5.2 AIR QUALITY

This section describes the existing air quality conditions for the project site, potential environmental impacts, and recommended mitigation measures to help reduce or avoid impacts and the significance determination after the incorporation of mitigation.

5.2.1 EXISTING CONDITIONS

5.2.1.1 Climate and Topography

Air quality is defined as the state of air around us and is thus influenced by the concentration of pollutants that can negatively impact human health. Concentrations of air pollutants are determined by the rate and location of pollutant emissions released by pollution sources, and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, and sunlight. Therefore, ambient air quality conditions within the local air basin are influenced by such natural factors as topography, meteorology, and climate, as well as the amount of anthropogenic air pollutant emissions released by existing air pollutant sources.

The proposed project is located in the Orange County portion of the South Coast Air Basin (Basin). The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties. The Basin is bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east.

The climate in the Basin generally is characterized by sparse winter rainfall and hot summers tempered by cool ocean breezes. A temperature inversion, a warm layer of air that traps the cool marine air layer underneath it and prevents vertical mixing, is one of the major factors that allows contaminants to accumulate in the Basin. The high concentration of mobile and stationary sources of air contaminants located predominantly in the western portion of the Basin, in addition to the mountains that surround the perimeter of the Basin, where on-shore winds blowing from west to east trap pollutants against the mountains, contribute to the generally poor air quality in the region. This mild and frequent climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds.

Temperature affects the air quality of the region in several ways. Local winds are the result of temperature differences between the relatively stable ocean air and the uneven heating and cooling that takes place in the Basin due to a wide variation in topography. Temperature also has a major effect on vertical mixing height and affects chemical and photochemical reaction times.

Wind flow patterns play an important role in the transport of air pollutants in the Basin. The winds flow from offshore and blow eastward during the daytime hours. In summer, the sea breeze starts in mid-morning, peaks at 10 to 15 miles per hour, and subsides after sundown. There is a calm period until about midnight. At that time, the land breeze begins from the northwest, typically becoming calm again by sunrise. In winter, the same general wind flow patterns exist except that summer wind speeds average slightly higher than winter wind speeds. This pattern of low wind speeds is a major factor that allows pollutants to accumulate in the Basin.

Meteorological data was obtained from the Yorba Linda station in Orange County, which is the closest climate monitoring station to the project site with complete data and represents the proposed project's area, climate, and topography in the Basin. This climate monitoring station is run by the National Oceanic and Atmospheric Administration (NOAA). Rainfall averages approximately 14.4 inches annually, and the heaviest precipitation occurs in November through April. The mean annual air temperature ranges from 54 degrees Fahrenheit (°F) in January to 73°F in August, with an annual average temperature of approximately 63°F (WRCC 2014).

5.2.1.2 Criteria Air Pollutants

The United States Environmental Protection Agency (USEPA) and the California Air Resources Board (ARB) focus on the following air pollutants as indicators of ambient air quality: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with a diameter of 10 micrometers or less (PM_{10}), fine particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. Because the ambient air quality standards for these air pollutants are regulated using human health and environmentally based criteria, they are commonly referred to as "criteria air pollutants."

<u>O_3</u>

Ozone is a colorless, odorless gas that primarily exists in the upper atmosphere (stratosphere) as the ozone layer and in the lower atmosphere (troposphere) as a pollutant. Tropospheric ozone is a principal cause of lung and eye irritation in the urban environment and is the principal component of smog, which is formed in the troposphere through a series of reactions involving volatile organic compounds (VOCs) and nitrogen oxides (NO_X) in the presence of sunlight. Therefore, VOCs and NO_X are precursors of O_3. VOC and NO_X emissions are both considered critical in ozone formation. Control strategies for O_3 have focused on reducing these emissions from vehicles, industrial processes using solvents and coatings, and consumer products. O_3 concentrations are generally highest in the summer, when atmospheric inversions are greatest, and sunlight is abundant and temperatures are high.

<u>PM</u>

PM is a complex mixture of extremely small particles and liquid droplets. PM consists of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Natural sources of PM include windblown dust and ocean spray. Some particles are emitted directly into the atmosphere. Others, referred to as secondary particles, result from gases that are transformed into particles through physical and chemical processes in the atmosphere.

The size of PM is directly linked to the potential for causing health problems. The USEPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects such as aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and irregular heartbeat. Individuals particularly sensitive to fine particle exposure include older adults, people with heart and lung disease, and children. The USEPA groups PM into two categories, coarse PM or PM_{10}, and fine PM or $PM_{2.5}$, as described below.

