3.2 Air Quality

3.2.1 Introduction

This section describes the environmental and regulatory settings addressing air quality emissions in the South Coast Air Basin (SCAB) and identifies the federal, state, and local plans and policies developed to address air quality. Criteria pollutant levels in the vicinity of the proposed Project are identified and discussed. Calculations and assumptions associated with the air quality analysis are included in Appendix C of this EIR.

Several comment letters received in response to the Notice of Preparation (NOP) requested that the EIR consider potential impacts related to increase in pollution as a result of excessive traffic, the potential health impacts of excessive exposure to pollutants on sensitive receptors, and potential impacts associated with an increase in vehicle emissions (See Appendix A). Comments regarding air quality monitoring were also provided. These comments have been acknowledged in the preparation of this analysis.

3.2.2 Existing Conditions

Climate and Meteorology

The Project site is located in the City of Pasadena and is within the South Coast Air Basin (SCAB), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAB is a 6,600-square-mile coastal plain bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topography and climate of southern California combine to make the SCAB an area of high air pollution potential. The SCAB 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 the perimeter. 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. The usually mild climatological pattern is disrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the

ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions that produce ozone.

Based on past climate records from the Western Regional Climate Center (WRCC) monitoring station located in Pasadena (Pasadena Monitoring Station [ID No. 046719]), the average annual maximum temperature in the area is 77 degrees Fahrenheit (°F) and the average annual minimum temperature is 51° F. The average precipitation in the area is about 20 inches annually, occurring primarily from December through March (WRCC, 2015).

Federal and State Ambient Air Quality Standards

Ambient Air Quality Standards

Regulation of air pollution is achieved through both federal and state ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has identified criteria pollutants and has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, the USEPA has set "primary" and "secondary" maximum ambient limits for each of the criteria pollutants. Primary standards were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent damage to animals, crops, vegetation, and buildings.

Regional and Local

The NAAQS establish the level for an air pollutant above which detrimental effects to public health or welfare may result. The NAAQS are defined as the maximum acceptable concentrations that, depending on the pollutant, may not be equaled or exceeded more than once per year or in some cases as a percentile of observations. California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (i.e., California Ambient Air Quality Standards [CAAQS]) and has adopted air quality standards for some pollutants for which there is no corresponding national standard, such as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Both the national and State ambient air quality standards for pollutants along with their associated health effects and sources are presented in **Table 3.2-1**.

Criteria Air Pollutants

The California Air Resources Board (CARB) and USEPA currently focus on criteria air pollutants because they are the most prevalent air pollutants known to be injurious to human health and extensive health-effects criteria documents are available about their effects on human health and welfare. A general description of these pollutants is provided below.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NOx). While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is identified based on a list of carbon compounds that exempts carbon compounds determined by CARB to be nonreactive. VOC is a term used by the USEPA and is identified based on USEPA's separate list of exempted compounds it identifies as having negligible photochemical reactivity. The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed it remains in the atmosphere for one or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth ("rainout"), or absorption by water molecules in clouds that later fall to earth with rain ("washout").

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

CO, a colorless and odorless gas, is a relatively non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Table 3.2-1
Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO_X react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.07 ppm	0.075 ppm		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Arithmetic Mean	0.030 ppm	0.053 ppm		
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.50 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Arithmetic Mean	---	0.03 ppm		
Respirable Particulate Matter (PM10)	24 hours	50 µg/m^3	150 µg/m^3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	20 µg/m^3	---		
Fine Particulate Matter (PM2.5)	24 hours	---	35 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3		
Lead (Pb)	30 Day Average	1.5 µg/m^3	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).	*Present source:* lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	---	1.5 µg/m^3		
	Rolling 3-Month Average	---	0.15 µg/m^3		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining
Sulfates (SO_4)	24 hour	25 µg/m^3	No National Standard	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, and discourages tourism.	See $PM_{2.5}$.

NOTE: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.

SOURCE: CARB, 2013a.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NOx, which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide

SO_2 is a colorless, extremely irritating gas or liquid that enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as sulfur oxides (SOx).

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. This compound also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Particulate matter can also damage materials and reduce visibility. One common source of $PM_{2.5}$ is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. $PM_{2.5}$ can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROGs, ammonia (NH_3), NOx, and SOx.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks; and motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 is largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved due to enhanced controls in the metals processing industry. In the SCAB, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates. As lead has been well below regulatory thresholds for decades and the proposed Project is not a source of lead, lead is not discussed further in this analysis.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to The California Almanac of Emissions and Air Quality (CARB, 2009), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from 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. 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.

Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a particulate matter 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. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1, 3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

3.2.3 Local Air Quality Setting

Existing Air Quality

SCAQMD maintains monitoring stations within district boundaries that monitor air quality and compliance with associated ambient standards. The monitoring stations are chosen for a variety of reasons, including, but not limited to: determining the background levels of areas; areas where there is the highest concentrations of air pollutants; areas where pollution is expected from other basins; areas that expose populated areas to certain pollutions; representative concentrations of geographical areas; determining impacts from specific sources; and trend analysis of a pollutant over time (SCAQMD, 2015). The Project site is located in the Source Receptor Area (SRA) 8, the West San Gabriel Valley Air Monitoring Subregion. Currently, the nearest monitoring station to the Project site is the Pasadena Monitoring Station (752 S. Wilson Avenue), which is located approximately 3 miles southeast of the Project site. This station monitors ambient concentrations of ozone, NO_2, CO, and $PM_{2.5}$, but does not monitor SO_2 or PM_{10}. SRA 9, East San Gabriel Valley, located in the City of Azusa, is used to measure PM_{10} as it is the closest station in the same geographical region. SRA 7, East San Fernando Valley, located in the City of Burbank was used to represent SO_2 concentrations because it is the closest station that monitors SO_2. Historical data of ambient ozone, NO_2, CO, and $PM_{2.5}$ concentrations from the Pasadena monitoring station, and ambient SO_2 and PM_{10} concentrations from the SRA 7 and SRA 8 respectively, for the most recent four years (2011 – 2014) are shown in **Table 3.2-2**.

Both CARB and USEPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. The current attainment status for the SCAB is provided in **Table 3.2-3**.

Table 3.2-2
Air Quality Data Summary (2011 – 2014) for Project Area

Pollutant	Monitoring Data by Year				
	Standard[a]	2011	2012	2013	2014
Ozone – Pasadena Monitoring Station					
Highest 1 Hour Average (ppm)		0.107	0.111	0.099	0.124
Days over State Standard	0.09 ppm	5	8	2	6
Highest 8 Hour Average (ppm)		0.085	0.087	0.075	0.096
Days over National Standard	0.075 ppm	5	9	0	7
Days over State Standard	0.070 ppm	13	20	2	13
Carbon Monoxide – Pasadena Monitoring Station					
Highest 8 Hour Average (ppm)		2.26	1.58	*	1.8
Days over National Standard	9.0 ppm	0	0	0	0
Days over State Standard	9.0 ppm	0	0	0	0
Nitrogen Dioxide – Pasadena Monitoring Station					
Highest 1 Hour Average (ppm)		0.102	0.071	0.067	0.0752
Days over National Standard	0.100 ppm	1	0	0	0
Days over State Standard	0.18 ppm	0	0	0	0
Annual Average (ppm)		0.02	*	*	0.0166
Days over National Standard	0.053 ppm	0	*	*	0
Days over State Standard	0.030 ppm	0	*	*	0
Sulfur Dioxide – Los Angeles-North Main Street Monitoring Station					
Highest 1 Hour Average (ppm)		0.009	0.0065	0.0108	0.0045
Days over State Standard	0.25 ppm	0	0	0	0
Particulate Matter (PM_{10}) – Los Angeles-North Main Street Monitoring Station					
Highest 24 Hour Average ($\mu g/m^3$)[b]		65	78	76	96
Days over National Standard (measured)[c]	150 $\mu g/m^3$	0	0	0	0
Days over State Standard (measured)[c]	50 $\mu g/m^3$	9	6	6	22
Annual Average ($\mu g/m^3$)[b]	20 $\mu g/m^3$	32.7	30.3	33.0	44.1
Particulate Matter ($PM_{2.5}$) – Pasadena Monitoring Station					
Highest 24 Hour Average ($\mu g/m^3$)[b]		43.8	30.5	25.7	*
Days over National Standard (measured)[c]	35 $\mu g/m^3$	1	0	0	*
Annual Average ($\mu g/m^3$)[b]	12 $\mu g/m^3$	*	*	*	*

NOTES:
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
* = Insufficient data available to determine the value.
[a] Generally, state standards and national standards are not to be exceeded more than once per year.
[b] Concentrations and averages represent federal statistics. State and federal statistics may differ because of different sampling methods.
[c] Measurements are usually collected every six days. Days over the standard represent the measured number of days that the standard has been exceeded.
SOURCE: SCAQMD 2014, 2013a, 2012, 2011.

