4.2 AIR QUALITY

This Subsection is based on two technical studies that were prepared by Urban Crossroads, Inc. to evaluate the proposed Project's potential to adversely affect local and regional air quality. These studies include the following: 1) "Amendment No. 2 to Reclamation Plan 2006-001 Air Quality Impact Analysis City of Lake Elsinore," dated October 14, 2015 and prepared by Urban Crossroads, which is included as *Technical Appendix B* to this EIR (Urban Crossroads, 2015a); and 2) "Amendment No. 2 to Reclamation Plan 2006-01 Diesel Particulate Matter Health Risk Assessment City of Lake Elsinore," dated October 14, 2015 and prepared by Urban Crossroads, which is included as *Technical Appendix C* to this EIR (Urban Crossroads, 2015b). Refer to Section 7.0, References, for a complete list of reference sources.

4.2.1 SCOPE OF REVIEW

The Nichols Canyon Mine, as discussed in Section 2.0, Environmental Setting, is an existing, ongoing surface mining operation operating pursuant to vested mining rights and an approved reclamation plan (RP 2006-01A1), which was analyzed in a prior MND. Although the City has chosen to prepare an EIR for the Project here, the scope of review addresses those impacts resulting from the Project as described in Section 3.0, Project Description, and not impacts related to existing, approved operations, which form the environmental baseline, as discussed in Section 2.7, Existing Physical Site Conditions. Accordingly, this Subsection does not analyze air quality impacts related to existing, approved operations.

4.2.2 EXISTING CONDITIONS

A. Atmospheric Setting

The Project site is located in the South Coast Air Basin (SCAB, or "Basin"), which is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAB encompasses approximately 6,745 square miles and includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SCAB is bound by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and the Jacinto Mountains to the north and east, respectively; and the San Diego County line to the south (Urban Crossroads, 2015a, p. 5).

B. Regional Climate and Meteorology

The regional climate (temperature, wind, humidity, precipitation, and the amount of sunshine) has a substantial influence on air quality. The distinctive climate of the SCAB is determined by its terrain and geographical location, which comprises a coastal plain connected to broad valleys and low hills surrounded by the Pacific Ocean and high mountains. The annual average temperatures throughout the SCAB vary from the low to middle 60s, measured in degrees Fahrenheit (F). Inland areas of the SCAB, including where the Project site is located, show more variability in annual minimum and maximum temperatures than coastal areas within the SCAB due to a decreased marine influence. (Urban Crossroads, 2015a, p. 5)

The climate of the SCAB is characterized as semi-arid; however, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB and the relative high humidity heightens the conversion of sulfur dioxide to sulfates. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71 percent along the coast and 59 percent inland. (Urban Crossroads, 2015a, p. 5)

Dominant airflow direction and speed are the driving mechanisms for transport and dispersion of air pollution. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. During the nighttime, heavy, cool air descends mountain slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counter-clockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections (Urban Crossroads, 2015a, p. 6).

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level. (Urban Crossroads, 2015a, p. 6)

A second inversion-type forms in conjunction with the drainage of cool air off of the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as nitrogen oxides and carbon monoxide, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline. (Urban Crossroads, 2015a, p. 6)

C. Air Quality Pollutants and Associated Health Effects

The federal government and State of California have established maximum permissible concentrations for common air pollutants that may pose a risk to human health or would otherwise degrade air quality and adversely affect the environment. These regulated air pollutants are referred to as "criteria pollutants." An overview of the common criteria air pollutants in the SCAB, their sources, and associated effects to human health are summarized on the following pages. (Urban Crossroads, 2015a, pp. 10-16)

- Carbon Monoxide (CO) is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest in the winter during the morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. CO is emitted directly from internal combustion engines; therefore, motor vehicles operating at slow speeds are the primary source of CO in the SCAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections. (Urban Crossroads, 2015a, p. 10)

CO combines with hemoglobin to produce carboxyhemoglobin (COHb), which interferes with the transport of oxygen throughout the body. Individuals most at risk to the effects of CO include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic oxygen deficiency. (Urban Crossroads, 2015a, p. 14)

- Sulfur Dioxide (SO_2) is a colorless, extremely irritating gas or liquid. It 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 sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X). (Urban Crossroads, 2015a, p. 10)

  SO_2 is a respiratory irritant to people afflicted with asthma. After a few minutes exposure to low levels of SO_2, asthma sufferers can experience breathing difficulties, including airway constriction and reduction in breathing capacity. Although healthy individuals do not exhibit similar acute breathing difficulties in response to SO_2 exposure at low levels, animal studies suggest that very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. (Urban Crossroads, 2015a, p. 15)

- Nitrogen Oxides (NO_X) consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO_2 absorbs blue light, resulting in a brownish-red cast to the atmosphere, and reduced visibility. Of the nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitoring stations. (Urban Crossroads, 2015a, p. 13)

  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. Short-term exposure to NO_2 can result in resistance to air flow and airway contraction in healthy subjects. Exposure to NO_2 can result in larger decreases in lung functions in individuals with asthma or chronic obstructive pulmonary diseases (e.g., chronic bronchitis, emphysema), as these individual are more susceptible to the effects of NO_X than healthy individuals. (Urban Crossroads, 2015a, p. 15)

- Ozone (O_3) is a highly reactive and unstable gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X) undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, warm temperatures, and light wind conditions are favorable to the formation of this pollutant. (Urban Crossroads, 2015a, p. 13)

  Short-term exposure (lasting for a few hours) to ozone 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. 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 ozone effects. An increased risk for asthma is found in children who participate in multiple sports and live in communities with high ozone levels. (Urban Crossroads, 2015a, p. 14)

- Particulate Matter (PM) is a major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. Particles less than 10 microns or smaller (PM_{10}) easily become airborne and can reduce visibility. Particles less than 2.5 microns or smaller ($PM_{2.5}$) are formed in the atmosphere by sulfates or nitrates, a byproduct of primary gaseous emissions of SO_2 and NO_X. (Urban Crossroads, 2015a, p. 13)

  Elevated ambient concentrations of fine particulate matter (PM_{10} and $PM_{2.5}$) are linked to an increase in respiratory infections, number, and severity of asthma attacks, and increased hospital admissions. 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 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 $PM_{2.5}$. (Urban Crossroads, 2015a, pp. 14-15)

- Volatile Organic Compounds (VOCs) and Reactive Organic Gasses (ROGs) are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. Both VOCs and ROGs are precursors to ozone and contribute to the formation of smog through atmospheric photochemical reactions. VOCs and ROGs have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, including such common VOCs as gasoline, alcohol, and the solvents used in paints. (Urban Crossroads, 2015a, p. 13)

  Odors generated by VOCs can irritate the eye, nose, and throat, which can reduce respiratory volume. In addition, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. (Urban Crossroads, 2015a, p. 16)

- Lead (Pb) is a heavy metal that is highly persistent in the environment. Historically, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. As a result of the removal of lead from gasoline, there have been no violations at any of the SCAQMD's regular air monitoring stations since 1982. Currently, emissions of lead are largely limited to stationary sources such as lead smelters. (Urban Crossroads, 2015a, p. 13)

  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. Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. (Urban Crossroads, 2015a, pp. 15-16)

D. Existing Air Quality

"Air quality" is based upon ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect, as well health effects of each pollutant regulated under these standards are detailed in Table 4.2-1, *Ambient Air Quality Standards*.

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the State and federal standards presented in Table 4.2-1. The air quality in a region is considered to be in attainment by the State if the measured ambient air pollutant levels for O_3, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are not equaled or exceeded at any time in any consecutive three-year period; and the federal standards (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The O_3 standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. (Urban Crossroads, 2015a, p. 7)

<u>Regional Air Quality</u>

Criteria Air Pollutants

The SCAQMD monitors levels of various criteria air pollutants at 30 monitoring stations throughout its jurisdiction. In 2014, the most recent year for which detailed data was available at the time the Notice of Preparation (NOP) for this EIR was issued (June 2015), the federal and State ambient air quality standards for O_3, PM_{10}, and $PM_{2.5}$ were exceeded on one or more days at most monitoring locations within the SCAB. Measured levels of NO_2, SO_2, CO, sulfates, and lead within the SCAB did not exceed federal or State standards in 2014. (Urban Crossroads, 2015a, p. 10)

The attainment status for criteria pollutants within the SCAB is summarized in Table 4.2-2, *Attainment Status of Criteria Pollutants in the South Coast Air Basin* .

<u>Air Quality Trends</u>

The SCAB has experienced unhealthful air since World War II and is one of the most unhealthful air basins in the United States; however, as a result of the region's air pollution control efforts over the last 65 years, air pollution concentrations in the SCAB were reduced dramatically. For example, peak ozone levels were cut by almost three- fourths since air monitoring began in the 1950 and population exposure was cut in half during the 1980s alone (SCAQMD, 2013b, p. 2). Thus, overall air quality within the SCAB is dramatically improving as the result of regulatory programs and is expected to continue to improve in the future as regulations become more stringent.