PM_{10} are 10 micrometers or smaller in diameter. Sources of PM_{10} include crushing or grinding operations and dust from paved or unpaved roads. Control of PM_{10} is primarily achieved through the control of dust at construction and industrial sites, the cleaning of paved roads, and the wetting or paving of frequently used unpaved roads.

$PM_{2.5}$ are 2.5 micrometers or smaller in diameter. $PM_{2.5}$ poses an increased health risk because they can deposit deep in the lungs and contain substances that are particularly harmful to human health. Sources of

$PM_{2.5}$ include all types of combustion activities such as motor vehicles, power plants, wood burning, and certain industrial processes. $PM_{2.5}$ is the major cause of reduced visibility (haze) in California.

<u>CO</u>

CO is a colorless and odorless gas that, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. In addition to regional CO emissions, localized CO emissions can be of concern. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways and intersections. Overall, CO emissions are decreasing because of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. CO concentrations are typically higher in the winter; therefore, California has required the use of oxygenated gasoline in the winter months to reduce CO emissions.

<u>NO_2</u>

NO_2 is a gas that is a product of the combustion of fossil fuels generated from vehicles and stationary sources, such as power plants and boilers. NO_2 can cause lung damage. As noted above, NO_2 is a type of NO_X and is a principal contributor to ozone and smog production.

<u>SO_2</u>

SO_2 is a gas that is a product of the combustion of fossil fuels, with the primary source being power plants and heavy industry that utilize coal or oil as fuel. SO_2 is also a product of diesel engine emissions. The human health effects of SO_2 include lung disease and breathing problems for asthmatics. SO_2 in the atmosphere contributes to the formation of acid rain.

<u>Lead</u>

Lead is a highly toxic metal that may cause a range of human health effects. Lead anti-knock additives in gasoline represent a major source of lead emissions to the atmosphere. However, lead emissions have significantly decreased due to the near elimination of leaded gasoline use. Lead-based paint, banned or limited by the USEPA in the 1980s, is a health hazard when it deteriorates by peeling, chipping, or cracking; or generates lead dust when scraped, sanded, or heated.

5.2.1.3 Toxic Air Contaminants

In addition to criteria pollutants, both federal and state air quality regulations also focus on toxic air contaminants (TACs). Federal laws use the term "hazardous air pollutants" (HAPs) to refer to the same types of compounds that are referred to as TACs under state law. The California Health and Safety Code defines TACs as air pollutants that may cause or contribute to an increase in mortality or serious illness, or that may pose a present or potential hazard to human health.

TACs can be separated into carcinogens and noncarcinogens based on the nature of the effects associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Any exposure to a carcinogen poses some risk of contracting cancer. Noncarcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

TACs may be emitted by stationary, area, or mobile sources. Common stationary sources of TAC emissions include gasoline stations, dry cleaners, and diesel backup generators, which are subject to local air district permit requirements. The other, often more significant, sources of TAC emissions are motor vehicles on freeways, high-volume roadways, or other areas with high numbers of diesel vehicles, such as distribution centers. Off-road mobile sources are also major contributors of TAC emissions and include construction equipment, ships, and trains.

Particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a TAC by ARB in 1998. Federal and state efforts to reduce diesel PM emissions have focused on the use of improved fuels, adding particulate filters to engines, and requiring the production of new-technology engines that emit fewer exhaust particulates.

5.2.1.4 Odors

Odors are considered an air quality issue both at the local level (e.g., odor from wastewater treatment) and at the regional level (e.g., smoke from wildfires). Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and is subjective. Some individuals have the ability to smell minute quantities of specific substances while others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person (e.g., from a fast-food restaurant or bakery) may be perfectly acceptable to another. Unfamiliar odors may be more easily detected and likely to cause complaints than familiar ones.

Several examples of common land use types that generate substantial odors include wastewater treatment plants, landfills, composting/green waste facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting/coating operations, rendering plants, and food packaging plants.

5.2.1.5 Health Effects of Air Pollutants

O_3

Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for O_3 effects. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated O_3 levels are associated with increased school absences. In recent years, a correlation between elevated ambient O_3 levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in communities with high O_3 levels.

O_3 exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes O_3 may be more toxic than exposure to O_3 alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

CO

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport. Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels; these include pre-term births and heart abnormalities.

PM

A consistent correlation between elevated ambient fine PM_{10} and $PM_{2.5}$ levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long-term exposure to particulate matter. The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.

NO_2

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO_2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of O_3 exposure increases when animals are exposed to a combination of O_3 and NO_2.

SO_2

A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2.

Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures, and death, although it appears that there are no direct effects of lead on the respiratory system. Lead can be stored in the bone from early age environmental exposure, and elevated blood lead levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of lead because of previous environmental lead exposure of their mothers.

