5.2 Air Quality

5.2 AIR QUALITY

This section addresses the air emissions generated by construction and operation of the proposed Project and the potential impacts to air quality. The analysis also addresses the Project's consistency with the air quality policies set forth within the South Coast Air Quality Management District's (SCAQMD) *2012 Air Quality Management Plan*. The analysis of Project-generated air emissions focuses on whether the Project would cause an exceedance of an ambient air quality standard or SCAQMD significance threshold. Air quality technical data is included as Appendix 11.4, *Air Quality/Greenhouse Gas Emissions Data and Health Risk Assessment*.

5.2.1 EXISTING ENVIRONMENTAL SETTING

SOUTH COAST AIR BASIN

Geography

The City is located in the South Coast Air Basin (Basin), a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area of Riverside County.

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of air pollutants throughout the Basin.

Climate

The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The climate consists of a semiarid environment with mild winters, warm summers, moderate temperatures, and comfortable humidity. Precipitation is limited to a few winter storms. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The average annual temperature varies little throughout the Basin, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the Basin show greater variability in annual minimum and maximum temperatures. All portions of the Basin have recorded temperatures over 100°F in recent years.

Although the Basin has a semi-arid climate, the air near the surface is moist due to the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the Basin. Precipitation in the Basin is typically 9 to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the Basin.

The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone (O_3) observed during summer months in the Basin. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

The Project area offers clear skies and sunshine, yet is still susceptible to air inversions. These inversions trap a layer of stagnant air near the ground, where it is then further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

The local climate is typically warm during summer when temperatures tend to be in the mid-70s and cool during winter when temperatures tend to be in the 60s. The warmest month of the year is August with an average maximum temperature of 90 degrees Fahrenheit, while the coldest month of the year is December with an average minimum temperature of 46 degrees Fahrenheit. Temperature variations between night and day tend to be moderate during summer with a difference that can reach 25 degrees Fahrenheit, and moderate during winter with a difference of approximately 25 degrees Fahrenheit. The annual average precipitation in Whittier is 15.45 inches. Rainfall occurs most frequently in January, with an average rainfall of 3.78 inches.[1]

LOCAL AMBIENT AIR QUALITY

The SCAQMD monitors air quality at 37 monitoring stations throughout the Basin. Each monitoring station is located within a Source Receptor Area (SRA). The communities within an SRA are expected to have similar climatology and ambient air pollutant concentrations. The Project is in the City of Whittier, which is located in SRA 5 (Southeast LA County). The monitoring station representative of the Project area is the Pico Rivera #2 monitoring station, which is located approximately 2.3 miles northwest of the Project site. The air pollutants measured at the Pico Rivera #2 monitoring station site include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), and fine particulate matter ($PM_{2.5}$). Sulfur dioxide (SO_2) and coarse particulate matter (PM_{10}) are not measured at the Pico Rivera #2 station. The nearest station to the Project site measuring SO_2 and PM_{10} is the Los Angeles-North Main Street monitoring station, which is located approximately 11.7 miles northwest of the Project site. The air quality data monitored at the Pico Rivera #2 and Los Angeles-North Main Street stations from 2011 to 2013 are presented in Table 5.2-1, *Measured Air Quality Levels*.

The following air quality information briefly describes the various types of pollutants monitored at the Pico Rivera #2 and Los Angeles-North Main Street monitoring stations (nearest representative monitoring stations to the Project site).

[1] The Weather Channel, *Average Weather for Whittier, CA*, http://www.weather.com/weather/wxclimatology/monthly/graph/USCA1239, Accessed January 7, 2014.