Table 4.2-1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 μg/m³)		0.075 ppm (147 μg/m³)		
Respirable Particulate Matter (PM10)[8]	24 Hour	50 μg/m³	Gravimetric or Beta Attenuation	150 μg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 μg/m³		—		
Fine Particulate Matter (PM2.5)[8]	24 Hour	—	—	35 μg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 μg/m³	Gravimetric or Beta Attenuation	12.0 μg/m³	15 μg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[9]	1 Hour	0.18 ppm (339 μg/m³)	Gas Phase Chemiluminescence	100 ppb (188 μg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)		0.053 ppm (100 μg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1 Hour	0.25 ppm (655 μg/m³)	Ultraviolet Fluorescence	75 ppb (196 μg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 μg/m³)	
	24 Hour	0.04 ppm (105 μg/m³)		0.14 ppm (for certain areas)[10]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[10]	—	
Lead[11,12]	30 Day Average	1.5 μg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 μg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 μg/m³		
Visibility Reducing Particles[13]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 μg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24 Hour	0.01 ppm (26 μg/m³)	Gas Chromatography			

See footnotes at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf

Source: Urban Crossroads, 2015a, Table 2-1

Table 4.2-2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Criteria Pollutant	State Designation	Federal Designation
Ozone - 1hour standard	Nonattainment	No Standard
Ozone - 8 hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead[1]	Attainment	Attainment

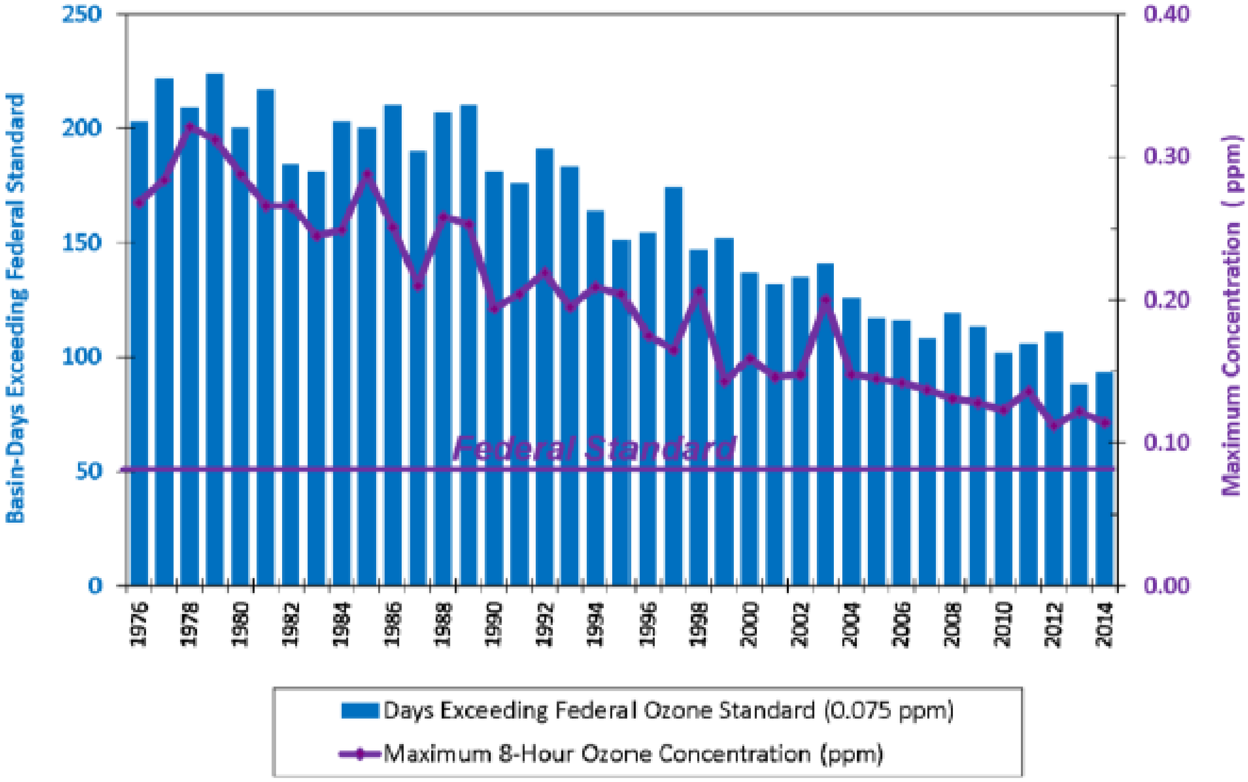
Source: Urban Crossroads, 2015a, Table 2-2

The 2012 AQMP states, "the remarkable historical improvement in air quality since the 1970's is the direct result of Southern California's comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its AQMPs" (SCAQMD, 2013a). Ozone, NOx, VOC, and CO have been decreasing in the Basin since 1975 and are projected to continue to decrease through 2020. These decreases result primarily from motor vehicle controls and reductions in evaporative emissions. Although vehicle miles traveled in the Basin continue to increase, NOx and VOC levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NOx emissions from electric utilities have also decreased due to use of cleaner fuels and renewable energy. Ozone contour maps show that the number of days exceeding the national 8-hour standard decreased between 1997 and 2007. The overall trends of PM10 and PM2.5 in the air (not emissions) show an overall improvement since 1975. Direct emissions of PM10 have remained somewhat constant in the Basin and direct emissions of PM2.5 have decreased slightly since 1975. The graphs below show trend information as reported by the SCAQMD.

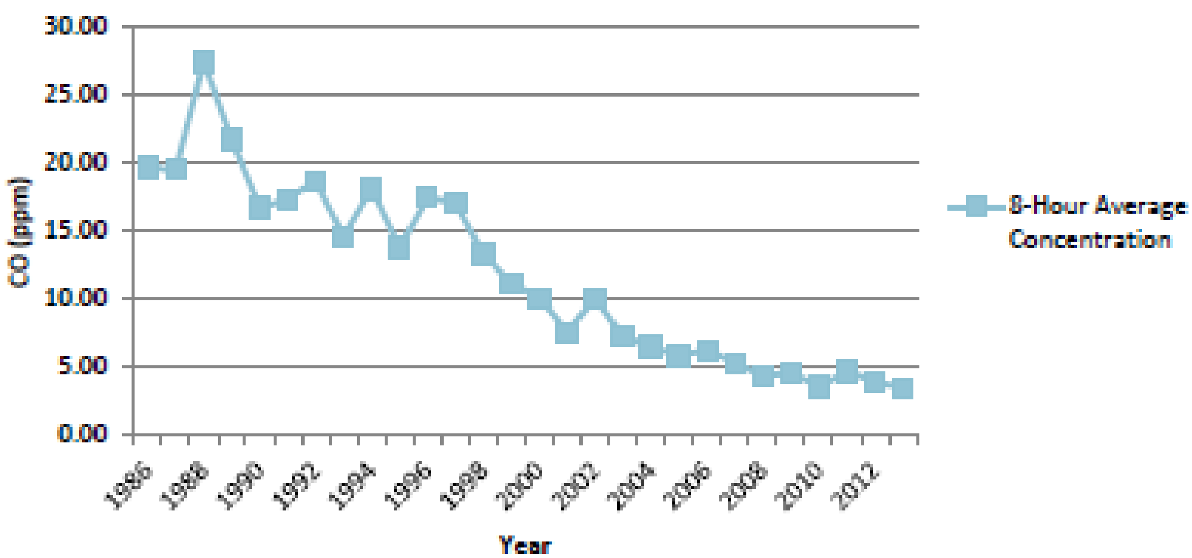
According to SCAQMD:

> *"Ozone levels have fallen by about three-quarters since peaks in the mid-1950s. Lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide levels have gone down from nonattainment to full attainment of federal health standards. In November 2008, US EPA revised the lead standard from a 1.5 µg/m^3 quarterly average to a 0.15 µg/m^3 rolling 3-month average. The current Basin lead network remains below the new standard. In 2011, the Basin exceeded the current federal 8-hour ozone standard on 107 days. 2010 was the cleanest year on record for ozone in the Basin, exceeding the federal standard on 102 days. The standard was exceeded on 113 days in 2009.* (SCAQMD, 2013a, p. 3)
>
> *In 2007 US EPA formally redesignated the Basin from nonattainment to full attainment of the federal health standard for carbon monoxide. Basin-wide maximum levels of carbon monoxide have been consistently measured at more than*