Table 3.2-3
South Coast Air Basin Attainment Status

Pollutant	Attainment Status	
	California Standards	**Federal Standards**
Ozone	Extreme Nonattainment	Severe Nonattainment
CO	Attainment	Unclassified/ Attainment
NO_2	Attainment	Unclassified/ Attainment
SO_2	Attainment	Attainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
Lead	Attainment	Nonattainment

SOURCE: CARB, 2013b; USEPA, 2013.

3.2.4 Sensitive Receptors

Sensitive receptors are individuals who are considered more sensitive to air pollutants than others. The reasons for greater than average sensitivity may include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The primary sensitive land uses that are located adjacent to and in proximity to the Project site are residential uses. Single-family residential neighborhoods bound the Central Arroyo Seco to the east and west of the Project site along the slopes of Arroyo Seco Canyon, while the southeast edge of the Central Arroyo Seco along Arroyo Terrace also contains some small areas developed with multi-family residential uses. The nearest school to the Project site is the Chandler School located southeast of the Rose Bowl Stadium, along Prospect Boulevard. Other surrounding land uses to the Project site that are also considered to be sensitive land uses include the various recreational amenities, including the Jackie Robinson baseball and softball diamonds, tennis courts, recreation and equestrian trails, and multipurpose fields, as well as the various park spaces (Upper Arroyo Park, Arroyo Seco Park, Brookside Park, etc.). Of these

aforementioned sensitive receptors, the nearest to the Project site would be the single-family residential uses that are located directly adjacent to the Project site on the east and west.[1]

3.2.5 Regulatory Framework

Federal

The principal air quality regulatory mechanism at the federal level is the CAA and in particular, the 1990 amendments to the CAA and the NAAQS that it establishes. These standards identify the maximum ambient (background) concentration levels of criteria pollutants that are considered to be safe, with an adequate margin of safety, to protect public health and welfare. As discussed previously, the criteria pollutants include ozone, CO, NO_2 (which is a form of NO_X), SO_2 (which is a form of SO_X), PM_{10}, $PM_{2.5}$, and lead.

The CAA also requires each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The CAA Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. USEPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals.

The USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the Federal government, such as aircraft, locomotives, and interstate trucking. USEPA's primary role at the state level is to oversee the state air quality programs. USEPA sets federal vehicle and stationary source emissions standards and provides research and guidance in air pollution programs.

State

California Air Resources Board (CARB)

CARB, a department of the California Environmental Protection Agency (Cal/EPA), oversees air quality planning and control throughout California by administering the SIP. Its primary responsibility lies in ensuring implementation of the 1990 amendments to the California Clean Air Act (CCAA), responding to the federal CAAA requirements, and regulating emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The CCAA establish CAAQS, and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same criteria pollutants as the federal CAA, and

[1] Although some of the recreational facilities are in closer proximity to the Project site and potentially as sensitive receptors as the local single-family housing, the likely duration of occupancy of these facilities is less than the single-family housing. Thus, the single-family house is considered the most sensitive in the vicinity of the Project site.

also include sulfates, visibility reducing particulates, hydrogen sulfide and vinyl chloride. They are also generally more stringent than the federal standards.

CARB is also responsible for regulations pertaining to TACs. The Air Toxics "Hot Spots" Information and Assessment Act was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. Assembly Bill (AB) 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release.

Local

South Coast Air Quality Management District (SCAQMD)

Criteria Air Pollutants

SCAQMD attains and maintains air quality conditions in the SCAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SCAQMD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SCAQMD also inspects stationary sources of air pollution and responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the CAA, CAAA, and CCAA.

Air Quality Management Plan

SCAQMD and SCAG are responsible for preparing the air quality management plan (AQMP), which addresses federal CAAA and state CCAA requirements. The AQMP details goals, policies, and programs for improving air quality in the SCAB.

The 2012 AQMP was adopted by the SCAQMD Governing Board on December 12, 2012. The purpose of the 2012 AQMP for the SCAB is to set forth a comprehensive and integrated program that will lead the region into compliance with the federal 24-hour $PM_{2.5}$ air quality standard, and to provide an update to the SCAB's commitment towards meeting the federal 8-hour ozone standards (SCAQMD, 2013). The AQMP would also serve to satisfy recent USEPA requirements for a new attainment demonstration of the revoked 1-hour ozone standard, as well as a vehicle miles travelled (VMT) emissions offset demonstration.[2] Specifically, the AQMP would serve as the official SIP submittal for the federal 2006 24-hour $PM_{2.5}$ standard, for which USEPA has established a due date of December 14, 2012.[3] In addition, the AQMP updates specific new control measures and commitments for emissions reductions to implement the attainment strategy for the 8-hour ozone SIP. The 2012 AQMP sets forth programs which

[2] Although the federal 1-hour ozone standard was revoked in 2005, the USEPA has proposed to require a new 1-hour ozone attainment demonstration in the South Coast extreme ozone nonattainment area as a result of a recent court decision. Although USEPA has replaced the 1-hour ozone standard with a more health protective 8-hour standard, the CAA anti-backsliding provisions require that California have approved plans for attaining the 1-hour standard.

[3] Although the 2012 AQMP was approved by the SCAQMD Board on December 7, 2012, the plan was not submitted to the USEPA by December 14, 2012 as it first required approval from CARB. The 2012 AQMP was subsequently approved by CARB on January 25, 2013, and as of February 13, 2013 the plan has been submitted by CARB to the USEPA.

require integrated planning efforts and the cooperation of all levels of government: local, regional, state, and federal. Currently, SCAQMD staff has already begun initiating an early development process for the 2015 AQMP.

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction anticipated under the proposed Project would include the following:

Rule 401 – Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any 1 hour that is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Rule 402 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Rule 403 – Fugitive Dust. This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust.

Toxic Air Contaminants

At the local level, air pollution control or management districts may adopt and enforce CARB control measures. Under SCAQMD Regulation XIV (Toxics and Other Non-Criteria Pollutants), and in particular Rule 1401 (New Source Review), all sources that possess the potential to emit TACs are required to obtain permits from SCAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. SCAQMD limits emissions and public exposure to TACs through a number of programs. SCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

The Air Toxics Control Plan (March 2000, revised March 26, 2004) is a planning document designed to examine the overall direction of SCAQMD's air toxics control program. It includes development and implementation of strategic initiatives to monitor and control air toxics emissions. Control strategies that are deemed viable and are within SCAQMD's jurisdiction will each be brought to the SCAQMD Board for further consideration through the normal public review process. Strategies that are to be implemented by other agencies will be developed in a cooperative effort, and the progress will be reported back to the Board periodically.

In May 2015 the SCAQMD completed the Multiple Air Toxics Exposure Study IV (MATES IV). MATES IV is a monitoring and evaluation study conducted in the SCAB and is a follow up to previous air toxics studies. The study is a follow up to the 2008 MATES III study and consists of several elements including a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the SCAB. The study focuses on the carcinogenic risk from exposure to air toxics. However, it does not estimate mortality or other health effects from particulate exposures. MATES IV shows that the region around the project site area has an estimated carcinogenic risk of up to 321 in a million (SCAQMD, 2015). These model estimates were based on monitoring data collected at 10 fixed sites within the SCAB.

City of Pasadena

General Plan

Open Space and Conservation Element

The Open Space and Conservation Element of the City of Pasadena General Plan, which was adopted on January 23, 2012, provides a blueprint to assure efficient stewardship of the City's green spaces, recreation facilities, and natural resources. In particular, one of the main purposes of the Open Space and Conservation Element is to develop policies that promote the conservation of energy, air, water, and natural resources, and in doing so, enhance the overall quality of life in Pasadena (City of Pasadena, 2012).

The Open Space section of the Element prescribes goals and objectives to protect and increase the City's natural open space and support the City's conservation efforts by protecting watersheds, improving air quality, and reducing energy needs in the City. The goals and objectives that are most relevant to the project are identified below.

