, the project shuttles and Transit Demand Management Program (see **PDF-III.K-2 and PDF-K-3**) would reduce VMT from 69,942 (under Business as Usual conditions) to 56,261. The Project Applicant cannot regulate vehicle emissions at the source, and there is no additional mitigation measure to significantly reduce on-road emissions.

As shown in **Table III.B-9**, under future (2019) with project conditions, operational NO_X emissions would decrease from 65 to 53 pounds per day, which would be less than the significance threshold.

TABLE III.B-9 ESTIMATED DAILY OPERATIONAL EMISSIONS – WITH PROJECT DESIGN FEATURES						
	Pounds Per Day					
	VOC	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
FUTURE WITH PROJECT CONDITIONS (2019)						
Area Source	26	3	60	0	1	1
Mobile Source	6	50	156	1	3	7
Total	32	53	216	1	4	8
Regional Significance Threshold	**55**	**55**	**550**	**150**	**55**	**150**
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
SOURCE: TAHA, 2014.						

CUMULATIVE IMPACTS

SCAQMD METHODOLOGY

Construction

Related projects include the development of almost 1,000 new residential units, plus retail, commercial and institutional uses greater than the proposed project. Regarding localized emissions (i.e., equipment exhaust and fugitive dust), the SCAQMD has indicated in the localized significance thresholds that impacts are limited to within 1,640 feet of the construction zone. The

[12] Brummitt Energy Associates, Inc., *MGA Campus Building Greenhouse Gas Emissions Summary*, April 16, 2014.

nearest related project to the project site that has not been constructed is the proposed residential development at 20439 Nordhoff Street. This related project is over 1,600 feet from the project site and would not be impacted by project construction. In addition, no sensitive land use is situated within 1,640 feet of both project sites. There is no potential for localized project emissions to combine with localized related project emissions resulting in a cumulatively considerable impact.

Regarding regional emissions, while the proposed project would not result in regional significant impacts during construction, it is possible that regional thresholds could be exceeded when considered with other known related projects. While SCAQMD-required mitigation measures would reduce air quality impacts, on a project-by-project basis, construction emissions could contribute to a significant short-term cumulative impact.

Operations

The SCAQMD's approach for assessing cumulative air quality impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and State Clean Air Acts. The SCQAMD has set forth significance thresholds designed to assist in the attainment of ambient air quality standards. The proposed project would not result in a cumulatively considerable contribution to air emissions.