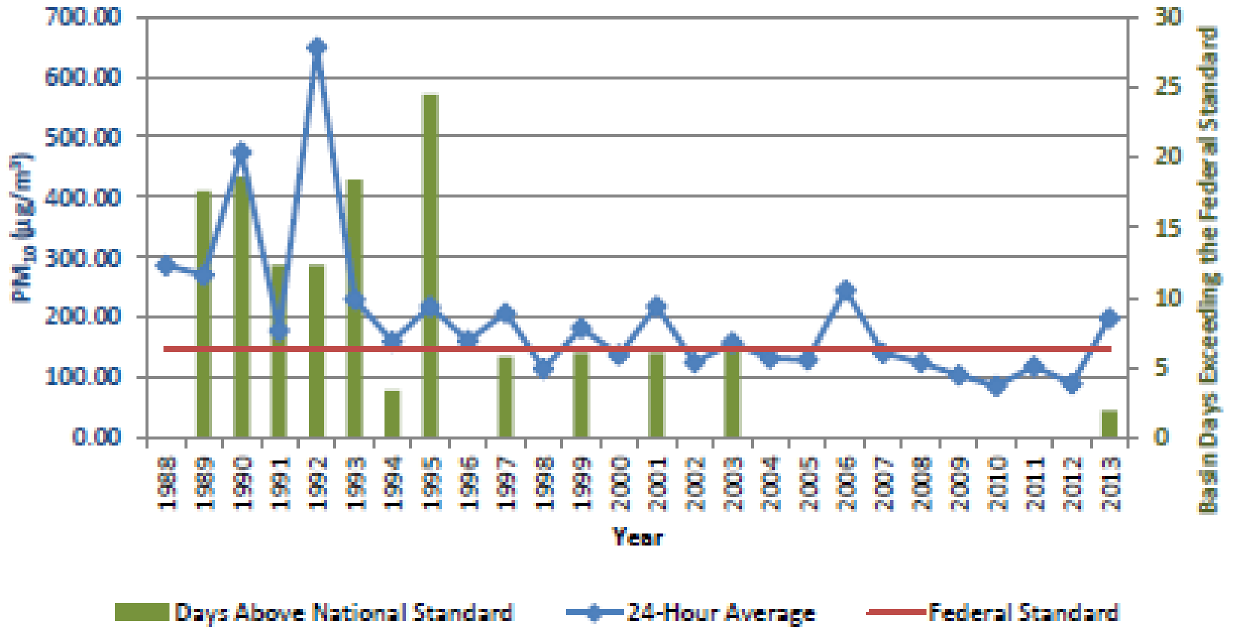
Ozone Trend in the SCAB



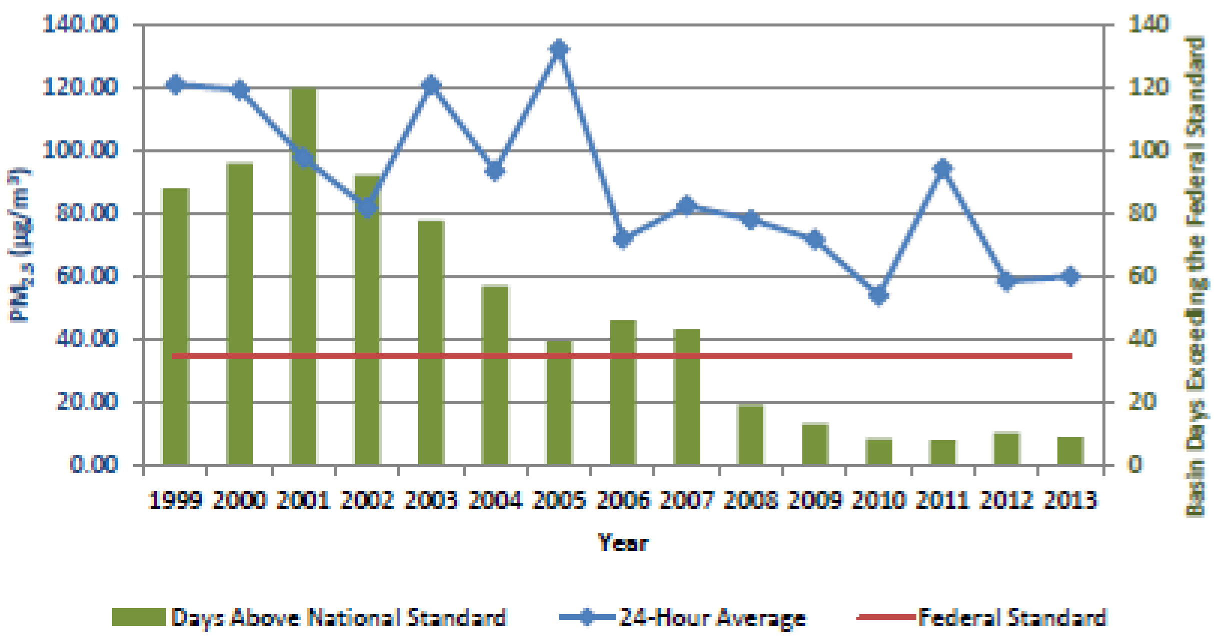
CO Trend in the SCAB



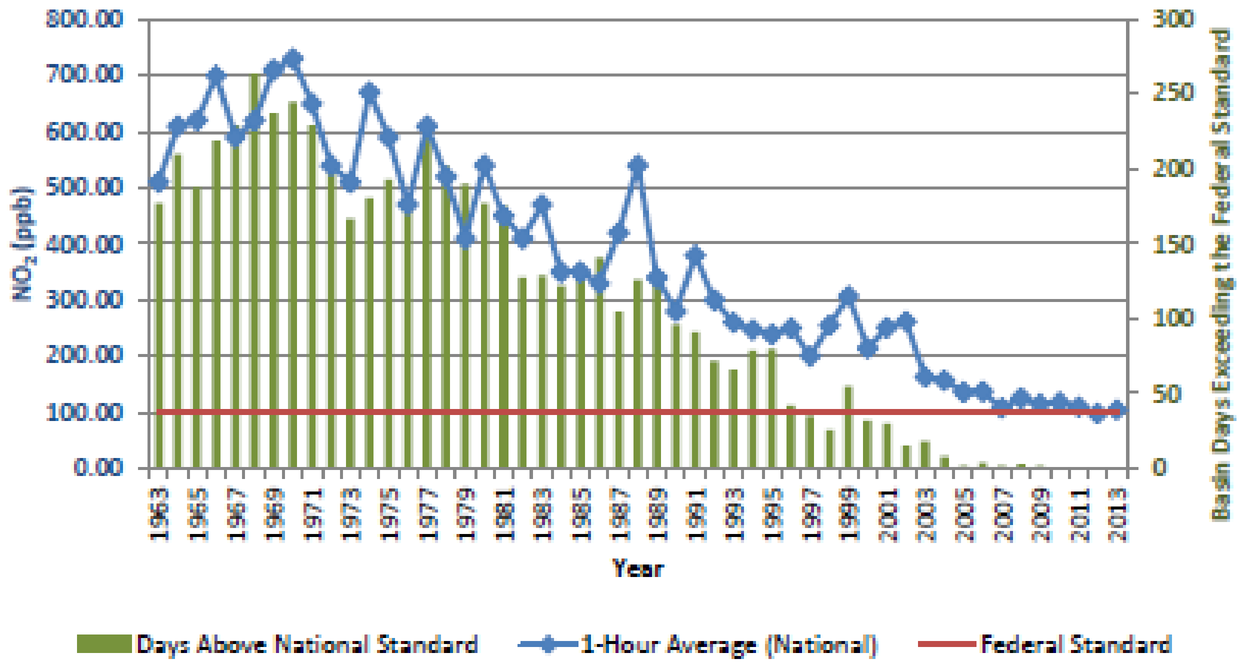
PM_{10} Trend in the SCAB



$PM_{2.5}$ Trend in the SCAB



NO_2 Trend in the SCAB



30% below the federal standard since 2004. In 2010, US EPA established a new NO_2 1-hour standard at a level of 100 ppb (0.100ppm) and SO_2 1-hour standard at a level of 75 ppb (0.075 ppm). In 2011, a few sites in Los Angeles County exceeded the new 1-hour NO_2 standard on one day. Based on the 3-year design values, the region continues to remain in attainment of the NO_2 and SO_2 standards. (SCAQMD, 2013b, p. 4)

In 2006, US EPA rescinded the annual federal standard for PM_{10} but retained the 24-hour standard. Ambient levels of PM_{10} in the Basin meet the federal 24-hour PM_{10} standard and the SCAQMD has requested US EPA to redesignate the Basin as in attainment of the health based standard for PM_{10}. $PM_{2.5}$ levels have decreased dramatically in the Basin since the beginning of the decade; however, regional concentrations continue to exceed the federal annual and 24-hour standards." (SCAQMD, 2013b, p. 4)

Continued improvement in air quality is expected to occur through the continued implementation of federal, State, and SCAQMD regulations such as California's low-sulfur diesel fuel programs and renewable electricity standards. California AB 1493, enacted on July 22, 2002, required the California Air Resources Board (CARB) to develop and adopt regulations that reduce passenger vehicle and light duty truck emissions. Although the regulation was stalled by automaker lawsuits and by the U.S. Environmental Protection Agency (EPA) denial of an implementation waiver to the State of California, in June 2009, the U.S. EPA granted the waiver request. The standards phase-in during the 2009 through 2016 vehicle model years. The CARB Truck and Bus Regulation (amended, approved 2014) requires diesel-powered trucks and buses to be upgraded to reduce emissions. The regulation applies to nearly all privately- and federally-owned diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. By January 1, 2012, heavier trucks were required to be retrofitted with PM filters. By January 1, 2015, older trucks were required to be replaced. By January 1, 2023, nearly all trucks and buses must have 2010 model year engines or equivalent.

Toxic Air Contaminants

In 2000, the SCAQMD prepared a comprehensive urban toxic air pollution study, called *Multiple Air Toxics Exposure Study in the South Coast Air Basin* (MATES-II). SCAQMD has updated their urban toxic air pollution survey twice since 2000, with the 2008 (MATES-III) and 2014 updates (MATES-IV) showing improvements to the average cancer risk within the SCAB as compared to *MATES-II*. The current version of the urban toxic air pollution survey, *MATES-IV*, is the most comprehensive dataset of ambient air toxic levels and health risks within the SCAB. MATES-IV study represents the baseline health risk for a cumulative analysis. MATES-IV estimates the average excess cancer risk level from exposure to Toxic Air Contaminants (TAC) is approximately 367 in one million basin-wide. These model estimates were based on monitoring data collected at ten fixed sites within the South Coast Air Basin. None of the fixed monitoring sites are within the local area of the Project site. However, MATES-IV has extrapolated the excess cancer risk levels throughout the basin by modeling the specific grids. MATES-IV modeling predicted an excess cancer risk of 164 in one million for the Project area. Diesel Particulate Matter (DPM) is included in this cancer risk along with all other TAC sources. DPM accounts for approximately 80 percent of the total risk shown in MATES-IV. (Urban Crossroads, 2015b, p. 21)

Local Air Quality

The nearest long-term monitoring air quality monitoring site for O_3, Co, and NO_2 is the SCAQMD Lake Elsinore monitoring station, located approximately two miles south of the Project site. Data for PM_{10} was obtained from the Perris Valley monitoring station located approximately 10 miles northeast of the Project site. Data for $PM_{2.5}$ was obtained from the Metropolitan Riverside County 2 monitoring station, located approximately 22 miles north of the Project site. The Perris Valley and Metropolitan Riverside County two monitoring stations were utilized in lieu of the Lake Elsinore monitoring station only where data was not available from the nearest monitoring site. (Urban Crossroads, 2015a, p. 10)

Table 4.2-3, *Project Area Air Quality Monitoring Summary 2012-2014*, provides a summary of ambient air quality conditions in the general vicinity of the Project site over the most recent three-year period for which air quality data is available, that being the years 2012-2014. The data for SO_2 was omitted because the SCAB regularly attains the applicable NAAQS and CAAQS and few monitoring stations measure SO_2 concentrations. (Urban Crossroads, 2015a, p. 10)

E. Applicable Regulatory Requirements

1. Federal Regulations

The U.S. Environmental Protection Agency (U.S. EPA) is responsible for setting and enforcing the NAAQS for O_3, CO, NO_X, SO_2, PM_{10}, and lead. The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters. The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet CARB's stricter emission requirements. (Urban Crossroads, 2015a, p. 16)