Goal: Preserve, Acquire, and Create Open Space

Objectives:

- Preserve currently zoned open spaces, natural open spaces, hillsides, viewsheds, watersheds and recreational areas.
- Direct organized recreation to existing parks, fields, and school facilities and away from natural open spaces.

In addition, the Environmental Quality, Conservation and Sustainable Use Practices section of the Open Space and Conservation Element tracks current efforts to conserve the natural and urban environment through sustainable practices in energy, water, air and land. The following key goal and objectives listed in the Environmental Quality, Conservation, and Sustainable Use Practices section are relevant to air quality:

Mobility Element

Policies:

1.9 Support local and regional air quality, sustainability, and GHG emission reduction goals through management of the City's transportation network.

1.23 Improve public health by supporting walking and bicycling throughout the city.

2.6 Continue to strengthen the marketing and promotion of non-auto transportation to residents, employees, and visitors

Green City Action Plan

The City of Pasadena Green City Action Plan, which was approved by the City Council on September 18, 2006, is a progressive list of environmental initiatives for the City to take in its quest to become a sustainable and green community and follows the framework of the United Nations Green Cities Declaration and Urban Environmental Accords. The United Nations Green Cities Declaration is a collaborative platform and a call to action for cities across the globe to take in recognition that a majority of the world's population now reside in cities, and that cities consume 75 percent of the world's natural resources creating environmental challenges. The Urban Environmental Accords contain 21 action items that lay the groundwork for addressing universal urban environmental issues on energy, waste reduction, urban design, urban nature, transportation, environmental health, water issues. The initiatives contained in the Green City Action Plan include developing a green fleet of City vehicles, using only environmentally friendly cleaning products in City buildings, and buying "green" goods where possible.

City of Arcadia

General Plan

The Resource Sustainability Element of the City of Arcadia General Plan, which was adopted on November, 2010, establishes policies that will help to use resources in a manner that protects and even enhances them for future residents. In particular, the Resource Sustainability element addresses air quality, water resources, energy, waste management, and recycling, mineral resources and the hillsides (City of Arcadia, 2010). The goals and policies that are most relevant to the project related to air quality include:

Goal RS-1: Continued improvement in local and regional air quality.

Policy RS-1.4: Lower the emissions caused by motor vehicles through Transportation Demand Management strategies and land use patterns that reduce vehicle miles traveled.

Goal RS-5: Wise and creative energy use that incorporates new technologies for energy generation and new approaches to energy conservation.

Policy RS-5.9: Facilitate the provision of energy-efficient modes of transportation and fixed facilities which establish transit, bicycle, and pedestrian modes as viable alternatives.

City of Los Angeles

General Plan

In November 1992, the City of Los Angeles adopted its General Plan. The General Plan Air Quality Element's primary objectives were to aid the region in attaining and maintaining the NAAQS while continuing to foster economic growth and the improvement of the quality of life of City residents. Further the Air Quality Element described how the City planned to implement local programs that were contained in the regional plan. The following goals in the 1992 Los Angeles General Plan pertain to air quality:

Goal 1: Good air quality and mobility in an environment of continued population growth and healthy economic structure;

Goal 2: Less reliance on single occupant vehicles with fewer commute and non-work trips;

3.2.6 Impacts

This section describes the impact analysis relating to air quality emissions for the proposed Project. It describes the methods and applicable thresholds used to determine the impacts of the proposed Project.

Methodology

Criteria Pollutants

The air quality analysis focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed Project. Air pollutant emissions associated with the proposed Project would result from the operation of on-site stationary and mobile equipment during the three-day Festival at the Project site as well as vehicular traffic volumes generated on the local roadways by the Festival. In addition to the Festival itself, temporary construction-type activities would occur during the two week setup and one week breakdown of the Festival's amenities (concession stands, outdoor stages, etc.) that would generate air pollutant emissions at the Project site and on surrounding roadways resulting from employee- and vendor-related traffic. The net increase in emissions generated by these activities and other secondary sources have been estimated and compared to the applicable thresholds of significance recommended by SCAQMD.

Construction Impacts

Short-term emissions of criteria air pollutants and ozone precursors generated during the Festival setup and breakdown activities were modeled using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2, as recommended by SCAQMD. In addition, calculations were also conducted outside of CalEEMod using CARB emission factors to determine emissions from the Project's on-site gasoline-powered equipment. The modeling was used to determine whether the criteria air pollutant emissions generated by the Project's short-term setup and breakdown activities for the Festival would exceed SCAQMD's applicable regional thresholds, thereby requiring mitigation. Modeling was based on Project-specific data provided

by the Festival operator, where available. Where Project-specific information was not available, reasonable assumptions based on other similar projects (e.g., Coachella Valley Music Festival) and default model settings were used to estimate criteria air pollutant and ozone precursor emissions. Modeling input and output files are provided in Appendix C of this EIR. Note that, unlike typical projects, there is no permanent structure or change to the landscape that is associated with this Project and the emissions associated with the Festival (including setup and breakdown) would only occur temporarily (i.e., three weeks total for the Festival setup and breakdown activities and three days for the Festival operations) on an annual basis. The Project's emissions were estimated using a 2016 vehicle fleet, as the first year of the Festival would be in 2016. As the Festival continues into the future, equipment and vehicles are expected to become cleaner because of more stringent emission regulations, thus emissions will be reduced from what is identified herein. However, for the purposes of presenting the maximum (worst-case) emissions that would occur from the setup and breakdown activities associated with the Festival, emissions associated with a 2016 vehicle fleet is evaluated in this analysis.

In addition, to determine whether or not the Festival's setup and breakdown activities would create significant adverse localized air quality impacts on nearby sensitive receptors, the worst-case daily emissions contribution from the proposed Project were compared to SCAQMD's localized significance thresholds (LSTs). The LSTs developed by SCAQMD are based on the pounds of emissions per day that can be generated by a project without causing or contributing to adverse localized air quality impacts, and only applies to the following criteria pollutants: CO, NOx, PM_{10}, and $PM_{2.5}$. The analysis of localized air quality impacts focuses only on the on-site activities of a project, and does not include emissions that are generated offsite, such as from on-road haul or delivery truck trips to and from the LST (SCAQMD, 2003).

For the purpose of analyzing localized air quality impacts, SCAQMD has developed LSTs for five project site sizes: one-acre, two-acre, three-acre, four-acre, and five-acres. The LSTs established for each of the aforementioned site acreages represent the amount of pollutant emissions that would not exceed the most stringent applicable federal or State ambient air quality standards. Although the size of the Project site is approximately 121 acres, the LSTs can still be used to conduct a preliminary screening-level assessment to determine whether the Project's on-site emissions would require a more refined analysis to determine whether the most stringent applicable federal or State ambient air quality standards would be exceeded. Thus, for the purpose of this analysis, the SCAQMD's LSTs for a five-acre site are used to conservatively determine whether localized air quality impacts on nearby sensitive receptors would result from the Festival's on-site setup and breakdown emissions. Under conditions where these on-site emissions would exceed the LSTs for a five-acre site despite the implementation of all feasible mitigation, air dispersion modeling of the Project's on-site emissions would be required to evaluate the potential localized air quality impacts of the Project on its surrounding off-site sensitive receptors, in accordance with SCAQMD's recommendation. However, under conditions where it is determined that the Project's peak daily on-site emissions during the Festival setup and breakdown activities would not exceed the LSTs for a five-acre site, then it can be concluded that the Project's on-site emissions would not result in any adverse localized air quality impacts on its surrounding off-site sensitive receptors.

Operational Impacts

Regional emissions of criteria air pollutants and precursors associated with the operation of the proposed Project (i.e., the three days of the Festival), including mobile- and area-source emissions, were also quantified using the CalEEMod computer model along with calculations conducted outside of CalEEMod using CARB emission factors for the gasoline-powered equipment that would operate onsite. Area-source emissions, which are widely distributed and made of many small emissions sources (e.g., heating and cooling units and consumer products, etc.), were modeled according to Project-specific data regarding the size and type of stationary equipment that would be used onsite. Mass mobile-source emissions were modeled based on the daily vehicle trips that would result from the three-day Festival. Project-related vehicle trip generation rates were available from the Traffic Study prepared by Fehr & Peers (Fehr & Peers, 2015; see Appendix H). In addition, as the Project would require the operation of construction type equipment during operation as well as vendor activities, these were modeled separately (i.e., outside of CalEEMod) and added to the operational emission estimates for the proposed project. The resulting long-term operational emissions that would be generated by the Project were then compared with the applicable SCAQMD thresholds for determination of significance. Aside from regional air quality impacts, the Project's localized air quality impacts during operation are also analyzed by extracting the on-site operational emissions from the CalEEMod model run for the Project, adding them to the other on-site emissions that were calculated outside of CalEEMod, and then evaluating those total emissions against SCAQMD's applicable operational LSTs.