Odors

Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

TAC Emissions

Diesel engines tend to produce a much higher ratio of fine particulates than other types of internal combustion engines. The fine particles that make up diesel PM tend to penetrate deep into the lungs and the rough surfaces of these particles makes it easy for them to bind with other toxins within the exhaust, thus increasing the hazards of particle inhalation. Long-term exposure to diesel PM is known to lead to chronic, serious health problems including cardiovascular disease, cardiopulmonary disease, and lung cancer.

The Multiple Air Toxics Exposure Study (MATES) program, which has completed its third phase of development, is a monitoring and evaluation study conducted in the Basin, an updated emissions inventory of TACs, and a modeling effort to characterize carcinogenic risk from exposure to air toxics across the Basin. The MATES III study found that carcinogenic risk from exposure to air toxics across the Basin is about 1,200 excess cancer cases per million with diesel PM emissions contributing more than 70 percent of the risk. This risk refers to the expected number of additional cancers in a population of one million individuals who are exposed over a 70-year lifetime, and was calculated based on average concentrations at fixed monitoring sites. For comparison purposes, ARB estimated that diesel PM has an average statewide health risk of 540 excess cancer cases per million people (ARB 2009).

5.2.1.6 Regulatory Setting

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

Federal

The Clean Air Act (CAA) requires the adoption of the National Ambient Air Quality Standards (NAAQS) to protect the public health and welfare from the effects of air pollution. The USEPA established primary and secondary NAAQS that specify allowable ambient concentrations for criteria pollutants. Primary NAAQS are established at levels necessary, with an adequate margin of safety, to protect the public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Similarly, secondary NAAQS specify the levels of air quality determined appropriate to protect the public welfare from any known or anticipated adverse effects associated with air contaminants. The ARB has established California Ambient Air Quality Standards (CAAQS) that are, in general, more restrictive than the NAAQS. California has also established standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. Table 5.2-1 presents the NAAQS and CAAQS.

The USEPA, under the provisions of the CAA, requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan (SIP), detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the Federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. The SIP is not a single document, but a compilation of new and previously submitted attainment plans, emissions reduction programs, district rules, state regulations, and Federal controls. The ARB is the lead agency for developing the SIP in California. Local air districts and other agencies prepare Air Quality Attainment Plans (AQAPs), or Air Quality Management Plans (AQMPs), and submit them to the ARB for review, approval, and incorporation into the applicable SIP.

TABLE 5.2-1
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards [a]		National Standards [b]		
		Concentration [c]	Method	Primary [c,d]	Secondary [c,e]	Method
O_3	1 hour	0.09 ppm (180 µg/m^3)	Ultraviolet photometry	–	Same as primary standard	Ultraviolet photometry
	8 hours	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
PM_{10}	24 hours	50 µg/m^3	Gravimetric or beta attenuation	150 µg/m^3	Same as primary standard	Inertial separation and gravimetric analysis
	Annual arithmetic mean	20 µg/m^3		–		

TABLE 5.2-1
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards [a]		National Standards [b]		
		Concentration [c]	**Method**	**Primary [c,d]**	**Secondary [c,e]**	**Method**
$PM_{2.5}$	24 hours	–	–	35 $\mu g/m^3$	Same as primary standard	Inertial separation and gravimetric analysis
	Annual arithmetic mean	12 $\mu g/m^3$	Gravimetric or beta attenuation	12 $\mu g/m^3$	15 $\mu g/m^3$	
CO	1 hour	20 ppm (23 mg/m^3)	Nondispersive infrared photometry (NDIR)	35 ppm (40 mg/m^3)	–	NDIR
	8 hours	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	–	
	8 hours (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
NO_2 [f]	1 hour	0.18 ppm (339 $\mu g/m^3$)	Gas phase chemiluminescence	100 ppb (188 $\mu g/m^3$)	–	Gas phase Chemiluminescenc e
	Annual arithmetic mean	0.030 ppm (57 $\mu g/m^3$)		0.053 ppm (100 $\mu g/m^3$)	Same as primary standard	
SO_2 [g]	1 hour	0.25 ppm (655 $\mu g/m^3$)	Ultraviolet fluorescence	75 ppb (196 $\mu g/m^3$)	–	Spectrophotometry (paraosaniline method)
	3 hours	–		–	0.5 ppm (1,300 $\mu g/m^3$)	
	24 hours	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (for certain areas) [g]	–	
	Annual arithmetic mean	–		0.030 ppm (for certain areas) [g]	–	
Lead [h,i]	30-day average	1.5 $\mu g/m^3$	Atomic absorption	–	–	High-volume sampler and atomic absorption
	Calendar quarter	–		1.5 $\mu g/m^3$ (for certain areas) [i]	Same as primary standard	
	Rolling 3-month average	–		0.15 $\mu g/m^3$		
Visibility-reducing particles [j]	8 hours	See footnote j	Beta attenuation and transmittance through filter tape	No National Standards		
Sulfates	24 hours	25 $\mu g/m^3$	Ion chromatography			
Hydrogen sulfide	1 hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet fluorescence			