Table 4.2-3 Project Area Air Quality Monitoring Summary 2012-2014

POLLUTANT	STANDARD	YEAR		
		2012	2013	2014
Ozone (O3)[1]				
Maximum 1-Hour Concentration (ppm)		0.111	0.102	0.104
Maximum 8-Hour Concentration (ppm)		0.089	0.089	0.086
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	10	6	4
Number of Days Exceeding State 8-Hour Standard	> 0.07 ppm	29	25	13
Number of Days Exceeding Federal 1-Hour Standard	> 0.12 ppm	0	0	0
Number of Days Exceeding Federal 8-Hour Standard	> 0.075 ppm	17	12	6
Number of Days Exceeding Health Advisory	≥ 0.15 ppm	0	0	0
Carbon Monoxide (CO)				
Maximum 1-Hour Concentration (ppm)		--	--	2
Maximum 8-Hour Concentration (ppm)		0.7	0.6	1.4
Number of Days Exceeding State 1-Hour Standard	> 20 ppm	--	--	0
Number of Days Exceeding Federal / State 8-Hour Standard	> 9.0 ppm	0	0	0
Number of Days Exceeding Federal 1-Hour Standard	> 35 ppm	--	--	0
Nitrogen Dioxide (NO2)				
Maximum 1-Hour Concentration (ppm)		0.0483	.0466	0.0453
Annual Arithmetic Mean Concentration (ppm)		0.0102	0.0084	0.0082
Number of Days Exceeding State 1-Hour Standard	> 0.18 ppm	0	0	0
Particulate Matter ≤ 10 Microns (PM10)[2]				
Maximum 24-Hour Concentration (μg/m3)		62	70	87
Annual Arithmetic Mean (μg/m3)		26.5	33.6	35.1
Number of Samples		60	57	60
Number of Samples Exceeding State Standard	> 50 μg/m3	1	10	8
Number of Samples Exceeding Federal Standard	> 150 μg/m3	0	0	0
Particulate Matter ≤ 2.5 Microns (PM2.5)[3]				
Maximum 24-Hour Concentration (μg/m3)		30.2	53.7	--
Annual Arithmetic Mean (μg/m3)		11.4	11.28	--
Number of Samples		104	117	--
Number of Samples Exceeding Federal 24-Hour Standard	> 35 μg/m3	0	1	--

[1] Referenced Lake Elsinore (SRA 25) monitoring station data for O3, CO, NO2 concentrations
[2] Referenced Perris Valley (SRA 24) monitoring station data for PM10 concentrations
[3] Referenced Metropolitan Riverside County 2 monitoring station data for PM2.5 concentrations
-- = data not available from SCAQMD

Source: Urban Crossroads, 2015a, Table 2-3

The Federal Clean Air Act (CAA) was first enacted in 1955 and was amended numerous times in subsequent years. The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance. The CAA also mandates that states submit and implement State Implementation Plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. (Urban Crossroads, 2015a, p. 16)

The 1990 amendments to the CAA, that identify specific emission reduction goals for areas not meeting the NAAQS, require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants: O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and lead. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 4.2-1 provides the NAAQS within the SCAB. (Urban Crossroads, 2015a, p. 16)

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and $NO_{X,}$ which is a collective term that includes all forms of nitrogen oxides (NO, NO_2, NO_3) which are emitted as byproducts of the combustion process. (Urban Crossroads, 2015a, p. 17)

2. California Regulations

CARB, which became part of the California EPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. The California CAA mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, established standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. However at this time, hydrogen sulfide and vinyl chloride are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS. (Urban Crossroads, 2015a, p. 17)

All air pollution control districts are formally designated as being in attainment or non-attainment for each CAAQS (refer to Table 4.2-2). Serious non-attainment areas are required to prepare air quality management plans that include specified emission reduction strategies in an effort to meet clean air goals. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than 5 percent per year under certain circumstances. (Urban Crossroads, 2015a, p. 17)

Additionally, CARB has adopted standards to address cancer and non-cancer risks associated with diesel particulate matter (DPM) emissions. CARB estimates that the average Californian is exposed to 1.2-1.8 $\mu g/m^3$ of DPM, this exposure results in an average cancer risk of 360-540 in one million for the average Californian exposed to DPM. The Project's Health Risk Assessment (HRA, EIR *Technical Appendix C*) is based on SCAQMD guidelines to produce conservative estimates of risk posed by exposure to DPM. The CARB-adopted diesel exhaust unit risk factor (URF) of 300 in one million per $\mu g/m^3$ is based upon Scientific Review Panel's review of the report *Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant* prepared by CARB. CARB's basis for determining diesel exhaust a toxic air contaminant is based on epidemiological studies as outlined in the Scientific Review Panel's assessment. The risk estimates assume sensitive receptors will be subject to DPM for 24 hours a day, 350 days a year. As a conservative measure, the SCAQMD does not recognize indoor adjustments for residents. However, the typical person spends the majority of their time indoors versus remaining outdoors for 24 hours a day, 350 days a year. The exposure to DPM is assumed to be constant for the given period analyzed (i.e., 70 years). It should be noted however that emissions from DPM are expected to substantially decrease in the future with the implementation of standard regulatory requirements and technological advancement to reduce DPM. The emissions derived assume that every truck accessing the project site will idle for 15 minutes, this is an overestimation of actual idling times and thus conservative. (Urban Crossroads, 2015b, p. 6)

3. Air Quality Management Planning

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In response, and in conformance with California Health & Safety Code § 40702 et seq. and the California Clean Air Act, the SCAQMD has adopted an Air Quality Management Plan (AQMP) to plan for the regional improvement of air quality (SCAQMD, 2013a). AQMPs are updated regularly in order to more effectively reduce emissions and accommodate growth. Each version of the plan is an update of the previous plan and has a 20-year horizon with a revised baseline. The most recent AQMP was adopted by the AQMD Governing Board on December 7, 2012. The 2012 AQMP incorporates the latest scientific and technological information and planning assumptions, including the *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) and updated emission inventory methodologies for various source categories. The 2012 AQMP is based on assumptions provided by the Emission FACtor model (EMFAC) developed by CARB for motor vehicle information and assumptions provided by SCAG for demographics. The air quality levels projected in the 2012 AQMP are based on the assumption that development associated with general plans, specific plans, residential projects, and wastewater facilities will be constructed in accordance with population growth projections identified by SCAG in its *2012 RTP/SCS*. The 2012 AQMP also assumes that such development projects will implement strategies to reduce emissions generated during the construction and operational phases of development. (Urban Crossroads, 2015a, pp. 17-18)

4.2.3 METHODOLOGY FOR ESTIMATING PROJECT-RELATED AIR QUALITY IMPACTS

A. Methodology for Calculating Project Operational Emissions

On October 2, 2013, the SCAQMD released the latest version of the California Emissions Estimator Model (CalEEMod v 2013.2.2). This model was used to estimate Project-related emissions of criteria pollutants NO_X, VOC, PM_{10}, $PM_{2.5}$, SO_X, and CO, from direct and indirect sources. The CalEEMod calculations are supplemented by engineering calculations for fugitive dust associated with the crushing and processing of aggregate materials. (Urban Crossroads, 2015a, p. 20) Operational emissions would be expected from the following primary sources, which are discussed further below (Urban Crossroads, 2015a, p. 21):

1) On-Site Operational Equipment;
2) Mobile Source (Passenger Cars and Truck Traffic) Emissions;
3) Fugitive Dust from Material Processing; and
4) Diesel Particulate Matter (DPM) Emissions.

Air quality emissions for projects such as the proposed Project are evaluated for significance based on the daily level of anticipated emissions based on SCAQMD regional and localized emission thresholds. Table 4.2-4, *Maximum Daily Regional Emissions Thresholds*, presents the regional emissions thresholds, while the localized significance thresholds (LSTs) are presented in Table 4.2-5, *SCAQMD Localized Significance Thresholds*. Projects that exceed the project-specific significance thresholds presented in Table 4.2-4 and Table 4.2-5 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. (SCAQMD, 2003b).

The Project would not result in an increase in the amount of natural gas and the electricity usage on-site. It should be noted that natural gas is utilized in conjunction with the asphalt batch plant operations; however, asphalt batch operations would not increase under the proposed Project on a daily or annual basis, as compared to existing conditions. Although under long-term operating conditions the Project could result in a net increase in the duration of asphalt batch operations on-site due to the increased amount of aggregate reserves that would be made available by the Project, there would be no net change in the daily or annual emissions from the site associated with natural gas or electricity usage. (Urban Crossroads, 2015a, p. 21)

Table 4.2-4 Maximum Daily Regional Emissions Thresholds

Pollutant	Operations
Regional Thresholds	
NOx	55 lbs/day
VOC	55 lbs/day
PM10	150 lbs/day
PM2.5	55 lbs/day
SOx	150 lbs/day
CO	550 lbs/day
Lead	3 lbs/day

Urban Crossroads, 2015a, Table 3-1

Table 4.2-5 SCAQMD Localized Significance Thresholds

CO		NO_2		PM_{10}		PM2.5
Averaging Time						
1-Hour	8-Hour	1-Hour	Annual	24 Hours	Annual	24 Hours
20.0	9.0	0.18	0.03	2.5	1.0	2.5

Urban Crossroads, 2015a, Table 3-5

2. Operational Equipment

Table 4.2-6, *Operational Equipment*, summarizes the equipment utilized at the Mine on a daily basis for the baseline operating period, proposed Project operating characteristics, and net new equipment