Hotspots

Qualitative screening procedures and guidelines contained in the Transportation Project-Level Carbon Monoxide Protocol (the Protocol) are used to determine whether a project poses the potential for a CO hotspot (UCD ITS, 1997). According to the Protocol, projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at level of service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F. If these screening conditions are not met and the project does not involve certain special conditions that would result in adverse air quality impacts related to CO concentrations (i.e., it is not located in a street canyon, the project traffic does not have a higher percentage of heavy duty trucks or cold-start vehicles in high-volume areas; there are no nearby stationary sources of CO; and the ambient levels of CO do not exceed thresholds) then the project impacts would be less than significant. However, if any of these conditions are met, then a refined analysis would be required to determine the potential impacts of the project.

A refined analysis was conducted using the Caline4 model to determine if emissions from two intersections in the vicinity of the Project site would exceed the ambient air quality standards for CO to determine if emission hotspots would occur. The refined analysis is required based on 10 of the intersections operating at an LOS of E or F with project traffic. The two intersections chosen were the two with the greatest hourly traffic volumes. Because these intersections have

the greatest traffic volumes, they would result in the greatest emissions and therefore any other intersections with lower traffic volumes would result in less pollutant concentrations.

In addition to the 2 intersections chosen due to their exceedance of LOS, an additional 5 intersections were evaluated based on local area concern about increased pollutant emissions from the additional project related traffic as expressed by the residential neighborhoods surrounding the Project site.

The same methodology used for the CO hotspot analysis was also used to determine if the emissions of PM_{10} and $PM_{2.5}$ from the Project's traffic volumes would exceed the applicable regulatory thresholds at these seven intersections.

Toxic Air Contaminants

TAC generators located within the SCAB are associated with diesel-fueled vehicles and specific types of facilities such as dry cleaners, gas stations, distribution centers, and ports. The primary TAC that would be associated with the Project would be diesel particulate matter (DPM) generated from the diesel-powered construction equipment that would be used during the Festival's setup and breakdown activities as well as by diesel-powered equipment used during the three-day Festival (generators, golf carts, etc.). As such, a screening-level health risk assessment (HRA) was prepared for the Project to evaluate the potential for increased health risks to existing nearby residents surrounding the Project site as a result of exposure to diesel exhaust emissions generated during the setup, breakdown, and annual operations of the Project. As the Project is not located within the buffer distance of any other major TAC-emitting facilities, the HRA was limited to the impacts from DPM associated with the identified on-site activities. The Project's screening-level HRA is included as Appendix B to this EIR.

The methodologies and assumptions used in this HRA are consistent with the guidance recommended by the SCAQMD's Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (ARB2588) (SCAQMD, 2011), and the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment's (OEHHA) Air Toxic Hot Spots Program Risk Assessment Guidelines (OEHHA, 2003). The methodology used in this assessment uses a dose-response assessment to characterize risk from cancer due to inhaled TACs and the assessment of acute and chronic non-cancer hazards from DPM. Based on the OEHHA guidance, the evaluation of potential health risks uses the following standard four-step risk assessment process: (1) Hazard Identification; (2) Exposure Assessment; (3) Dose-Response Assessment; and (4) Risk Characterization. The assessment uses the AERSCREEN model, which USEPA's screening-level air quality model used to estimate worst-case ground level concentrations for a single emissions source, to determine DPM concentrations at the nearest receptors as a screening level analysis.

Thresholds of Significance

A project would have a significant adverse effect on air quality resources if it would:

- 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;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.
- 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);

It was determined in the NOP/Initial Study (see Appendix A) that implementation of the proposed Project would have no impact related to the potential conflict or obstruction with the implementation of an applicable air quality plan because the proposed Project would only represent an increase in the number of displacement events that is allowed at the Rose Bowl Stadium and a change of uses within the Brookside Golf Course to allow for uses beyond parking and golf, consistent with current uses that occur on the golf course, and would not result in the construction of permanent structures within the Project site. The proposed Project would not add housing or permanent employment positions that would increase area populations, and would be consistent with the local General Plan, SCAG projections and the AQMP. Therefore, this issue will not be discussed further in the EIR. Likewise, it was determined in the NOP/Initial Study that the proposed Project would not result in the creation of objectionable odors that would affect a substantial number of people. The odors associated with the exhaust from equipment and activities would be temporary and intermittent in nature and would not be considered significant. Therefore, this issue will not be discussed further in the EIR.

The City of Pasadena has not developed specific air quality thresholds for air quality impacts. However, as stated in Appendix G of the *CEQA Guidelines*, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. As such, the significance thresholds and analysis methodologies in SCAQMD's *CEQA Air Quality Handbook* are used in evaluating project impacts. SCAQMD has established daily mass thresholds for regional pollutant emissions, which are shown in **Table 3.2-4**.

Table 3.2-4
SCAQMD Regional Air Quality Significance Thresholds

Pollutant	Mass Daily Thresholds (lbs./day)	
	Construction	Operations
Oxides of Nitrogen (NO_X)	100	55
Reactive Organic Gases (ROG)	75	55
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_X)	150	150
Carbon Monoxide (CO)	550	550
TACs (including carcinogens and non-carcinogens	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	

[a] As the proposed Project would not involve the development of any major lead emissions sources, lead emissions would not be analyzed further in this report.

SOURCE: SCAQMD, 2011.

Aside from regional air quality impacts, projects in the SCAB are also required to analyze local air quality impacts. As discussed previously, SCAQMD has developed LSTs that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and thus would not cause or contribute to localized air quality impacts. LSTs are developed based on the ambient concentrations of that pollutant for each of the 38 source receptor areas (SRAs) in the SCAB. The localized thresholds, which are found in the mass rate look-up tables in SCAQMD's *Final Localized Significance Threshold Methodology* document, were developed for use on projects that are less than or equal to five acres in size and are only applicable to the following criteria pollutants: NOx, CO, PM_{10}, and $PM_{2.5}$.

As discussed previously, although the Project site is greater than five acres in size, the LSTs can still be used to conduct a preliminary screening-level assessment to determine whether the Project's on-site emissions would require a more refined analysis to determine whether the most stringent applicable federal or State ambient air quality standards would be exceeded. Under conditions where the Project's on-site emissions would exceed the LSTs for a five-acre site despite the implementation of all feasible mitigation, air dispersion modeling of the Project's on-site emissions would be required to evaluate the potential localized air quality impacts of the Project on its surrounding off-site sensitive receptors, in accordance with SCAQMD's recommendation. However, under conditions where it is determined that the Project's peak daily on-site emissions would not exceed the LSTs for a five-acre site, then it can be concluded that the Project's on-site emissions would not result in any adverse localized air quality impacts on its surrounding off-site sensitive receptors.

The construction and operational LSTs for a five-acre site in SRA 8 (West San Gabriel Valley), which is where the Project site is located, are shown in **Table 3.2-5**.

Table 3.2-5
SCAQMD Localized Significance Thresholds

Pollutant Monitored Within SRA 8 – West San Gabriel Valley Area	Five-Acre Site				
	Allowable emissions (pounds/day) as a function of receptor distance (feet) from site boundary				
	82 (ft.)	164 (ft.)	328 (ft.)	656 (ft.)	1,640 (ft.)
Construction Thresholds					
Nitrogen Oxides (NO_x)[a]	148	141	151	166	208
Carbon Monoxide (CO)	1,540	1,921	2,599	4,119	9,857
Respirable Particulate Matter (PM_{10})	12	37	53	85	180
Fine Particulate Matter ($PM_{2.5}$)	7	9	14	27	93
Operational Thresholds					
Nitrogen Oxides (NO_x)[a]	148	141	151	166	208
Carbon Monoxide (CO)	1,540	1,921	2,599	4,119	9,857
Respirable Particulate Matter (PM_{10})	3	9	13	21	44
Fine Particulate Matter ($PM_{2.5}$)	2	3	4	7	23

[a] The localized thresholds listed for NOx in this table take into consideration the gradual conversion of NO to NO_2.The analysis of localized air quality impacts associated with NOx emissions focuses on NO_2 levels as they are associated with adverse health effects.

SOURCE: SCAQMD, 2009.