Table 5.2-1
Measured Air Quality Levels

Pollutant	Primary Standard		Year	Maximum Concentration[1]	Number of Days State/Federal Std. Exceeded
	California	Federal			
Carbon Monoxide (CO) [2] (8-Hour)	9.0 ppm for 8 hours	9.0 ppm for 8 hours	2011 2012 2013	2.37 ppm 2.45 N/A	0/0 0/0 0/0
Carbon Monoxide (CO) [2] (1-Hour)	20 ppm for 1 hour	35 ppm for 1 hour	2011 2012 2013	2.70 ppm 2.71 3.58	0/0 0/0 0/0
Ozone (O_3) [2] (1-Hour)	0.09 ppm for 1 hour	N/A	2011 2012 2013	0.096 ppm 0.106 0.101	1/0 5/0 2/0
Ozone (O_3) [2] (8-Hour)	0.07ppm for 8 hours	0.075 ppm for 8 hours	2011 2012 2013	0.074 ppm 0.075 0.073	1/0 6/0 3/0
Nitrogen Dioxide (NO_x) [2]	0.18 ppm for 1 hour	0.100 ppm for 1 hour	2011 2012 2013	0.091 ppm 0.081 0.105	0/0 0/0 0/1
Sulfur Dioxide (SO_X) [3]	0.04 ppm for 24 hours	0.14 ppm for 24 hours	2011 2012 2013	0.002 ppm 0.002 0.002	N/A N/A N/A
Particulate Matter (PM_{10}) [3, 4, 5]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours	2011 2012 2013	119.7 µg/m^3 90.9 74.5	6.5/0 24.2/0 21.4/0
Fine Particulate Matter ($PM_{2.5}$) [2,5]	No Separate State Standard	35 µg/m^3 for 24 hours	2011 2012 2013	41.2 µg/m^3 45.3 29.1	NM/1 NM/1 NM/0

ppm = parts per million
µg/m^3 = micrograms per cubic meter
NM = Not Measured
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
NA = Not Applicable

Notes:
1. Maximum concentration is measured over the same period as the California Standard.
2. Measurements taken at the Pico Rivera #2 Monitoring Station located at 4144 San Gabriel River Parkway, Pico Rivera, California 90660.
3. Measurements taken at the Los Angeles-North Main Street Monitoring Station located at 1630 North Main Street, Los Angeles, California 90012.
4. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
5. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

Source: California Air Resources Board, *Aerometric Data Analysis and Measurement System (ADAM) Air Quality Data Statistics*, http://www.arb.ca.gov/adam/welcome.html, accessed on July 3, 2014.

Carbon Monoxide. CO is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions.

CO replaces oxygen in the body's red blood cells. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes are most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of carbon monoxide. Exposure to high levels of carbon monoxide can slow reflexes and cause drowsiness, and result in death in confined spaces at very high concentrations.

Ozone. O_3 occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is a photochemical pollutant, and needs volatile organic compounds (VOCs), nitrogen oxides (NO_X), and sunlight to form; therefore, VOCs and NO_X are ozone precursors. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and a period of several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While ozone in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone (in the troposphere) can adversely affect the human respiratory system and other tissues. Ozone is a strong irritant that can constrict the airways, forcing the respiratory system to work hard to deliver oxygen. Individuals exercising outdoors, children, and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of ozone. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in aggravated respiratory diseases such as emphysema, bronchitis and asthma, shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue, as well as chest pain, dry throat, headache, and nausea.

Nitrogen Dioxide. NO_X are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_2 can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter. Coarse particulate matter (PM_{10}) refers to suspended particulate matter, which is smaller than 10 microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003, the California Air Resources Board (CARB) adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25).

Fine Particulate Matter. Due to recent increased concerns over health impacts related to fine particulate matter ($PM_{2.5}$ [particulate matter 2.5 microns in diameter or less]), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the U.S. Environmental Protection Agency (EPA) announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the United States Supreme Court reversed this decision and upheld the EPA's new standards.

On January 5, 2005, the EPA published a Final Rule in the Federal Register that designates the Basin as a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

Sulfur Dioxide. SO_2 is a colorless, irritating gas with a rotten egg smell; it is formed primarily by the combustion of sulfur-containing fossil fuels. Sulfur dioxide is often used interchangeably with SO_X and lead. Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics.

SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. The following types of people are most likely to be adversely affected by air pollution, as identified by CARB: children under 14; elderly over 65; athletes; and people with cardiovascular and chronic respiratory diseases.

Locations that may contain a high concentration of these sensitive population groups are called sensitive receptors and include residential areas, hospitals, day-care facilities, elder-care facilities, elementary schools, and parks. Sensitive uses within the immediate Project area include residential, church and hospital uses adjacent to the northwest, west, southwest and south respectively. Additional existing sensitive receptors located in the project vicinity include single- and multi-family residential homes, hotels, motels, schools, parks, and libraries; refer to Table 5.2-2, *Surrounding Off-Site Sensitive Receptors*.