Table 4.2-6 Operational Equipment

Baseline Operational Equipment Summary				
Hours/Day	Description	Quantity	Horsepower	Total Horsepower Hours Per Day
2	Skidsteer	1	51	102
6	769C Haul Truck	1	474	2,844
10	980K Wheel Loader	1	406	4,060
10	980H Wheel Loader	1	393	3,930
10	988G Wheel Loader	1	520	5,200
4	D8R Dozer	1	337	1,348
8	Water Truck 4000 Gal	1	354	2,832
			Total Baseline Horsepower Hours	**20,316**
Proposed Project Equipment Summary				
Hours/Day	Description	Quantity	Horsepower	Total Horsepower Hours Per Day
4	Skidsteer	1	51	204
8	769C Haul Truck	2	474	7,584
10	980K Wheel Loader	1	406	4,060
10	980H Wheel Loader	1	393	3,930
10	988G Wheel Loader	1	520	5,200
4	D8R Dozer	1	337	1,348
8	Water Truck 4000 Gal	1	354	2,832
			Total Project Horsepower Hours	**25,158**
Net New Project Equipment Summary				
Hours/Day	Description	Quantity	Horsepower	Total Horsepower Hours Per Day
2	Skidsteer	1	51	102
2	769C Haul Truck	1	474	948
8	769C Haul Truck	1	474	3,792
			Total Net New Project Horsepower Hours	**4,842**

Urban Crossroads, 2015a, Table 3-2

activity. As shown, mining activities during the baseline period result in approximately 20,316 horsepower hours per day. However, during most of the baseline operating period, the Mine was under different ownership, and the equipment utilized during that period is not reflective of the equipment utilized on-site since 2014. At the time the Project's NOP was distributed for public review in June 2015, existing mining operations onsite were estimated to be approximately 25,158 horsepower hours per day (hh/d), representing an approximate 35 percent increase as compared to the horsepower hours per day that was were associated with mining operations under previous ownership. Although the Project would not increase the amount of hh/d as compared to the existing operational conditions that existed onsite at the time the Project's NOP was distributed for public review, in an effort to be conservative, the analysis compares the Project's hh/d to the hh/d in use under previous ownership. Thus, for purposes of analysis, it is assumed that equipment used under the proposed Project would require approximately 25,158 horsepower hours per day, reflecting an approximate 23.8 percent increase in horsepower as compared to the baseline condition. (Urban Crossroads, 2015a, p. 21).

3. Mobile Source Emissions

As shown in the Project's traffic study (*Technical Appendix J* to this EIR), the Project is estimated to generate 140 net new daily truck trips above the historical baseline and 4 net new employee trips above the historical baseline. The CalEEMod default of a 20 mile one-way trip length for trucks was increased to 25 miles based on discussion with the Project applicant and based on regional aggregate studies that have found that 25 miles is generally the maximum distance for aggregate to travel before the cost outweigh distance of travel. (Urban Crossroads, 2015a, p. 21; SANDAG, 2011, p. 8-1; Berck, 2005).

The Project would serve a regional need and would likely reduce vehicle miles traveled (VMT) by diverting trips that would otherwise travel to/from other aggregate facilities in the region. Notwithstanding, for purposes of this analysis, no "credit" was taken and emissions associated with the Project are considered "new" as a conservative measure. The fact is that aggregate will be consumed with or without the proposed Project. The Project would not have an effect on demand for aggregate but would have an effect on the distance that aggregates travel within the region. Project aggregate would replace materials hauled from farther distances and supply new demand for aggregate that will occur in the Riverside County region. This rationale is supported by Dr. Peter Berck's "Working Paper No. 994 – A Note on the Environmental Costs of Aggregate" (Department of Agricultural and Resource Economics and Policy, Division of Agricultural and Natural Resources, University of California Berkley, January 2005). (Urban Crossroads, 2015a, p. 23) Dr. Berck states that:

> *"The opening of a new quarry for aggregates will change the pattern of transportation of aggregates in the area served by the quarry. In this note, we will show that, so long as aggregate producers are cost minimizing, the new pattern of transportation requires less truck transport than the pattern of transportation that existed before the opening of the new quarry. Since the costs of providing aggregates falls, it is reasonable to assume that the price of delivered aggregates also will fall. This note also shows that the demand expansion effect is of very small magnitude. Since the demand increase from a new quarry is quite small, the dominant effect is that the quarries are on average closer to the users of aggregates and, as a result, the truck mileage for aggregate hauling decreases. To summarize the effects of a new quarry project:*
>
> > *a) The project in itself will not significantly increase the demand for construction materials in the region through market forces, which include the downward pressure on pricing.*
> >
> > *b) Truck traffic (i.e. vehicle miles traveled) in the region will not increase and may decrease as a result of the project."* (Berck, 2005, p. 3)

In its guidance document *CEQA and Climate Change*, the California Air Pollution Control Officers Association (CAPCOA) lists various mitigation measures that can be implemented to reduce air quality and greenhouse gas (GHG) emissions for various projects. One particular mitigation measure for reducing air quality and GHG emissions during construction activity is Mitigation Measure C-5 "Use of Local Building Materials." The Project would provide local building materials to projects throughout the western Riverside County region, thus resulting in a reduction in emissions associated with transport of materials from outlying suppliers of aggregate products. However, no "credit" is taken for this measure in this analysis in an effort to be conservative.

4. Fugitive Dust from Material Processing

The emissions from the aggregate processing plant are not accounted for in CalEEMod. An engineering analysis that was prepared for the Project in support of the permitting process required by SCAQMD was utilized to determine the amount of fugitive dust attributable to the Project. The *Application for a Stationary Crushing & Screening Plant Nichols Road Facility, SCAQMD Facility ID: 177101* prepared for submittal to the SCAQMD on August 21, 2014 by Associates Environmental indicates that the Project operating at a maximum daily capacity of 5,000 tons processed would yield approximately 9.25 pounds per day of PM_{10} emissions. As such, the amount attributable to the proposed Project is 3.24 pounds per day of PM_{10} (or 35.05 percent), which indicates the net increase from the existing baseline. For analytical purposes $PM_{2.5}$ fugitive dust emissions are assumed to be 21 percent of the PM_{10} emissions totals consistent with guidance from SCAQMD. (Urban Crossroads, 2015a, pp. 23-24)

5. Diesel Particulate Emissions

Vehicle DPM emissions were estimated using emission factors for particulate matter less than 10µm in diameter (PM_{10}) generated with the 2014 version of the EMFAC model developed by the CARB. EMFAC 2014 is a mathematical model that CARB developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources. The most recent version of this model, EMFAC 2014, incorporates regional motor vehicle data, information and estimates regarding the distribution of VMT by speed, and number of starts per day (Urban Crossroads, 2015b, pp. 6-7). Refer to Section 2.2 of the Project's Mobile Source Health Risk Assessment (*Technical Appendix C* to this EIR) for a detailed description of the model inputs and equations used in the estimation of Project-related DPM emissions.

The potential health effects of Project-related DPM emissions were quantified in accordance with the SCAQMD's *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis.* Pursuant to SCAQMD's recommendations, emissions were quantified using the U.S. EPA's AERMOD model. Refer to Section 2.3 of the Project's Mobile Source Health Risk Assessment (*Technical Appendix C* to this EIR) for a detailed description of the model inputs and equations used in the estimation of average particulate concentrations associated with operations at the Project site. (Urban Crossroads, 2015b, p. 11)

Health risks associated with exposure to DPM emissions are defined in terms of the probability of developing cancer as a result of exposure to DPM emissions at a given concentration. Based on the SCAQMD guidance document noted earlier, this analysis applies a risk threshold of ten in one million as the incremental level of cancer risk considered to be significant. (Urban Crossroads, 2015b, p. 12). Refer to Section 2.4 of the Project's Mobile Source Health Risk Assessment (*Technical Appendix C* to this EIR) for a detailed description of the variable inputs and equations used in the estimation of receptor population health risks associated with Project operations.

The exposure to DPM is assumed to be constant for the given period analyzed (i.e., 70 years). It should be noted however that emissions from DPM are expected to substantially decrease in the future with the implementation of standard regulatory requirements and technological advancement to reduce DPM. The emissions derived assume that every truck accessing the Project site would idle for 15 minutes; this is an overestimation of actual idling times and thus conservative because California Code of Regulations Title 13, Division 3, Chapter 10, Article 1, Section 2485, "Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling," which restricts idling to a maximum of 5.0 minutes at any location. (Urban Crossroads, 2015b, p. 6)

For assessing the cumulative impacts of a new source of TAC emissions associated with a project in combination with existing sources and probable future sources, a project radius is necessary. Assessment of impacts from existing sources within 1,000 feet of the new source in combination with risks and hazards from the new source is recommended. Then, once the location of the maximally impacted receptor is identified for the project, cumulative impacts from other sources within the radius of the project (i.e., not the receptor) are assessed at that location. (Urban Crossroads, 2015b, p. 22) For purposes of this assessment, a one-quarter mile radius or 1,320 feet geographic scope is utilized for determining potential cumulative impacts. This radius is more robust than, and provides a more health protective scenario for evaluation than, the 1,000-foot buffer identified above. (Urban Crossroads, 2015b, p. 23) Potential receptor population health risks were calculated for the maximally exposed residential receptor (MEIR), the maximally exposed individual worker (MEIW), and the maximally exposed school child (MEISC) located within a 1,320 foot radius of the Project site. (Urban Crossroads, 2015b, pp. 22-23) Refer to Section 2.7 of the Mobile Source Health Risk Assessment (*Technical Appendix C* to this EIR) for a detailed description of the cumulative impact analysis methodology.

The residential land use with the greatest potential exposure to Project DPM source emissions is located approximately 320 feet southeast of the Project's mining impact area (Urban Crossroads, 2015b, p. 14). The non-residential land use with the greatest potential exposure of workers to Project DPM source emissions, as well as the nearest school site land use, is the Temescal Canyon High School at 28755 El Toro Road, Lake Elsinore, CA 92532, which is approximately 1,000 feet south of the Project's mining impact area. (Urban Crossroads, 2015b, p. 15).

4.2.4 BASIS FOR DETERMINING SIGNIFICANCE

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. The City has chosen to rely on SCAQMD significance criteria, as discussed further below. The proposed Project would result in a significant impact to air quality if the Project or any Project-related component would:

a. *Conflict with or obstruct implementation of the applicable air quality plan?*

b. *Violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

c. *Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?*

d. Expose sensitive receptors to substantial pollutant concentrations?

e. Create objectionable odors affecting a substantial number of people?