It should be noted that with regards to NOx emissions, the two principal species of NOx are NO and NO_2, with the vast majority (95 percent) of the NOx emissions being comprised of NO. However, because adverse health effects are associated with NO_2, not NO, the analysis of localized air quality impacts associated with NOx emissions is focused on NO_2 levels. For combustion sources, SCAQMD assumes that the conversion of NO to NO_2 is complete at a distance of 5,000 meters from the source.

Hotspots

For the purposes of this analysis, the Project's study intersections where LOS at an intersection is worsened from D or better to E or F, despite the incorporation of mitigation, would require refined analysis using the Caline4 model to determine if the vehicular emissions resulting during Project operations exceed the following regulatory thresholds:

- CO – 20 ppm for a one-hour or 9 ppm for an eight-hour averaging period
- PM_{10} – 10.4 $\mu g/m^3$ for a 24-hour averaging period
- $PM_{2.5}$ – 10.4 $\mu g/m^3$ for a 24-hour averaging period

Where impacts do not cause the worsening of intersection LOS from D or better to E or F, the impacts are considered to be less than significant and no additional analysis is required.

Toxic Air Contaminants

Currently, the SCAQMD has only developed significance thresholds that apply to single stationary and mobile sources of TAC emissions, such as projects involving truck stops or warehouses (SCAQMD 2003). However, in absence of a threshold specific to assessing health impacts from a different type of project, the SCAQMD's stationary source TAC thresholds of 10 in one million for cancer risk and 1 for hazard index would serve as the most appropriate thresholds for use in this HRA analysis. Thus, for the purpose of this HRA analysis, the aforementioned SCAQMD significance criteria would be used as a benchmark to assess when Project design features to reduce exposure of the nearby sensitive receptors surrounding the Project site to TACs from the Project's diesel-powered mobile and stationary sources would need to be implemented. If this benchmark is exceeded, SCAQMD suggests that the proposed Project should reduce health risks associated with exposure to TAC emissions from the on-site activities to the greatest extent possible. These criteria are not applied as impact significance thresholds under CEQA.

Impact Evaluation

The proposed Project would result in significant impacts related to air quality standards and contribute substantially to an existing or projected air quality exceedances in the region. (Significant and Unavoidable Impact)

Setup and Breakdown Emissions

The proposed Project would include a two-week setup period and one-week breakdown period for the Festival's outdoor stages, vendor tents/stands, and other Festival-related amenities. Setup and breakdown activities associated with the Project would generate pollutant emissions from the following activities: (1) vendor trips; (2) employees traveling to and from the Project site; and (3) fuel combustion by on-site construction equipment. These activities would temporarily create emissions of fumes, equipment exhaust, dust, and other air contaminants. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of activities occurring simultaneously at the time.

The following worst-case daily construction emissions are listed in **Table 3.2-6**.

Table 3.2-6
Proposed Regional Setup/Breakdown Emissions (Unmitigated)

Emissions Activities	Estimated Maximum Daily Emissions (lbs./day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Setup	98.97	438.11	1,055.00	0.62	61.44	40.95
Breakdown	89.51	440.59	1,062.81	0.63	61.61	41.02
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	Yes	Yes	Yes	No	No	No

NOTE: Total with overlap is calculated to represent a worst case scenario with multiple construction phases overlapping.
Source: ESA 2015 (see Appendix C for model output)

As shown in Table 3.2-6, the maximum daily construction emissions generated by the Project's worst-case construction scenario would exceed SCAQMD's daily significance threshold for ROG, NOx, and CO. Therefore, setup and breakdown emissions would have a potentially significant temporary impact and would require mitigation.

Mitigation Measures

Mitigation Measure AIR-1: Impacts related to setup, breakdown, and operational emissions of ROG, NOx, and CO.

- For onsite equipment greater than 50 HP, all engines shall be certified as EPA Tier 4 or greater engines, be retrofitted to comply with the emissions standards of the Tier 4 engine, or if it is determined that such equipment is unavailable, the Festival operator shall document that a good faith effort has been made to obtain such equipment as they are unavailable and that the equipment used meets the next highest EPA Tiered emission standards. This measure reduces ROG, NO_X, and CO emissions from all aerial lifts, air compressors, cranes, and forklifts used onsite.

- All gasoline powered passenger golf carts used onsite shall be replaced with electric golf carts. This measure reduces ROG, NOx, and CO emissions from all gasoline powered golf carts.

- The vehicle fleet and mechanical equipment used during the Festival shall utilize the latest technologies available to the satisfaction of RBOC. To account for advances in future technology, every five years the Festival operator shall submit a report to the RBOC identifying technological advancements in vehicle fleets and mechanical equipment implemented in Festival setup, operations, and breakdown, that result in a reduction in emissions.

Significance after Mitigation: Significant and Unavoidable. As shown in **Table 3.2-7**, the maximum daily construction emissions after mitigation would reduce ROG emissions to below the daily threshold however NOx and CO emissions would still exceed SCAQMD's daily significance threshold. These emissions are primarily from onsite equipment that is less than 50 HP, as well as vendor trucks which the project has no control over regulating emissions. Therefore, there are no additional mitigation measures that could reduce these impacts and the project impacts would remain significant and unavoidable for NOx and CO.

Table 3.2-7
Proposed Regional Setup/Breakdown Emissions (Mitigated)

Maximal	Estimated Maximum Daily Emissions (lbs./day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Setup	70.43	351.70	554.78	0.62	50.97	31.31
Breakdown	60.97	354.17	562.59	0.63	51.14	31.38
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	Yes	Yes	No	No	No

NOTE: Total with overlap is calculated to represent a worst case scenario with multiple construction phases overlapping.

Source: ESA 2015 (see Appendix C for model output)

Operations

Implementation of the proposed Project would result in short-term (i.e., 3-day Festival) regional emissions of criteria air pollutants and ozone precursors associated with area sources and mobile emissions.

The Project's modeled operations emissions are presented in **Table 3.2-8**. As shown, the Project would result in short-term regional emissions of criteria pollutants that would exceed the SCAQMD's applicable thresholds for ROG, NOx, CO, PM_{10}, and $PM_{2.5}$. Vehicular travel by passenger vehicles, shuttles, and vendor trips represents the majority of the emissions for all of the pollutant exceedances. Although the SCAQMD's applicable thresholds would be exceeded, the exceedances would only be temporary as the Festival only occurs over 3 days during the year for up to 20 years. Additionally, as the years progress, the vehicles will become cleaner and therefore mobile source emissions will be reduced consistent with the turn-over of the vehicle fleet. However, this is the worst case scenario for operational emissions. Without mitigation operational emissions are potentially significant.

Table 3.2-8
Proposed Project Unmitigated Operational Emissions

Emissions Source	Estimated Emissions (lbs./day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area Sources	25.88	0.00	0.00	0.00	0.00	0.00
Energy Sources	0.03	0.23	0.19	0.00	0.02	0.02
Offsite Mobile Sources	1,843	21,410	20,139	70.56	2449	877.6
Onsite Mobile Sources	140.40	1,057.02	1,513.91	1.25	43.31	41.77
Total Emissions	2,009	22,468	21,654	71.81	2,493	919.4
Regional Significance Threshold	*55*	*55*	*550*	*150*	*100*	*55*
Significant Impact?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

SOURCE: ESA 2015 (see Appendix C for model output)

Mitigation Measures

Implementation of Mitigation Measure AIR-1: Impacts related to setup, breakdown, and operational emissions of ROG, NOx, and CO.

Implementation of Mitigation Measure GHG-1: Project-related emissions of greenhouse gases. For on-road shuttle vehicles used during operation of the Project, the Festival operator shall reduce greenhouse gas emissions to the maximum extent feasible through a mix of the following: the use of a maximum number of shuttle vehicles feasible that burn fuels such as Diesel High Performance Renewable (HPR), compressed natural gas (CNG), or equivalent emission reducing technology to the maximum extent feasible; and the purchase or other obtainable and verifiable GHG emissions credits of up to a combined total of up to 4,700 metric tons of CO_{2e} to offset GHG emissions associated with the Project. On an annual basis, prior to holding the Festival, the Festival operator shall submit to the RBOC an evaluation of its ability to reduce greenhouse gas emissions through use of alternative fuel shuttle vehicles to below the SCAQMD significance threshold, and the how much will be offset by mitigation credits. On an annual basis, the RBOC and the Festival operator shall discuss the utilization of new or different technologies or policies to further reduce impacts to below the SCAQMD significance threshold.