TABLE 5.2-1
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards [a]		National Standards [b]		
		Concentration [c]	Method	Primary [c,d]	Secondary [c,e]	Method
Vinyl chloride [j]	24 hours	0.01 ppm (26 µg/m³)	Gas chromatography	No National Standards		

Notes:
mg/m³ = milligrams per cubic meter; ppb = parts per billion; ppm = parts per million; µg/m³ = micrograms per cubic meter

[a] California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1- and 24-hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standards.

[c] Concentration expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[g] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[h] The ARB has identified lead and vinyl chloride as TACs, with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[i] The National Standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.

[j] In 1989, ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and the "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: ARB (2013).

State

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA was adopted in 1988 and required ARB to establish the CAAQS. The CCAA requires that all local are districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. California's adopted 2007 State Strategy was submitted to the USEPA as a revision to the SIP in November 2007. The 2007 State Strategy was designed to attain federal O_3 and $PM_{2.5}$ air quality standards through a combination of technically feasible, cost-effective measures, and new technologies. ARB adopted revisions to the 2007 State Strategy in 2012.

ARB is also responsible for developing statewide programs and strategies to reduce the emissions from mobile sources. These include both on- and off-road sources such as passenger cars, motorcycles, trucks, busses, heavy-duty construction equipment, recreational vehicles, marine vessels, lawn and garden equipment, and small utility engines.

The California air toxics program, developed by ARB, established the process for identification and control of TAC emissions and includes provisions to make the public aware of significant toxic exposures and to reduce risk. The California Environmental Protection Agency (CalEPA) and the California Office of Environmental Health Hazard Assessment (OEHHA) have developed reference exposure level (REL) thresholds for TAC exposure based on cancer or non-cancer risk, as well as guidelines for evaluating TAC emissions through the preparation of health risk assessments (HRA).

Local

The SCAQMD is the regional agency responsible for regulation and enforcement of federal, state, and local air pollution control regulations in the Basin. The SCAQMD operates monitoring stations in the Basin, develops and enforces rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, issues permits to construct and operate, and conducts source testing and inspections. The SCAQMD AQMP includes control measures and strategies to be implemented to attain state and federal ambient air quality standards in the Basin. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

All projects within the Basin are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the proposed project may 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 one hour which 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 which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have a natural tendency to cause injury or damage to business or property. 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.

County of Orange

The County of Orange General Plan, in Chapter VI Resources Element, the Air Resources Component contains goals and policies aimed to achieve attainment with the state and federal air quality standards (County of Orange 2005b).

City of Yorba Linda

The City of Yorba Linda General Plan has goals and policies in the Growth Management Element to improve air quality in the region. The goals include supporting the AQMP and reducing air emissions associated with development projects.

5.2.1.7 Ambient Air Quality

Ambient air pollutant concentrations in the Basin are measured at air quality monitoring stations operated by ARB and the SCAQMD. The closest and most representative air quality monitoring station to the project site is the Anaheim monitoring station. Data from this monitoring station is considered representative of the project area for ambient air quality depending upon the time of year, climate conditions, and air flow systems. Table 5.2-2 presents the most recent data over the past three years from the Anaheim monitoring station as summaries of the exceedances of standards and the highest pollutant levels recorded for years 2011 through 2013.

TABLE 5.2-2
SUMMARY OF AMBIENT AIR QUALITY CONCENTRATIONS

	2011	**2012**	**2013**
O_3			
1-hour (ppm)	0.088	0.079	0.084
Days above the Federal Standard	0	0	0
Days above the State Standard	0	0	0
8-hour (ppm)	0.072	0.067	0.070
Days above the Federal Standard	0	0	0
Days above the State Standard	1	0	0
CO			
8-hour (ppm)	2.08	2.34	*
Days above the Federal Standard	0	0	*
Days above the State Standard	0	0	*
NO_2			
1-hour (ppm)	0.074	0.067	0.082
Days above the Federal Standard	0	0	0
Days above the State Standard	0	0	0
Annual (ppm)	0.017	0.015	0.017
PM_{10}			
24-hour ($\mu g/m^3$)	53.0	48.0	77.0
Days above the Federal Standard	0	0	0
Days above the State Standard	2	0	1
Annual Arithmetic Mean ($\mu g/m^3$)	24.9	22.4	25.4
$PM_{2.5}$			
24-hour ($\mu g/m^3$)	39.2	50.1	37.8
Days above the Federal Standard	2	4	1
Annual Arithmetic Mean ($\mu g/m^3$)	10.9	10.8	10.0

Acronyms: ppm = parts per million; $\mu g/m^3$ = microgram per cubic meter
Notes:
*Insufficient (or no) data available to be considered valid.
Source: ARB (2014a).