The above-listed thresholds are drawn directly from Section III of Appendix G to the CEQA Guidelines and address typical adverse project effects on regional air pollution and nearby sensitive receptors (OPR, 2009). The City has chosen to apply SCAQMD significance thresholds, as presented in SCAQMD's CEQA Air Quality Significance Thresholds (March 2011), to evaluate the Project's air quality impacts against the above Appendix G standards.

Accordingly, Threshold a., which addresses Section III.a of Appendix G to the State CEQA Guidelines, evaluates whether the proposed Project would conflict with SCAQMD's 2012 AQMP, which addresses state and federal requirements under the CAA. A conflict with the AQMP standards and requirements would inhibit the SCAQMD's ability to achieve State and federal standards for air quality.

Thresholds b. and c., address Sections III.b and III.c, respectively, of Appendix G to the CEQA Guidelines, while Threshold d. addresses Section III.d of Appendix G to the State CEQA Guidelines. Under these thresholds, emissions generated by a development project would be significant under Thresholds b. and c. if emissions are projected to exceed the regional thresholds established by the SCAQMD for criteria pollutants and would be significant under Threshold d. if emissions are projected to exceeded the localized thresholds established by the State of California and the SCAQMD for criteria pollutants.

Additionally, and based on the SCAQMD's CEQA Air Quality Handbook (1993), a project's localized CO emissions impacts would be significant if they exceed the following California standards for localized CO concentrations (Urban Crossroads, 2015a, p. 19):

- 1-hour CO standard of 20.0 parts per million (ppm)
- 8-hour CO standard of 9.0 ppm

The SCAQMD has also developed regional and localized thresholds for other regulated pollutants, as summarized above in Table 4.2-4, *Maximum Daily Regional Emissions Thresholds*. The SCAQMD's CEQA Air Quality Significance Thresholds (March 2011) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact. (Urban Crossroads, 2015a, p. 19)

Similarly, a project's emissions would be considered significant if they were to exceed the SCAQMD's Localized Significance Thresholds, which are presented above in Table 4.2-5. The SCAQMD published a report giving direction on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (SCAQMD, 2003b). In this report the AQMD states on 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."

This analysis assumes that individual projects that do not generate emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual Project-related emissions that exceed SCAQMD thresholds for Project-specific impacts would be considered cumulatively considerable. (Urban Crossroads, 2015a, p. 33)

Given this direction from the SCAQMD, for example, a proposed project would result in a significant direct and cumulatively considerable impact under Threshold d. if it would emit toxic air contaminants, like DPM, to such a degree that it would expose sensitive receptor populations to an incremental cancer risk of greater than 10 in one million. (Urban Crossroads, 2015b, p. 12)

The SCAQMD has also established risk parameters for non-carcinogenic risks such as emphysema or reproductive disorders caused by toxic air contaminants (TACs). Non-carcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected (Urban Crossroads, 2015b, p. 3). Thus, non-carcinogenic exposures of less than 1.0 are considered less-than-significant on a direct and cumulatively considerable basis under Threshold d.

Threshold e. evaluates Section III.e of Appendix G of the State CEQA Guidelines. SCAQMD Rule 402 ("Nuisance") and California Health & Safety Code, Division 26, Part 4, Chapter 3, Section § 41700 prohibit the emission of any material which causes nuisance to a considerable number of persons or endangers the comfort, health or safety of the public, including odors. The potential to violate Rule 402 or § 41700 could be a basis to consider a project's odors or other emissions to be significant and require feasible mitigation measures.

4.2.5 IMPACT ANALYSIS

Threshold a.	***Would the Project conflict with or obstruct implementation of the applicable air quality plan?***

The 2012 SCAQMD AQMP is the applicable air quality plan for the Project area, and estimates long-term air quality conditions for the SCAB. The 2012 AQMP was based on assumptions provided by both CARB and SCAG in the latest available EMFAC model for the most recent motor vehicle and demographics information, respectively. The air quality levels projected in the 2012 AQMP are based on several assumptions. For example, the 2012 AQMP has assumed that development associated with general plans, specific plans, residential projects, and wastewater facilities will be constructed in accordance with population growth projections identified by SCAG in its 2012 RTP. The 2012 AQMP also has assumed that such development projects will implement strategies to reduce emissions generated during the construction and operational phases of development. (Urban Crossroads, 2015a, p. 31)

The SCAQMD has established criteria for determining consistency with the 2012 AQMP. These criteria are defined in Chapter 12, Sections 12.2 and 12.3 of the SCAQMD *CEQA Air Quality Handbook* and are discussed below.

- ***Consistency Criterion No. 1:*** *The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.*

As discussed under the analysis of Threshold d., and as summarized in Table 4.2-7, *Operational Localized Emissions Summary*, below, the Project's operational-source emissions would not exceed applicable LSTs, and are therefore less-than-significant. For operational LSTs, on-site passenger car, truck travel, operational equipment, and fugitive dust emissions were modeled in AERMOD, which is an atmospheric dispersion modeling system. The location of the Project proximate to I-15 acts to reduce vehicle miles traveled associated with haul truck trips and associated air emissions. Project aggregate would replace materials hauled from farther distances and supply new demand for aggregate that will occur in the Riverside County region. This rationale is supported by Dr. Peter Berck's "Working Paper No. 994 – A Note on the Environmental Costs of Aggregate" (Department of Agricultural and Resource Economics and Policy, Division of Agricultural and Natural Resources, University of California Berkley, January 2005). (Urban Crossroads, 2015a, p. 23) The Project's proximity to I-15, a major north-south thoroughfare linking to other regional transportation facilities, is consistent with and supports AQMP air pollution reduction strategies and promotes timely attainment of AQMP air quality standards. On the basis of the preceding discussion, the Project is determined to be consistent with the first criterion. (Urban Crossroads, 2015a, p. 31)

Table 4.2-7 Operational Localized Emissions Summary

Operation	CO		NO_2		PM_{10}		$PM_{2.5}$
	Averaging Time						
	1-Hour	8-Hour	1-Hour	Annual	24-Hours	Annual	24-Hours
Peak Day Localized Emissions	0.02	0.01	0.01	0.0006	1.29	0.31	0.50
Background Concentration [A]	2	1.4	0.048	0.01			
Total Concentration	**2.02**	**1.41**	**0.58**	**0.01**	**1.29**	**0.31**	**0.50**
SCAQMD Localized Significance Threshold	20	9	0.18	0.03	2.5	1	2.5
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

[A] Highest concentration from the last three years of available data

Note: PM_{10} and $PM_{2.5}$ concentrations are expressed in μg/m³. All others are expressed in ppm

Source: Urban Crossroads, 2015a, Table 3-5

- ***Consistency Criterion No. 2:** The proposed Project will not exceed the assumptions in the AQMP based on the years of Project buildout phase.*

The 2012 AQMP demonstrates that the applicable ambient air quality standards can be achieved in SCAB within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the Southern California Association of Governments (SCAG), which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in the City of Lake Elsinore General Plan is considered to be consistent with the AQMP. (Urban Crossroads, 2015a, p. 31)

The Project is consistent both with the site's land use at the time the 2012 AQMP was adopted, and the site's "Extractive Overlay" General Plan land use designation and would therefore result in emissions "accounted for" in the AQMP based on the mining activities that occurred on-site in 2012 and the site's General Plan land use designation. (Urban Crossroads, 2015a, p. 31) However the Project's operational impacts would exceed the applicable regional thresholds for NOx, as shown in Table 4.2-8, *Summary of Peak Operational Emissions (Without Mitigation)*. As such, the Project would not be consistent with the AQMP. The Project would have a significant impact and mitigation is required.

***Threshold b.** Would the Project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

***Threshold c.** Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?*

As detailed in Threshold a. and as shown in Table 4.2-7, above, the Project would not exceed any of the SCAQMD LSTs. However, the Project would exceed the numerical regional thresholds of significance established by the SCAQMD for emissions of NO_X. As depicted in Table 4.2-8 below, the SCAMD's threshold for NO_X for both summer and winter emissions is 55 pounds per day (ppd), while the Project operational emissions are estimated to be 64.13 ppd during summer and 65.91 ppd during winter. The Project's unmitigated air quality emissions of NO_X would contribute to the SCAB's existing air quality violations for NO_X and would result in a cumulatively considerable net increase of NO_X, a criteria pollutant for which the Project region is non-attainment; therefore, the Project would result in significant direct and cumulatively considerable impact to air quality for which mitigation would be required.

Table 4.2-8 Summary of Peak Operational Emissions (Without Mitigation)