Significance Determination: Significant and Unavoidable. As shown in **Table 3.2-9**, the maximum daily operational emissions after mitigation would still exceed thresholds for all criteria pollutants but SO_2. These emissions are primarily from attendee, employee, and vendor vehicle trips which the Project has no regulatory control over. Even with the implementation of all feasible mitigation measures, impacts would remain significant and unavoidable for ROG, NOx, CO, PM_{10}, and $PM_{2.5}$.

Table 3.2-9
Proposed Project Mitigated Operational Emissions

Emissions Source	Estimated Emissions (lbs./day)					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	25.88	0.00	0.00	0.00	0.00	0.00
Energy Sources	0.03	0.23	0.19	0.00	0.02	0.02
Offsite Mobile Sources	1,843	21,410	20,139	70.56	2449	877.6
Onsite Mobile Sources	114.23	1,038.12	758.72	1.25	41.02	39.72
Total Emissions	1,983	22,449	20,898	71.81	2,490	917.3
Regional Significance Threshold	*55*	*55*	*550*	*150*	*100*	*55*
Significant Impact?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

SOURCE: ESA, 2015

The proposed Project would not expose sensitive receptors to substantial pollutant concentrations. (Less-than-Significant Impact)

Forty-three local intersections were analyzed as part of the traffic study that was prepared for the proposed project (Fehr & Peers, 2015). As detailed in the traffic study (included as Appendix

H to this EIR), under the existing plus project conditions, 7 intersections would operate at an LOS of E or worse, as shown in **Table 3.2-10**. Because LOS would shift from a D or better to an E or F, a refined analysis was conducted to determine if CO hotspots would occur from the traffic at high volume intersections. As discussed in the methodology section, the two intersections with the greatest traffic volumes were addressed in the refined analysis as they would result in the greatest emissions, and any other intersections would therefore fall below those emission concentrations.

TABLE 3.2-10
INTERSECTION LEVEL OF SERVICE FOR
EXISTING PLUS PROJECT CONDITIONS

Intersection		Existing		Existing Plus Project	
		AM	PM	AM	PM
Arroyo Parkway & California Boulevard	Weekday	D	A	**E**	B
	Weekend	C	A	D	B
Orange Grove Avenue & I-110 NB On/Off-Ramps	Weekday	C	A	**E**	A
	Weekend	A	A	B	A
Fair Oaks Avenue & I-110 SB On-Ramp / State Street	Weekday	B	A	C	**F**
	Weekend	B	A	C	**F**
Fair Oaks Avenue & I-110 NB Off-Ramp / Grevelia Street	Weekday	D	A	**F**	B
	Weekend	C	A	**F**	A
Baldwin Avenue & I-210 EB On/Off-Ramps	Weekday	B	A	C	A
	Weekend	C	A	**E**	C
Colorado Place & Huntington Drive	Weekday	C	A	D	**E**
	Weekend	A	A	B	**E**
Santa Anita Avenue & I-210 EB On/Off-Ramps	Weekday	A	A	B	**E**
	Weekend	B	A	C	**F**

SOURCE: Fehr & Peers, 2015.

Table 3.2-11 shows the results of the refined analysis using Caline4 for the determination of whether traffic volumes at these intersections would result in CO emission concentrations above regulatory thresholds. As discussed previously, two of the intersections analyzed are from those identified as having an LOS of E or F and resulting in the greatest hourly vehicle traffic. The remaining 5 intersections were chosen based on local area concerns for increased pollutant concentrations in the vicinity of Rose Bowl Stadium. While more than one receptor may be located in proximity to each of the analyzed study intersections, for the purpose of evaluating the worst-case analysis, only the highest receptor concentrations for each intersection are presented in this analysis. As shown in Table 3.2-11, none of the analyzed intersections would experience CO emission concentrations that would exceed regulatory thresholds during Project operations. Therefore the Project would result in less-than-significant impacts with respect CO hotspots.

Table 3.2-11
Refined Hotspot Analysis for CO

Intersection State Standards	AM/PM	Peak Hour Volume	1-HR Conc. (ppm)	8-HR Conc. (ppm)	Significant?
Existing					
Rosemont Avenue & Washington Boulevard	AM	219	3.9	2.4	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	1,002	4.1	2.5	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	1,181	4.2	2.6	NO
West Drive / Seco Street & Seco Street	AM	405	4.0	2.4	NO
Rosemont Avenue & Seco Street	AM	838	4.0	2.4	NO
Santa Clara Street & Huntington Drive	AM	3,707	4.7	2.9	NO
Baldwin Avenue & Huntington Drive	AM	5,792	5.1	3.2	NO
Existing Plus Project					
Rosemont Avenue & Washington Boulevard	AM	844	4.2	2.6	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	2,215	4.4	2.7	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	1,933	4.4	2.7	NO
West Drive / Seco Street & Seco Street	AM	405	4.0	2.4	NO
Rosemont Avenue & Seco Street	AM	2,166	4.3	2.7	NO
Santa Clara Street & Huntington Drive	AM	4,627	4.9	3.1	NO
Baldwin Avenue & Huntington Drive	AM	5,938	5.1	3.2	NO

SOURCE: ESA, 2015.

Mitigation Measures

Impacts would be less than significant and no mitigation is required.

Significance Determination: Less than Significant

PM Hotspot Analysis

In addition to analyzing the potential impacts related to CO hotspots at the seven selected intersections above, a similar analysis was also conducted at the same study intersections for both PM_{10} and $PM_{2.5}$ emission concentrations generated by vehicular traffic during Project operations. The results of the refined analysis using Caline4 for the determination of whether traffic volumes at these intersections would result in PM_{10} and $PM_{2.5}$ emission concentrations above regulatory thresholds are shown in in **Table 3.2-12**. As was conducted for the CO hotspots analysis, the PM_{10} and $PM_{2.5}$ hotspots analyses only present the highest receptor concentrations for these two pollutants at each intersection. As shown in Table 3.2-12, none of the intersections would experience emission concentrations from vehicular traffic during Project

operations that would exceed the regulatory thresholds for PM_{10} or $PM_{2.5}$. Therefore the Project would result in less-than-significant impacts with respect to PM_{10} and $PM_{2.5}$ hotspots.

Table 3.2-12
Refined Hotspot Analysis for PM_{10} and $PM_{2.5}$

Intersection State Standards	AM/PM	Peak Hour Volume	24-HR PM_{10} Conc. ($\mu g/m^3$)	24-HR $PM_{2.5}$ Conc. ($\mu g/m^3$)	Significant?
Existing					
Rosemont Avenue & Washington Boulevard	AM	219	0.2	0.2	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	1,002	0.6	0.5	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	1,181	0.8	0.7	NO
West Drive / Seco Street & Seco Street	AM	405	0.4	0.4	NO
Rosemont Avenue & Seco Street	AM	838	0.5	0.4	NO
Santa Clara Street & Huntington Drive	AM	3,707	1.9	1.7	NO
Baldwin Avenue & Huntington Drive	AM	5,792	2.6	2.4	NO
Existing Plus Project					
Rosemont Avenue & Washington Boulevard	AM	844	0.8	0.8	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	2221	1.1	1.0	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	1,939	1.1	1.0	NO
West Drive / Seco Street & Seco Street	AM	405	0.4	0.4	NO
Rosemont Avenue & Seco Street	AM	2,166	1.1	1.0	NO
Santa Clara Street & Huntington Drive	AM	4,627	2.5	2.2	NO
Baldwin Avenue & Huntington Drive	AM	5,938	2.6	2.4	NO

SOURCE: ESA, 2015.

Mitigation Measures

Impacts would be less than significant and no mitigation is required.

Significance Determination: Less than Significant

Localized Setup and Breakdown Air Quality Impacts – Criteria Air Pollutants

As discussed previously, the daily on-site emissions generated by the proposed Project were evaluated against SCAQMD's LSTs for a five-acre site as a screening-level analysis to determine whether the emissions would cause or contribute to adverse localized air quality impacts.[4] The nearest off-site sensitive receptors are the single-family residential uses located

[4] According to SCAQMD's LST methodology, LSTs are only applicable to the on-site construction emissions that are generated by a project and do not apply to emissions generated off-site such as mobile emissions on roadways from worker, vendor, and haul truck trips.

directly adjacent to the Project site's western and eastern boundaries, with the nearest residential properties located approximately 90 feet from the Project site boundary. **Table 3.2-13** identifies the daily-localized on-site emissions that are estimated to occur during the proposed Project's worst-case setup and breakdown days after the implementation of Mitigation Measure AIR-1. As shown in Table 3.2-13, the daily maximum emissions generated onsite by the proposed Project would exceed the applicable SCAQMD LSTs for NOx, PM_{10}, and $PM_{2.5}$ for a five-acre site in SRA 8 during both the setup and breakdown periods. The emissions for CO would not exceed the applicable SCAQMD LSTs.