As shown in Table 5.2-2, ambient air concentrations of CO and NO_2 have not exceeded the NAAQS or the CAAQS in the past three years. Concentrations of $PM_{2.5}$ exceeded the NAAQS in all of the past three years. Ozone concentrations exceeded the CAAQS in 2011, and PM_{10} concentrations exceeded the CAAQS in 2011 and 2013.

Attainment Status

Both the USEPA and ARB use ambient air quality 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 initiate and enforce planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. An "attainment" designation for an area signifies that pollutant concentrations did not exceed the established standard. In most cases, areas designated or redesignated as attainment must develop and implement maintenance plans, which are designed to ensure continued compliance with the standard.

In contrast to attainment, a "nonattainment" designation indicates that a pollutant concentration has exceeded the established standard. Nonattainment may differ in severity. To identify the severity of the problem and the extent of planning and actions required to meet the standard, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme).

Finally, an unclassified designation indicates that insufficient data exists to determine attainment or nonattainment. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. Table 5.2-3 below summarizes the federal and California attainment status of the criteria pollutants for the project area based on the NAAQS and the CAAQS, respectively.

TABLE 5.2-3
ATTAINMENT STATUS OF THE SOUTH COAST AIR BASIN

Pollutant	Attainment Status	
	Federal	State
O_3 – 1-Hour	--	Non-attainment
O_3 – 8-hour	Nonattainment (Extreme)	Non-attainment
CO	Attainment/Maintenance	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM_{10}	Attainment/Maintenance	Non-attainment
$PM_{2.5}$	Nonattainment	Non-attainment
Lead	Attainment	Attainment

Source: USEPA (2014); ARB (2014b).

The Basin is currently designated as non-attainment for ozone and $PM_{2.5}$ for both state and federal standards, and non-attainment for the state PM_{10} standards. The Basin is classified as attainment for both the federal and state standards for CO, NO_2, SO_2, and lead.

Sensitive Receptors

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, older adults, persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather are defined as sensitive receptors by SCAQMD. According to SCAQMD, sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptors are single family homes located within 25 meters of the project area.

5.2.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the CEQA Guidelines, implementation of the proposed project would result in a significant adverse impact related to air quality 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.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

5.2.2.1 SCAQMD-Mass Emission CEQA Thresholds

The SCAQMD has developed significance thresholds to address the first four thresholds in the bulleted list above and these are provided below in Table 5.2-4. Significance determinations are based on the maximum daily emissions during a construction period, which provides a "worst-case" analysis of the construction emissions. Similarly, significance determinations for operational emissions are based on the maximum daily emissions during the operational phase.

TABLE 5.2-4
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

Source: SCAQMD (2011).

5.2.2.2 SCAQMD-Localized Significance CEQA Thresholds

The SCAQMD has also developed localized significant thresholds (LSTs) for CO, NOx, PM_{10} and $PM_{2.5}$ in order to evaluate the potential localized impacts from construction and operations for projects that are five acres or less (SCAQMD 2009). The SCAQMD recommends that projects larger than five-acres conduct dispersion modeling to evaluate localized air quality impacts. The LSTs are based on the size of the project area and distance to the nearest sensitive receptor. The SCAQMD has developed localized significant threshold "lookup tables" specific to a source receptor area within the Basin. These tables are used to determine the emission limit above which a project would have a significant air quality impact.

The nearest residential receptor is located within 25 meters from the project site. While the total project site is greater than 5 acres, the total distance of the project site is approximately 2 miles. Trail construction would occur in a linear manner, and localized impacts would not result in localized impacts based on the total acreage of the project site. Therefore, a screening level evaluation was conducted based on a 1-acre site and a receptor distance of 25 meters to determine if the project would exceed the applicable LST emission limits.

5.2.3 METHODOLOGY RELATED TO AIR QUALITY

Potential adverse air quality impacts occur due to emissions generated from direct and indirect sources. "Direct" sources refer to on-site mobile and stationary equipment typically used during construction and operation. "Indirect" sources refer to those that generate or attract vehicular trips, such as residential or commercial projects. The analytical methodology used in this analysis to quantify and evaluate criteria pollutant and air toxics emissions during construction and operations are described in the following sections.