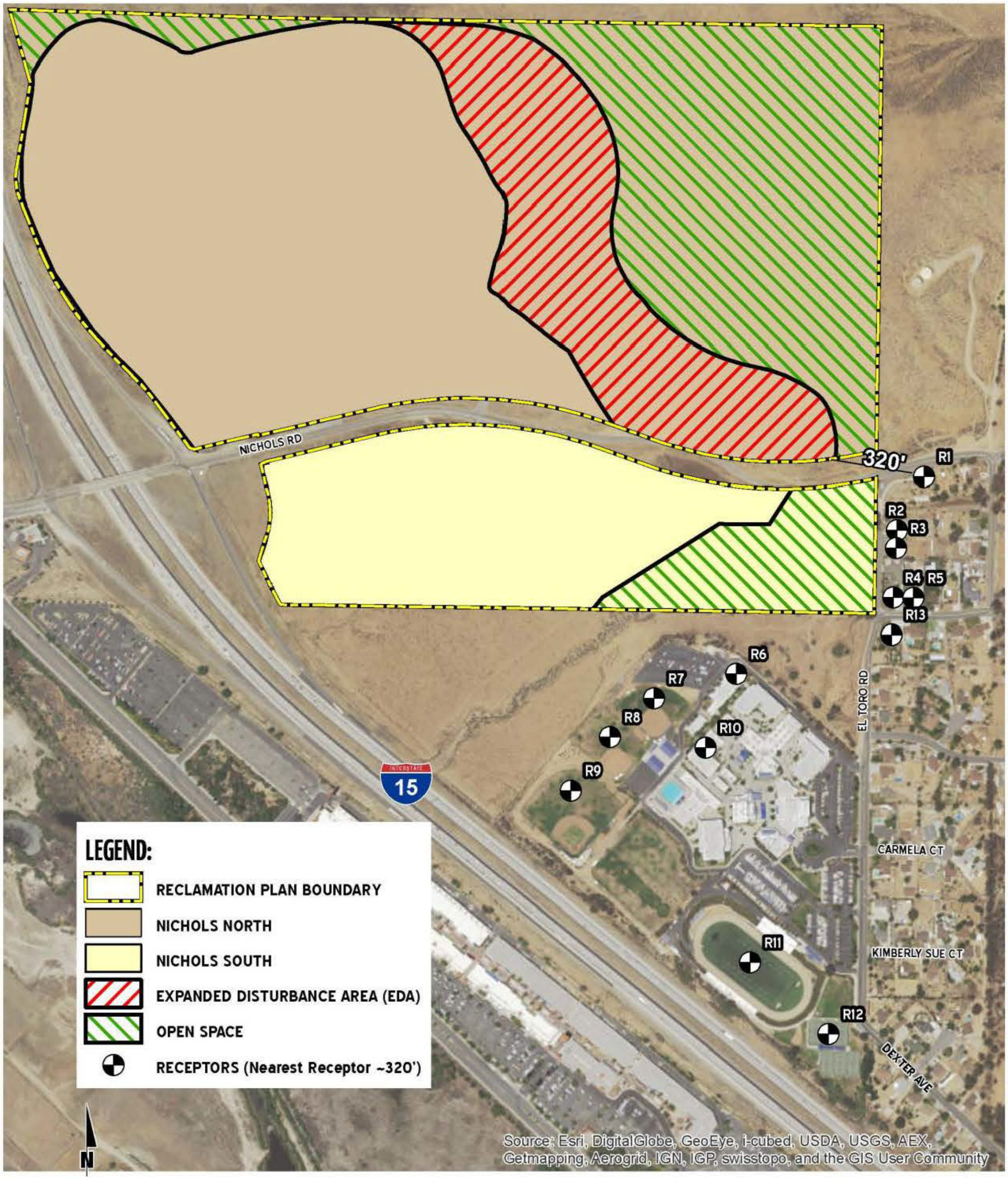
Operational Activities – Summer Emissions	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Operational Equipment	1.42	16.37	7.76	0.02	0.62	0.57
Mobile Sources	2.83	47.76	30.54	0.13	3.89	1.55
Fugitive Dust from Material Processing	--	--	--	--	3.24	0.68
Maximum Daily Emissions	**4.25**	**64.13**	**38.30**	**0.15**	**7.75**	**2.80**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

Operational Activities – Winter Emissions	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Operational Equipment	1.42	16.37	7.76	0.02	0.62	0.57
Mobile Sources	2.97	49.54	34.45	0.13	3.89	1.55
Fugitive Dust from Material Processing	--	--	--	--	3.24	0.68
Maximum Daily Emissions	**4.39**	**65.91**	**42.21**	**0.15**	**7.75**	**2.80**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

Source: Urban Crossroads, 2015b, Table 3-3

Threshold d. Would the Project expose sensitive receptors to substantial pollutant concentrations?

The potential impact of Project-generated air pollutant emissions at sensitive receptors was considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, child care centers, and athletic facilities can also be considered as sensitive receptors. (Urban Crossroads, 2015a, p. 32) Refer to Figure 4.2-1, *Air Quality Sensitive Receptor Locations*, which shows the nearest sensitive receptor land uses the Project site, which were used in modeling in the Project's air quality analysis. The nearest sensitive receptor is located approximately 414 feet southeast of the Project's proposed Expanded Disturbance Area (EDA). It should be noted that the Project's Air Quality Impact Analysis (EIR *Technical Appendix B*) assumes a conservative distance of 320 feet between on-site mining activities and the nearest sensitive receptor to provide a "worst case" analysis of potential localized impacts. As detailed in Threshold a. and as shown in Table 4.2-7, above, the Project would not exceed any of the SCAQMD LSTs; thus, the Project's localized air quality emissions would not result in any direct or cumulatively considerable impacts to sensitive receptors. Further, the Project was evaluated for the potential to expose nearby sensitive receptors to substantial pollutant concentrations associated with CO "Hot Spots" and/ DPM emissions. As discussed below, the Project was found not to result in a significant impact for either CO "Hot Spots" or DPM emissions.



Source(s): Urban Crossroads (10-14-2015)

NOT TO SCALE

Figure 4.2-1

AIR QUALITY SENSITIVE RECEPTOR LOCATIONS

1. CO "Hot Spot" Analysis

A CO "hotspot" would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time SCAQMD prepared the 1993 Handbook, the SCAB was designated nonattainment under the California AAQS and National AAQS for CO. As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific CO "hot spots" is not needed to reach this conclusion. (Urban Crossroads, 2015a, p. 29)

It has long been recognized that adverse localized CO concentrations ("hot spots") are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentrations in the air basin have steadily declined, as indicated by historical emissions data presented previously in Table 4.2-3. (Urban Crossroads, 2015a, p. 29)

A CO "hot spot" analysis was conducted in 2003 by the South Coast Air Quality Management District (SCAQMD) for four busy intersections in Los Angeles that represent extreme vehicle volumes at the peak morning and afternoon time periods. The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour. This hot spot analysis did not predict any violation of the state's CO 1-hour standard of 20.0 parts per million (ppm) or 8-hour standard of 9.0 ppm. (SCAQMD, 2003a)

Furthermore, a study prepared by the Bay Area Air Quality Management District (BAAQMD) determined that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal air does not mix) to generate a significant CO "Hot Spot" impact. The SCAQMD has not undertaken a similar study, so use of the BAAQMD study is appropriate here. (Urban Crossroads, 2015a, p. 30) The Project would not produce the volume of traffic required to generate a CO hotpot either in the context of the 2003 Los Angeles hot spot study, or based on representative BAAQMD CO threshold considerations (refer to Table 4.2-9, *Project Peak Hour Traffic Volumes*, below). It can therefore be reasonably concluded that projects (such as the proposed Project) that are not subject to the extremes in vehicle volumes and vehicle congestion that was evidenced in the 2003 Los Angeles hot spot analysis would similarly not create or result in CO hot spots (Urban Crossroads, 2015a, p. 29). Additionally, even under Horizon Year (2035) conditions, all study area intersections would receive fewer than 44,000 vehicles per hour, thereby indicating that a CO "Hot Spot" would not occur due to Project-related traffic when combined with traffic from cumulative (long-term) developments. Therefore, CO hotspots are not an environmental impact of concern for the proposed Project, and localized air quality impacts related to CO "Hot Spots" would therefore be less than significant. (Urban Crossroads, 2015a, p. 30)

Table 4.2-9 Project Peak Hour Traffic Volumes

Intersection Location	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
I-15 SB Ramps & Nichols Rd.	--/--	520/470	1,025/1,033	529/786	2,074/2,289
I-15 NB Ramps & Nichols Rd.	503/643	--/--	886/625	523/290	1,912/1,558
Driveway 1 & Nichols Rd.	--/--	73/32	1,003/380	450/259	1,526/671
Driveway 2 & Nihcols Rd.	--/--	--/--	1,003/380	450/259	1,453/639

AM= 7am-9am, PM= 4pm-6pm
Urban Crossroads, 2015b, Table 3-6

2. DPM Emissions Analysis

An air toxics health risk assessment (HRA) was prepared for the proposed Project and is included as EIR *Technical Appendix C* (Urban Crossroads, 2015b). As detailed in the HRA, and discussed in more detail below, the Project would not result in a significant adverse health impact to sensitive receptors and would not result in a significant health risk impact. Thus a less-than-significant impact to sensitive receptors during operational activity is expected. (Urban Crossroads, 2015a, p. 32)

To evaluate the Project's potential to expose nearby sensitive receptors to substantial amounts of DPM during long-term operation, a Mobile Source Health Risk Assessment was prepared for the proposed Project and is included as *Technical Appendix C* to this EIR. The following three scenarios are analyzed below: 1) Residential exposure scenario, 2) Worker exposure scenario, and 3) School child exposure scenario.

Based on the SCAQMD guidance document noted earlier, this analysis applies a risk threshold of ten in one million as the incremental level of cancer risk considered to be significant. The SCAQMD has also established risk parameters for non-carcinogenic risks such as emphysema or reproductive disorders caused by toxic air contaminants (TACs). Non-carcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected (Urban Crossroads, 2015b, p. 3).

Residential exposure scenario

The residential land use with the greatest potential exposure to Project DPM source emissions is located approximately 320 feet southeast of to the Project's mining impact area. At the MEIR, the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 0.96 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.0006, which would not exceed the applicable threshold of 1.0. (Urban Crossroads, 2015b, p. 1)

Worker Exposure Scenario

The worker land use with the greatest potential exposure to Project DPM source emissions is located at Temescal Canyon High School at 28755 El Toro Road, Lake Elsinore, CA 92532 which is approximately 1,000 feet south of the Project's mining impact area. At the MEIW, the maximum incremental cancer risk impact at this location is 0.13 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.0004, which would not exceed the applicable threshold of 1.0. (Urban Crossroads, 2015b, p. 1)

School Child Exposure Scenario

The school site land use with the greatest potential exposure to Project DPM source emissions is located at Temescal Canyon High School, which is approximately 1,000 feet south of the Project's mining impact area. At the MEISC, the maximum incremental cancer risk impact at this location is 0.10 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.0005, which would not exceed the applicable threshold of 1.0. (Urban Crossroads, 2015b, p. 1)

3. Conclusion

Based on the foregoing analysis, the proposed Project has no potential to result in or contribute to any CO "Hot Spots," and the Project's incremental cancer and non-cancer risks would be below the thresholds of significance for the MEIR, MEIW, and the MEISC. There are no other components of the proposed Project that have the potential to expose nearby sensitive receptors to substantial pollutant concentrations. Accordingly, impacts would be less than significant on both a direct and cumulative basis, requiring no mitigation

Threshold e.	***Would the Project create objectionable odors affecting a substantial number of people?***

Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills or heavy manufacturing uses. Potential sources of operational odors generated by the Project would include disposal of miscellaneous refuse. However, only a nominal increase in solid waste would occur in association with the proposed Project. Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances. Consistent with City requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations. (Urban Crossroads, 2015a, p. 2)

The Nichols Canyon Mine currently includes operation of an asphalt batch plant, which could be a potential source of odor. The asphalt batch plant, however, was approved by the City under Conditional Use Permit (CUP) No. 2014-07, and is not part of the Project. It should be noted that an analysis of the asphalt batch plant's potential odor impacts was prepared in association with CUP 2014-07 (Giroux, 2014), and which showed that the asphalt batch plant would not result in significant odor impacts.