Table 3.2-13
Proposed Project Localized Daily Mitigated Construction Emissions [a]

Scenario	Estimated Maximum Daily On-Site Emissions			
	NO_X (lbs./day)	CO (lbs./day)	PM_{10} (lbs./day)	$PM_{2.5}$ (lbs./day)
Setup	325.43	455.44	36.86	27.26
Breakdown	325.43	455.44	36.86	27.26
Screening Level [b]	148	1,540	12	7
Above Screening Level?	**Yes**	No	**Yes**	**Yes**

Source: ESA, 2015 (see Appendix C for model output)

[a] The emissions shown in this table accounts for implementation of Mitigation Measure AIR-1.
[b] LST values are extrapolated from the SCAQMD LST Threshold Tables for SRA 8. The five-acre LSTs are used as screening level criteria.

As the proposed Project's maximum emissions associated with the setup and breakdown activities would exceed the screening-level LSTs for NOx, PM_{10}, and $PM_{2.5}$, a more refined dispersion analysis was conducted using AERSCREEN. The assumptions, calculations, and modeling output files are included in Appendix C of this EIR.

The results of the refined analysis are included in **Table 3.2-14**. The dispersion modeling shows that while emissions exceed the LST screening levels, the emissions from the Project's setup and breakdown activities would not result in a localized significant impact. Therefore, localized air quality impacts associated with these Project-related activities would be less than significant, and no additional mitigation (beyond MM AIR-1 and discussed previously) would be required.

Table 3.2-14
Proposed Project Localized Refined Construction Emission Concentrations

Scenario	Estimated Maximum Daily On-Site Emissions			
	NO_X (ppm)	CO (ppm)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)
Setup	0.1063	-	0.0005	0.0004
Breakdown	0.1063	-	0.0005	0.0004
Localized Significance Threshold[a]	0.18	-	10.4	10.4
Significant Impact?	**No**	**-**	**No**	**No**

Source: ESA CalEEMod Modeling, 2015

Localized Operational Air Quality Impacts – Criteria Air Pollutants

As discussed previously, the daily on-site emissions generated by operation of the proposed Project were evaluated against SCAQMD's LSTs for a five-acre site as a screening-level analysis to determine whether the emissions would cause or contribute to adverse localized air quality impacts. The nearest off-site sensitive receptors are the single-family residential uses located directly adjacent to the Project site's western and eastern boundaries. **Table 3.2-15** identifies the daily-localized on-site emissions that are estimated to occur during the Project worst-case scenario for operations after the implementation of Mitigation Measure AIR-1. As shown in Table 3.2-15, the daily emissions generated on-site by the proposed Project's worst-case scenario would exceed the applicable SCAQMD LST for NOx, PM_{10}, and $PM_{2.5}$ for a five-acre site in SRA 8 for the 3-day Festival. The emissions for CO would not exceed the applicable SCAQMD LSTs.

Table 3.2-15
Proposed Localized Daily Mitigated Operational Emissions [a]

Scenario	Estimated Maximum Daily On-Site Emissions			
	NO_X (lbs./day)	CO (lbs./day)	PM_{10} (lbs./day)	$PM_{2.5}$ (lbs./day)
Operational	1,038.34	758.91	41.04	39.73
Screening Level [b]	148	1,540	12	7
Above Screening Level?	**Yes**	No	**Yes**	**Yes**

Source: ESA Modeling, 2015 (see Appendix C for model output)

[a] The emissions shown in this table accounts for implementation of Mitigation Measure MM AIR-1.
[b] LST values are extrapolated from the SCAQMD LST Threshold Tables for SRA 8. The five-acre LSTs are used as screening level criteria.

As the proposed Project's worst-case operational emissions would exceed the screening-level LST for NOx, PM_{10}, and $PM_{2.5}$, a more refined dispersion analysis was conducted using AERSCREEN. The assumptions, calculations, and modeling output files are included in Appendix C of this EIR.

The results of the refined analysis are included in **Table 3.2-16**. The dispersion modeling shows that while the Project's on-site emissions would exceed the LST screening levels, these emissions from Project operations would not result in a localized significant impact. Therefore, localized air quality impacts associated with construction of the proposed project would be less than significant, and no additional mitigation (beyond MM AIR-1 discussed previously) would be required.

Table 3.2-16
Proposed Localized Refined Operational Emission Concentrations

Scenario	Estimated Maximum Daily On-Site Emissions			
	NO_X (ppm)	CO (ppm)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)
Operational	0.1114	-	0.0004	0.0004
Localized Significance Threshold[a]	0.18	-	10.4	10.4
Significant Impact?	**No**	**-**	**No**	**No**

Source: ESA CalEEMod Modeling, 2015

Localized Air Quality Impacts – TACs

Typical sources of acutely and chronically hazardous TACs include industrial manufacturing processes, automotive repair facilities, and dry cleaning facilities. The Project would not include any of these potential sources, although minimal emissions of PM_{10} would result from the use of generators and other diesel equipment onsite. In addition, while the Project's setup and breakdown activities would also result in limited on-site PM_{10} emissions and are relatively short duration (three weeks total for the two phases), they would occur on an annual basis for up to 20 years. Therefore in order to adequately calculate health risk the operation of the three-day Festival along with the repeated annual setup and breakdown activities are estimated over the 20-year operational lifetime of the project (2016 through 2035). This is a conservative estimate because as the equipment ages out it will be replaced with newer equipment that is more efficient. Also, the analysis of TAC exposure at the nearest sensitive receptors from the Project site assumes that a child is in the third trimester in utero at the highest receptor location and stays in that location the full 20 years.

A health risk analysis examines the potential health risk impacts to the nearby residents from exposures to emissions from the annual setup, breakdown, and operation of the Festival. While there is a school nearby, the health risk analysis for the nearby residential uses is a more conservative analysis and will result in a higher health risk. Therefore, any student at the school, which would only be one day (Friday) of the three-day Festival, would be anticipated to have a lower risk than presented here for the residential uses. The assumptions and calculations are included in Appendix C of this EIR. The analysis shows that the setup, breakdown and operation of the Project over the 20 years would result in a cancer risk of approximately 7.75 increased cases per million and would have a non-cancer risk of 0.002. These are both below the SCAQMD's thresholds of 10 in one million and 1, respectively. Therefore, with the inclusion

of mitigation measures MM AIR-1 and GHG-1, the health risk for offsite receptors would be less than significant.

3.2.7 Cumulative Effects

The proposed Project is located within the SCAB, which is considered the cumulative study area for air quality. Because the SCAB is currently classified as a state nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, cumulative development consisting of the proposed Project along with other reasonably foreseeable future projects in the SCAB as a whole could violate an air quality standard or contribute to an existing or projected air quality violation.

The SCAQMD recommends how to address cumulative impacts from air pollution in the *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (SCAQMD, 2003b). In this report the SCAQMD states (Page D-3):

> *the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.*
>
> *Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.*

As shown in Tables 3.2-6 and 3.2-7, the Project's emissions generated from the Festival setup and breakdown activities would exceed SCAQMD's daily thresholds for NOx and CO even with the implementation of Mitigation Measure AIR-1. Therefore the proposed Project would result in a significant and unavoidable cumulative impact with respect to the Festival's setup and breakdown emissions, when considered with other past, present and reasonably foreseeable projects.

Operational emissions (over the three days of the Festival) associated with the proposed Project, as shown in Tables 3.2-8 and 3.2-9, would exceed the SCAQMD's thresholds of significance for ROG, NOx, CO, PM_{10}, and $PM_{2.5}$ even with the implementation of Mitigation

Measure AIR-1 and GHG-1. The proposed Project could conflict with SCAQMD's air quality planning efforts for nonattainment pollutants and would result in a cumulatively considerable net increase in nonattainment pollutants during operations. Therefore, cumulative impacts associated with operational emissions would be significant and unavoidable.

CO Hotspot

Forty-three local intersections were analyzed as part of the traffic study that was prepared for the proposed project (Fehr & Peers, 2015). As detailed in the traffic study (included as Appendix H to this report), under the future plus project (2016), future plus project (2026), and future plus project (2035) scenarios, up to fifteen intersections would operate at an LOS of E or worse, as shown in **Table 3.2-17.** Because LOS would shift from a D or better to an E or F a refined analysis was conducted to determine if CO hotspots would occur from the traffic volumes at high volume intersections.