Construction emissions from the operation of diesel-fueled off-road equipment were estimated using the ARB's off-road diesel emissions inventory model (OFFROAD), which provides emission rates in pounds per hour (lbs/hr) based on fuel consumption and activity of various off-road fleet categories. Construction emissions from the operation of gasoline-fueled on-road light and heavy duty trucks (i.e., worker commute trips, haul trucks, dump trucks, flat-bed trucks, etc.) were estimated using ARB's On-Road Emission Factors (EMFAC) 2011 mobile source emission factors. Vehicle distances were estimated based on the daily truck trips and distance to destination.

Fugitive dust emissions from earthmoving activities vary as a function of conditional parameters such as soil silt content, soil moisture, wind speed, acreage of disturbance area, and vehicle miles traveled on- and off-site. Emissions from earthmoving activities are typically associated with material handling activities including haul truck unloading, scraper unloading, bulldozer activity, and grading. Fugitive dust emissions were estimated using the USEPA's Compilation of Air Pollutant Factors (AP-42) and based on vehicle miles traveled, material loading (in tons per day), and hours of operation. Also, it should be noted that a control factor equal to 60 percent was applied to fugitive PM_{10} and $PM_{2.5}$ emissions based on site-watering activities required for regulatory compliance per the SCAQMD Rule 403 requirements for controlling fugitive dust during construction activities. Specifically, it is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for fugitive dust. Rule 403 fugitive dust control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, re-establishing ground cover as quickly as possible after ground disturbance, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site, and maintaining effective cover over exposed areas.

The proposed project is not anticipated to generate substantial new vehicle trips during operation. Maintenance activities would consist of daily trips for locking and unlocking the gate to the facility to maintain sunup to sundown hours. Weekly maintenance visits would be required for cleaning of the restrooms and horse corral and for overall facility inspection. These additional activities related to maintenance and operations would not exceed criteria pollutant and air toxics emission levels. Therefore, operational emissions were not estimated for the proposed project.

5.2.4 POTENTIAL IMPACTS

5.2.4.1 Air Quality Conflicts/Violation Impacts

Conflict with or Obstruct of Implementation of the Applicable Air Quality Plan

Air quality plans describe air pollution control strategies to be implemented by a city, county, or regional air district. The primary purpose of an air quality plan is to bring an area that does not attain the NAAQS and the CAAQS into compliance with those standards pursuant to the requirements of the CAA and CCAA. The most recent AQMP was adopted by the SCAQMD in December 2012. The 2012 AQMP is the legally enforceable blueprint for how the region will meet and maintain federal ozone and $PM_{2.5}$ air quality standards in the Basin.

Consistency with the AQMP is based on whether the project would exceed the estimated air basin emissions used as the basis of the AQMP. These are derived in part on projections of population and vehicle miles traveled (VMT). Growth projections from local general plans adopted by cities and counties within the Basin as well as with regional plans developed by the Southern California Association of Governments are used as the basis for determining projected VMTs.

The County of Orange General Plan and the City of Yorba Linda General Plan designate the project site as Open Space. The proposed project proposes a Class 1 Bikeway, Riding, and Hiking Trail, and associated amenities on the north and south banks of the Santa Ana River, which is consistent with existing and planned uses for the area. The proposed project does not involve any uses that would increase population beyond that considered in the City and County General Plans and would not affect city and county-wide plans for population growth at the project site. The proposed project does not include the construction of new housing or commercial buildings; therefore, it would not directly increase population or regional employment.

Because the proposed project is consistent with the existing planning documents, it is expected that the intensity of operational emissions would have been accounted for in the AQMP. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. Therefore, impacts related to conflicts with an applicable air quality plan would be less than significant.

Violate any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

Construction emissions are described as "short-term" or temporary in duration; however, they have the potential to represent a significant impact with respect to air quality. Construction of the proposed project would result in the temporary generation of criteria pollutant emissions from site preparation, grading and construction of project components. Fugitive PM dust emissions are primarily associated with site preparation, excavation, and grading activities and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by construction vehicles on- and off-site.

Construction of the proposed project would occur over approximately 18 months. The analysis was conducted beginning in the year 2017, which is the earliest year that construction could occur. Although construction activities could commence in a later year, this provides a conservative analysis because as construction occurs in future years, emission factors associated with off-road construction equipment would be lower as a result of fleet turnover and improved emissions technologies. Construction-related exhaust emissions for the proposed project were estimated for construction worker commutes, haul trucks, and the use of off-road equipment.