Table 5.2-2
Surrounding Off-Site Sensitive Receptors

Type	Name	Distance from Project Site (feet)	Orientation from Project Site
Residential	Residential Uses	Adjacent	Southwest
		Adjacent	West
		Adjacent	Northwest
		340	South
		750	East
Hotels/Motels	Travelodge Whittier	1,625	Northwest
	Radisson Hotel Whittier	3,640	East
	Johnson Residence House	5,300	East
Schools	Hadley Preschool	1,040	Northwest
	Whittier High School	1,130	Northeast
	Sorensen Elementary School	1,560	Northwest
	Longfellow Elementary School	2,570	North
	Whittier Christian Schools	2,770	Northeast
	Evergreen Elementary School	3,370	Southeast
	Plymouth Christian School	3,390	North
	Dexter Middle School	3,885	North
	Trinity Lutheran Church and School	3,965	North
	Aeolian Elementary School	4,885	Southwest
	Lydia Jackson Elementary School	5,050	Southeast
	Phelan Elementary School	5,335	West
	Katherine Edwards Elementary School	5,355	Northwest
	Plaza De La Raza Head Start	5,400	Southwest
	West Whittier Elementary School	5,530	Northeast
Places of Worship	Grace Community Assembly of God	Adjacent	West
	House of Grace	855	Northeast
	The Salvation Army	1,780	Southwest
	Good Samaritan MCC	1,880	Southwest
	Saint Mary's Roman Catholic Church	1,925	East
	Church of Jesus Christ of LDS	2,267	Southeast
	Calvary Baptist Church	2,675	Northeast
	Plymouth Congregational Church	2,925	North
	Destiny Community Church	3,000	East
	Whittier Presbyterian Church	3,095	Northwest
	Harmony Center for Spiritual	3,170	Northeast
	First Love Calvary Chapel	3,285	Northeast
	First Christian Church	3,705	Northeast
	Salem Lutheran Church	3,840	Northwest
	Saint Matthias Episcopal Church	3,920	East
	Trinity Lutheran Church and School	3,965	North
	Good Shepherd Bible Church	4,155	Northeast
	Family Church	4,378	Southeast
	Greenleaf Avenue Baptist Church	4,385	Southeast
	Foursquare Church of Whittier	5,080	Southeast
	Universal Church	5,270	Northwest
	Kingdom Hall of Jehovah's Witnesses	5,405	Southwest

Table 5.2-2 (continued)
Surrounding Off-Site Sensitive Receptors

Type	Name	Distance from Project Site (feet)	Orientation from Project Site
Libraries	Sorensen Library	2,760	West
	Whittier Central Library	3,025	East
Parks	McNees Park	1,250	Northwest
	John Greenleaf Whittier Park	1,350	East
	Sorensen Park	2,030	West
	Founders Memorial Park	2,775	Northeast
	Broadway Park	3,730	Northeast
	Palm Park	4,040	North
	Jackson Park	4,485	Southeast
Hospitals	Presbyterian Intercommunity Hospital	Adjacent	South
	Bright Health Physicians	975	Southeast
	Kaiser Permanente	1,370	Southeast
	Montes Medical Group	4,005	North
	Whittier Life Center	4,840	East
	Doctor's Convalescent Hospital	5,100	Southeast

Note:
1. Distances are measured from the exterior project boundary only and not from individual construction projects/areas within the interior of the project site.

Source: Google Earth, 2014.

5.2.2 EXISTING REGULATORY SETTING

U.S. ENVIRONMENTAL PROTECTION AGENCY

The EPA is responsible for implementing the Federal Clean Air Act (FCAA), which was first enacted in 1955 and amended numerous times after. The FCAA established Federal air quality standards known as the National Ambient Air Quality Standards (NAAQS). These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are O_3, CO, NO_2, which is a form of NO_X, SO_2, which is a form of sulfur oxides (SO_x), PM_{10}, $PM_{2.5}$, and lead (Pb); refer to Table 5.2-3, *National and California Ambient Air Quality Standards*.

CALIFORNIA AIR RESOURCES BOARD

CARB administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 5.2-3, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for preparation of the State Implementation Plan (SIP) for the State of California.