The Project would not expose nearby sensitive receptors to substantial odors associated with refuse disposal, and impacts would be less than significant.

4.2.6 CUMULATIVE IMPACT ANALYSIS

1. AQMP Consistency (Threshold a.)

As described under the analysis for Threshold a., the Project is consistent with the site's land use at the time the 2012 AQMP was adopted and the site's "Extractive Overlay" General Plan land use designation and would therefore result in emissions "accounted for" in the AQMP based on the mining activities that occurred on-site in 2012 and the site's General Plan land use designation. However, because the Project's operational emissions of NO_X would exceed SCAQMD regional thresholds, and pursuant to SCAQMD recommendations for assessing cumulative impacts, the Project's operational emissions of NO_X would represent both a direct and cumulatively considerable impact for which mitigation would be required.

2. Air Quality Violations (Thresholds b. and c.)

As indicated in the analysis of Thresholds b and c, the Project would exceed SCAQMD criteria pollutant standards for emissions of NO_X during operational activities. Pursuant to SCAQMD guidance for determining cumulative impacts, the Project's emissions of NO_X would be both directly and cumulatively considerable.

3. Impacts to Sensitive Receptors

As discussed under Threshold d., the proposed Project would not cumulatively expose nearby sensitive receptors to substantial pollutant concentrations due to CO "Hot Spots" and DPM emissions.

Based on the analysis presented under Threshold d., the proposed Project would not result in or contribute to a CO "Hot Spot," because even under cumulative conditions none of the Project's study area intersections would receive more than 44,000 vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal air does not mix). As such, the Project would not contribute to any CO "Hot Spots," and impacts would be less than cumulatively considerable.

The cumulative carcinogenic health risk from DPM emissions in the Project's cumulative study area is presented in Table 4.2-10, *Cumulative Cancer Risk*. Refer to the Diesel Particulate Matter Health Risk Assessment for the Project (*Technical Appendix C*), which provides both a list of cumulative development projects as well as a map depicting their location. With respect to incremental cancer risks, the cumulative health risk is significant since the existing conditions plus cumulative projects would generate greater than a 10 in one million cancer risk. Notwithstanding, the Project's contribution is less than cumulatively considerable because it is less than the 10 in one million incremental cancer risk threshold established by the SCAQMD. Lastly, it should be noted that although there will be ambient growth in the Project vicinity, any increase in emissions and consequently cancer risk from ambient growth would be offset by the expected decrease in future risk estimates due to the natural turnover of older fleets and equipment being replaced by more efficient, less polluting engines and regulatory actions being phased in. A summary of impacts to the MEIR, MEIW, and MEISC is presented below. (Urban Crossroads, 2015b, p. 23)

Table 4.2-10 Cumulative Cancer Risk

	Cancer Risk as Maximum Sensitive Receptor (risk in one million)			
	Existing	Project Site	Cumulative Projects	Total Cumulative Risk
Maximum Impact to All Receptors Without Project	164		--	~164
Maximum Impact to Nearest Residential With Project	164	0.96	--	~164.96
Maximum Impact to Nearest Worker With Project	164	0.13	--	~164.13
Maximum Impact to Nearest School With Project	164	0.10	--	~164.10

-- = negligible
Source: Urban Crossroads, 2015b, Table 2-5

Residential Exposure Scenario:

The highest cumulative with Project cancer risk is approximately 164.96 in one million. The Project's maximum incremental contribution to the cumulative health risk in the Project area is 0.96 in one million which is not above the 10 in one million incremental threshold set by SCAQMD, and is therefore less-than-significant. Accordingly, pursuant to SCAQMD cumulative impact criteria, the Project's Residential Exposure impacts would not be cumulatively considerable. (Urban Crossroads, 2015b, p. 28)

Worker Exposure Scenario:

The highest cumulative with Project cancer risk after is approximately 164.13 in one million. The Project's maximum incremental contribution to the cumulative health risk in the Project area is 0.13 in one million which is not above the 10 in one million incremental threshold set by SCAQMD, and is therefore less-than-significant. Accordingly, pursuant to SCAQMD cumulative impact criteria, the Project's Worker Exposure impacts would not be cumulatively considerable. (Urban Crossroads, 2015b, p. 28)

School Child Exposure Scenario:

The highest cumulative with Project cancer risk after is approximately 164.10 in one million. The Project's maximum incremental contribution to the cumulative health risk in the Project area is 0.10 in one million which is not above the 10 in one million incremental threshold set by SCAQMD, and is therefore less-than-significant. Accordingly, pursuant to SCAQMD cumulative impact criteria, the Project's School Child Exposure impacts would not be cumulatively considerable. (Urban Crossroads, 2015b, pp. 28-29)

4. Odors

As indicated in the analysis of Threshold e, above, there are no components of the proposed Project's long-term operation that would result in the exposure of a substantial number of sensitive receptors to objectionable odors. There are no land uses surrounding the Project site with the potential to significantly contribute to odors associated with the Nichols Canyon Mine. Accordingly, impacts would be less-than-cumulatively considerable.

4.2.7 SIGNIFICANCE OF IMPACTS BEFORE MITIGATION

Threshold a: Significant Direct and Cumulatively Considerable Impact. Project attributes and features are consistent with and support AQMP air pollution reduction strategies and promote timely attainment of AQMP air quality standards. However, the Project's operational impacts would exceed the applicable regional thresholds for NO_X. As such, the Project would not be consistent with the AQMP. Impacts would be significant on a direct and cumulatively considerable basis.

Thresholds b and c: Significant Direct and Cumulatively Considerable Impact. The Project would exceed the SCAQMD regional threshold for NO_X emissions during Project operation. As such, Project-related air emissions would violate SCAQMD air quality standards and contribute to the non-attainment of a criteria pollutant (NO_X), which is a significant direct and cumulatively considerable impact.

Threshold d: Less than Significant Impact. The Project would not result in or contribute to a CO "Hot Spot." The Project also would not result in a significant adverse health impact to sensitive receptors and would not result in a significant health risk impact. Thus a less-than-significant impact to sensitive receptors during operational activity is expected. The carcinogenic risk attributable to DPM emissions from the proposed Project would be less than 10 in one million for the residential, worker, and school child exposure scenarios. Thus, the Project's DPM emissions would be below the SCAQMD's threshold for direct and cumulatively considerable emissions and would be less than significant.

Threshold e: Less-than-Significant Impact. The Project does not propose any uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the Project would include disposal of miscellaneous refuse. Consistent with City requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations. Although the Project would not affect asphalt batch plant operations on-site, odors associated with the asphalt batch plant were previously shown to be less than significant on both a direct and cumulative basis. Accordingly, operational-source odor impacts would be less than significant.

4.2.8 MITIGATION

MM 4.3-1 The Project shall ensure that all net new Project equipment horsepower hours as summarized in Table 3-2 of the "Amendment No. 2 to Reclamation Plan 2006-001 Air Quality Impact Analysis City of Lake Elsinore," dated October 14, 2015, by Urban Crossroads, shall be California Air Resources Board (CARB) Tier 4 Certified or better. A list of construction equipment shall be maintained on-site by the Mine operator demonstrating compliance with this requirement, and the list shall be made available to the City upon request and during annual reporting for the Mine.

4.2.9 SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Threshold a: Less than Significant Impact. As shown in Table 4.2-11, *Summary of Peak Operational Emission (With Mitigation)*, with implementation of Mitigation Measure MM 4.3-1, the

Project's operational emissions of NO_X would be reduced to below a level of significance. Additionally, and as discussed under the analysis of Threshold a., the Project would not exceed the regional growth forecasts. Accordingly, implementation of the required mitigation would ensure that the Project and its associated emissions would be consistent with the AQMP and would reduce the Project's impacts due to a potential conflict with the AQMP to below a level of significance. (Urban Crossroads, 2015a, p. 24)

Table 4.2-11 Summary of Peak Operational Emission (With Mitigation)

Operational Activities – Summer Emissions	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Operational Equipment	0.25	1.26	9.04	0.02	0.03	0.03
Mobile Sources	2.83	47.76	30.54	0.13	3.89	1.55
Fugitive Dust from Material Processing	--	--	--	--	3.24	0.68
Maximum Daily Emissions	**3.08**	**49.02**	**39.58**	**0.15**	**7.16**	**2.26**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Operational Activities – Winter Emissions	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Operational Equipment	0.25	1.26	9.04	0.02	0.03	0.03
Mobile Sources	2.97	49.54	34.45	0.13	3.89	1.55
Fugitive Dust from Material Processing	--	--	--	--	3.24	0.68
Maximum Daily Emissions	**3.22**	**50.80**	**43.49**	**0.15**	**7.16**	**2.26**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: Urban Crossroads, 2015b, Table 3-4

Thresholds b and c: Less than Significant Impact. As shown in Table 4.2-11, with implementation of Mitigation Measure MM 4.3-1 the Project's peak operational emissions of NO_X would be reduced to less-than-significant levels. Accordingly, the Project would have a less-than-significant impact due to a violation of air quality standards, a contribution to air quality violations, or a cumulatively considerable net increase of a criteria pollutant for which the SCAB has non-attainment.