As shown in Table 5.2-5, construction emissions for the proposed project would result in maximum daily emissions of approximately 42 pounds of VOC, 162 pounds of NOx, 67 pounds of CO, 0.1 pounds of SOx, 29 pounds of PM_{10} (combined exhaust and fugitive dust), and 18 pounds of $PM_{2.5}$(combined exhaust and fugitive dust). Additional modeling assumptions and emission calculations are provided in Appendix D of this Draft EIR.

TABLE 5.2-5
MAXIMUM DAILY CONSTRUCTION EMISSIONS (LBS/DAY) [1]

Source	VOC	CO	NO_x	SO_x	PM_{10} [1]	$PM_{2.5}$ [1]
Maximum Daily Construction Emissions	41.72	67.35	**161.78**	0.12	28.96	18.06
SCAQMD Thresholds (lbs/day)	75	550	**100**	150	150	55
Exceeds Threshold?	*No*	*No*	***Yes***	*No*	*No*	*No*

Acronyms: lbs/day = pounds per day
1 Per SCAQMD Rule 403 requirements for controlling fugitive dust during construction activities, a control factor equal to 60 percent has been applied to fugitive PM_{10} and $PM_{2.5}$ emissions based on site-watering activities required for regulatory compliance.
Source: AECOM (2014).

As shown in Table 5.2-5, construction-related emissions of VOC, CO, SOx, PM_{10}, and $PM_{2.5}$ would not exceed the thresholds of significance and would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. However, construction-generated NOx emissions would exceed the applicable mass emission thresholds. Construction emissions would violate an ambient air quality standard or contribute substantially to an existing violation. Therefore, construction impacts related to violation of an ambient air quality standard would be significant.

Localized emissions of criteria air pollutants and precursors were assessed in accordance with SCAQMD's LST guidance. SCAQMD's LSTs only consider the amount of on-site emissions generated by construction activities. Emissions associated with vehicle trips to and from the project site during construction would be dispersed throughout the region and would have a nominal localized impact at the project site. The maximum daily on-site construction emissions are shown in Table 5.2-6.

TABLE 5.2-6
MAXIMUM DAILY LOCALIZED CONSTRUCTION EMISSIONS (LBS/DAY) [1]

Source	VOC	CO	NO_x	SO_x	PM_{10} [1]	$PM_{2.5}$ [1]
Trails and Trail Amenities[2]	--	44.62	47.32	--	**21.10**	**13.04**
SCAQMD Localized Threshold (lbs/day)	--	522	103	--	**4**	**3**
Exceeds Threshold?	--	*No*	*No*	--	***Yes***	***Yes***

Acronyms: lbs/day = pounds per day
1 Per SCAQMD Rule 403 requirements for controlling fugitive dust during construction activities, a control factor equal to 60 percent has been applied to fugitive PM_{10} and $PM_{2.5}$ emissions based on site-watering activities required for regulatory compliance.
2 Localized emissions were estimated for construction of the trail, as well as the bridges associated with the proposed project. The emission estimates are based on on-site equipment used for those construction activities and distances to the nearest sensitive receptors. Additional details are available in Appendix D.
Source: AECOM (2014).

As shown in Table 5.2-6, the maximum daily emissions for the construction of the proposed project would not exceed the CO and NOx LSTs at any project location. Construction that would occur at Bridges #1, #2, and #3, would not exceed any of the LSTs. However, the PM_{10} and $PM_{2.5}$ LSTs would be exceeded during construction of the Trail and Trail Amenities. Those areas of the project site include sensitive receptors within 25 meters of construction activity, and the emissions associated with on-site construction equipment and fugitive dust emissions would exceed the LSTs. Construction emissions would violate an ambient air quality standard or contribute substantially to an existing violation. Therefore, construction impacts related to violation of an ambient air quality standard would be significant.

As mentioned earlier, the proposed project is not anticipated to generate substantial new vehicle trips during operation and would not exceed criteria pollutant levels. Operational emissions would not violate an ambient air quality standard or contribute substantially to an existing violation. Therefore, operational impacts related to violation of an ambient air quality standard would be less than significant.

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 O_3 Precursors)

The SCAQMD regional analysis focuses on whether a specific project would result in cumulatively considerable increase in emissions. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the Basin, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects. The SCAQMD thresholds of significance are relevant to whether a project's individual emissions would result in a cumulatively considerable incremental contribution to the existing cumulative air quality conditions. If a project's emissions would be less than those threshold levels, the project would not be expected to result in a considerable incremental contribution to the significant cumulative impact.

Because the proposed project would exceed the SCAQMD project-level air quality significance thresholds for NOx, PM_{10}, and $PM_{2.5}$ emissions, the proposed project's construction emissions would have a cumulatively considerable contribution to the region's air quality. Therefore, the cumulative impact would be significant.