As with the Project-level analysis, the same intersections were chosen for the refined analysis. The two intersections with an LOS of E or F with the greatest intersection volumes, and the 5 chosen based on local area concerns. **Table 3.2-18** shows the refined analysis using Caline4 for the determination of whether the traffic volumes at these intersections would result in impacts above regulatory thresholds. While more than one receptor may be located in proximity to each of the analyzed study intersections, for the purpose of evaluating the worst-case analysis only the highest receptor concentrations for each intersection are presented in this analysis. As shown in Table 3.2-18, none of the intersections would result in impacts that exceed regulatory thresholds for CO. Therefore the project would result in less than significant impacts.

PM Hotspot Analysis

In addition to analyzing the potential impacts related to CO hotspots at the seven selected intersections above, a similar analysis was also conducted at the same study intersections for both PM_{10} and $PM_{2.5}$ emission concentrations generated by vehicular traffic during Project operations. The results of the refined analysis using Caline4 for the determination of whether traffic volumes at these intersections would result in PM_{10} and $PM_{2.5}$ emission concentrations above regulatory thresholds are shown in in **Table 3.2-19**. As was conducted for the CO hotspots analysis, the PM_{10} and $PM_{2.5}$ hotspots analyses only present the highest receptor concentrations for these two pollutants at each intersection. As shown, none of the intersections would experience emission concentrations from vehicular traffic during Project operations that would exceed the regulatory thresholds for PM_{10} or $PM_{2.5}$. Therefore the Project would result in less-than-significant impacts with respect to PM_{10} and $PM_{2.5}$ hotspots.

Table 3.2-17
Intersection Level of Service for Future Plus Project Conditions

Intersection		Future Plus Project (2016)		Future Plus Project (2026)		Future Plus Project (2035)	
		AM	PM	AM	PM	AM	PM
Pasadena Avenue & California Boulevard	Weekday	**E**	A	**F**	A	**F**	A
	Weekend	C	A	D	A	D	A
Arroyo Parkway & California Boulevard	Weekday	**E**	B	**E**	B	**F**	B
	Weekend	D	B	D	B	**E**	B
Orange Grove Avenue & I-110 NB On/Off-Ramps	Weekday	**E**	A	**E**	A	**E**	A
	Weekend	B	A	C	A	C	A
Fair Oaks Avenue & I-110 SB On-Ramp / State Street	Weekday	C	**F**	D	**F**	D	**F**
	Weekend	C	**F**	D	**F**	D	**F**
Fair Oaks Avenue & I-110 NB Off-Ramp / Grevelia Street	Weekday	**F**	B	**F**	B	**F**	B
	Weekend	**F**	A	**F**	A	**F**	B
Rosemead Boulevard & Foothill Boulevard	Weekday	D	A	D	A	**E**	A
	Weekend	C	A	C	A	D	A
Baldwin Avenue & Foothill Boulevard	Weekday	C	A	C	A	D	A
	Weekend	D	A	**E**	A	**E**	A
Baldwin Avenue & I-210 EB On/Off-Ramps	weekday	C	A	D	A	D	A
	weekend	**E**	B	**E**	B	**E**	B
Baldwin Avenue & Colorado Boulevard	weekday	D	A	**E**	A	**E**	A
	weekend	A	A	A	A	A	A
Baldwin Avenue & Colorado Boulevard	weekday	D	C	D	C	**E**	C
	weekend	A	C	A	C	A	C
Colorado Place & Huntington Drive	weekday	D	**E**	D	**E**	E	**E**
	weekend	B	**E**	B	**E**	B	**E**
Santa Anita Avenue & Huntington Drive	weekday	D	D	**E**	D	**E**	D
	weekend	D	D	**E**	D	**E**	D
Baldwin Avenue & Huntington Drive	weekday	D	A	D	A	**E**	A
	weekend	C	A	C	A	C	A
Santa Anita Avenue & I-210 EB On/Off-Ramps	weekday	B	**E**	B	**F**	B	**F**
	weekend	C	**F**	C	**F**	C	**F**
Santa Anita Avenue & Santa Clara Street	weekday	**E**	A	**F**	B	**F**	B
	weekend	B	B	B	B	C	B

SOURCE: Fehr & Peers, 2015.

Table 3.2-18
Refined Hotspot Analysis for CO

Intersection State Standards	AM/PM	Peak Hour Volume	1-HR Conc. (ppm)	8-HR Conc. (ppm)	Significant?
Future Plus Project 2016					
Rosemont Avenue & Washington Boulevard	AM	844	4.1	2.5	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	2,221	4.3	2.7	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	1,933	4.2	2.6	NO
West Drive / Seco Street & Seco Street	AM	407	3.9	2.4	NO
Rosemont Avenue & Seco Street	AM	2,168	4.2	2.6	NO
Santa Clara Street & Huntington Drive	AM	4,646	4.7	2.9	NO
Baldwin Avenue & Huntington Drive	AM	5,969	4.8	3.0	NO
Future Plus Project 2026					
Rosemont Avenue & Washington Boulevard	AM	855	4.0	2.4	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	2,273	4.1	2.5	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	2,001	4.0	2.4	NO
West Drive / Seco Street & Seco Street	AM	428	3.9	2.4	NO
Rosemont Avenue & Seco Street	AM	2,216	4.0	2.4	NO
Santa Clara Street & Huntington Drive	AM	4,842	4.3	2.7	NO
Baldwin Avenue & Huntington Drive	AM	6,270	4.4	2.7	NO
Future Plus Project 2035					
Rosemont Avenue & Washington Boulevard	AM	869	4.0	2.4	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	2,321	4.0	2.4	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	2,056	4.0	2.4	NO
West Drive / Seco Street & Seco Street	AM	446	3.9	2.4	NO
Rosemont Avenue & Seco Street	AM	2,253	4.0	2.4	NO
Santa Clara Street & Huntington Drive	AM	5,016	4.3	2.7	NO
Baldwin Avenue & Huntington Drive	AM	6,545	4.3	2.7	NO

SOURCE: ESA, 2015.

Table 3.2-19
Refined Hotspot Analysis for Particulate Matter

Intersection State Standards	AM/PM	Peak Hour Volume	24-HR PM_{10} Conc. ($\mu g/m^3$)	24-HR $PM_{2.5}$ Conc. ($\mu g/m^3$)	Significant?
Future Plus Project 2016					
Rosemont Avenue & Washington Boulevard	AM	844	0.8	0.8	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	2,221	1.1	1.0	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	1,939	1.0	0.9	NO
West Drive / Seco Street & Seco Street	AM	407	0.4	0.3	NO
Rosemont Avenue & Seco Street	AM	2,168	1.1	1.0	NO
Santa Clara Street & Huntington Drive	AM	4,646	2.3	2.1	NO
Baldwin Avenue & Huntington Drive	AM	5,969	2.6	2.3	NO
Future Plus Project 2026					
Rosemont Avenue & Washington Boulevard	AM	855	1.0	0.9	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	2273	1.4	1.2	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	2,001	1.3	1.1	NO
West Drive / Seco Street & Seco Street	AM	428	0.4	0.4	NO
Rosemont Avenue & Seco Street	AM	2,216	1.3	1.1	NO
Santa Clara Street & Huntington Drive	AM	4,842	2.8	2.5	NO
Baldwin Avenue & Huntington Drive	AM	6,270	3.2	2.9	NO
Future Plus Project 2035					
Rosemont Avenue & Washington Boulevard	AM	869	1.1	1.0	NO
I-210 EB On/Off-Ramps & Seco Street / Mountain Street	AM	2,321	1.5	1.4	NO
I-210 WB On/Off-Ramps & Seco Street / Mountain Street	AM	2,001	1.4	1.2	NO
West Drive / Seco Street & Seco Street	AM	446	0.5	0.4	NO
Rosemont Avenue & Seco Street	AM	2,253	1.4	1.2	NO
Santa Clara Street & Huntington Drive	AM	5,016	3.1	2.8	NO
Baldwin Avenue & Huntington Drive	AM	6,545	3.6	3.2	NO

SOURCE: ESA, 2015.

Mitigation Measures

Implementation of Mitigation Measure AIR-1 and Mitigation Measure GHG-1.

Significance after Mitigation: Significant and Unavoidable