Expose Sensitive Receptors to Substantial Pollutant Concentrations

The greatest potential for TAC emissions would be related to diesel PM emissions associated with heavy-duty construction equipment operations. According to SCAQMD methodology, health effects from carcinogenic TACs are usually described in terms of individual cancer risk, which is based on a 70-year lifetime exposure to TACs.

Building construction activities for the proposed project are anticipated to last approximately 18 months and would cease following completion of the proposed project. Therefore, it is not anticipated that individual receptors would be exposed to TAC emissions from the proposed project for longer than 18 months. In addition, construction activities would move sequentially, and therefore, individual sensitive receptors would be exposed to TAC emissions for less than 18 months. Construction emissions would occur intermittently throughout the day and would not occur as a constant plume of emissions from the project site. Heavy-duty construction equipment would only operate intermittently each day during the two-year construction period and would cease following buildout of the proposed project. Therefore, if the duration of potentially harmful construction activities near a sensitive receptor was 18 months, then the exposure would be approximately 2 percent of the total exposure period used for typical health risk calculations (i.e., [18 months or 1.5 years]/70 years = 0.02 or 2 percent).

However, construction of the proposed project would exceed the SCAQMD LSTs for PM_{10} and $PM_{2.5}$, and unhealthful pollutant concentrations could be generated. Therefore, the proposed project could expose sensitive receptors to substantial construction pollutant concentrations. This impact would be significant.

Operation of the proposed project would be used as a bicycle and pedestrian trail, which is not a source of TAC emissions. In addition, the proposed project is not anticipated to generate substantial new vehicle trips during operation and would not exceed pollutant concentration levels. The proposed project's long-term operational activities would not generate substantial TAC emissions and would not expose sensitive receptors to substantial operational TAC concentrations. Therefore, impacts would be less than significant.

Create Objectionable Odors Affecting a Substantial Number of People

Sources that may emit odors during construction activities include exhaust from diesel construction equipment and heavy-duty trucks, which could be considered offensive to some individuals. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The proposed project would use typical construction techniques, such as grading by off-road equipment and hauling by on-road vehicles, and the odors would be typical of most construction sites and temporary in nature. Because of the amount and types of equipment, the temporary nature of these emissions, and the highly diffusive properties of diesel exhaust, nearby receptors would not be affected by diesel exhaust odors associated with project construction.

After construction of the proposed project, all construction-related odors would cease. Operation of the proposed project would not be expected to add any new odor sources. As a result, the proposed project would not create objectionable odors affecting a substantial number of people. Therefore, impacts related to odors would be less than significant.

5.2.5 MITIGATION MEASURES

The following mitigation measure was developed to avoid or minimize the potential impacts related to NOx during construction.

AQ-1 Off-road construction diesel engines not registered under ARB's Statewide Portable Equipment Registration Program that have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 3 California Emissions Standards, unless such an engine is not available for a particular item of equipment. Tier 2 engines will be allowed on a case-by-case basis when the contractor has documented that no Tier 3 equipment or emissions equivalent retrofit equipment is available for a particular equipment type that must be used to complete construction. Documentation shall consist of signed written statements from at least two construction equipment rental firms.

5.2.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation Measure AQ-1 requires engines in diesel-fueled construction equipment above 50 hp to meet Tier 3 emission standards. The OFFROAD model used in the analysis contains ranges of tier engines and uses average fleet data to develop emission factors for a given calendar year. The estimated reductions in daily criteria pollutant emissions achieved by Mitigation Measure AQ-1 were estimated by using the Tier 3 emission factors for all construction equipment. Based on the improvements in emissions standards required by ARB, the analysis assumes that using off-road construction equipment with Tier 3 engines would result in an additional reduction in NO_X emissions from the average fleet emission factors for 2017. With the implementation of mitigation measure AQ-1, the mitigated NOx emissions were estimated at 86.05 pounds per day. Additional modeling assumptions and emission calculations are provided in Appendix D of this Draft EIR. Construction-related NOx emissions would not exceed the SCAQMD threshold of significance of 100 pounds per day. Therefore, implementation of Mitigation Measure AQ-1 would reduce significant impacts of NOx to a less than significant level. However, there are no feasible mitigation measures to reduce localized PM_{10} and $PM_{2.5}$ emissions. Therefore, the proposed project would violate an ambient air quality standard or contribute substantially to an existing violation, result in a cumulatively considerable net increase of criteria pollutants, and expose sensitive receptors to substantial construction pollutant concentrations related to localized PM_{10} and $PM_{2.5}$ emissions. These impacts would be significant and unavoidable.