Table 5.2-3
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[3,4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m^3)	**Nonattainment**	N/A	N/A[5]
	8 Hours	0.070 ppm (137 μg/m^3)	Unclassified	0.075 ppm (147 μg/m^3)	**Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 μg/m^3	**Nonattainment**	150 μg/m^3	Attainment
	Annual Arithmetic Mean	20 μg/m^3	**Nonattainment**	N/A	Attainment
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard		35 μg/m^3	**Nonattainment**
	Annual Arithmetic Mean	12 μg/m^3	**Nonattainment**	12.0 μg/m^3	**Nonattainment**
Carbon Monoxide (CO)	8 Hours	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment
	1 Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)[5]	Annual Arithmetic Mean	0.030 ppm (57 μg/m^3)	N/A	53 ppb (100 μg/m^3)	Attainment
	1 Hour	0.18 ppm (339 μg/m^3)	Attainment	100 ppb (188 μg/m^3)	N/A
Lead (Pb)[7,8]	30 days Average	1.5 μg/m^3	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 μg/m^3	Attainment
	Rolling 3-Month Average	N/A	N/A	0.15 μg/m^3	Attainment
Sulfur Dioxide (SO_2)[6]	24 Hours	0.04 ppm (105 μg/m^3)	Attainment	0.14 ppm (for certain areas)	Attainment
	3 Hours	N/A	N/A	N/A	Attainment
	1 Hour	0.25 ppm (655 μg/m^3)	Attainment	75 ppb (196 μg/m^3)	N/A
	Annual Arithmetic Mean	N/A	N/A	0.30 ppm (for certain areas)	Attainment
Visibility-Reducing Particles[9]	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 μg/m^3	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m^3)	Unclassified		
Vinyl Chloride[7]	24 Hour	0.01 ppm (26 μg/m^3)	N/A		

μg/m^3 = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, 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. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site 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 the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°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 a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. 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 standards are in units of ppb. California standards are in units of ppm. To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
6. 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 one 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. Note that the 1-hour national standard is in units of ppb. California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
7. CARB has identified lead and vinyl chloride as 'toxic air contaminants' 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.
8. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 μg/m^3 as a quarterly average) remains in effect until one 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 standard are approved.
9. In 1989, CARB 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 "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board and U.S. Environmental Protection Agency, June 4, 2013.

Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data show that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard, and are not used as a basis for designating areas as nonattainment. The size of the designated area may vary depending on the pollutant, the location of contributing emission sources, the meteorology, and the topographic features.[2] For the purposes of this analysis, the South Coast Air Basin is the area designated for O_3, NO_X, PM_{10}, $PM_{2.5}$, sulfates, and visibility reducing particles, and the Los Angeles County is the area designated for CO, SO_2, lead and hydrogen sulfide, as shown in Table 5.2-3.[3]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

The SCAQMD is one of 35 air quality management districts that have prepared AQMP's to accomplish a five-percent annual reduction in emissions. On December 7, 2012, the SCAQMD Governing Board approved the *2012 Air Quality Management Plan* (*2012 AQMP*), which outlines its strategies for meeting the NAAQS for $PM_{2.5}$ and O_3. The *2012 AQMP* relies on a multi-level partnership of governmental agencies at the federal, state, regional, and local level. The *2012 AQMP* proposes policies and measures to achieve federal and state standards for improved air quality in the South Coast Air Basin and those portions of the Salton Sea Air Basin that are under SCAQMD jurisdiction.

The 2012 AQMP includes new information on key elements such as:

- Current air quality;
- Improved emission inventories, especially significant increase in mobile source emissions;
- An overall control strategy comprised of: Stationary and Mobile Source Control Measures, SCAQMD, state and federal Stationary and Mobile Source Control Measures, and the Southern California Association of Governments Regional Transportation Strategy and Control Measures;
- New attainment demonstration for $PM_{2.5}$ and O_3;
- Milestones to the federal Reasonable Further Progress Plan; and
- Preliminary motor vehicle emission budgets for transportation conformity purposes.

Since the adoption of the SCAQMD's first AQMP in 1996, air quality in the Basin has improved significantly as a result of comprehensive control strategies implemented to reduce pollution from mobile and stationary sources. For example, the total number of days that the Basin experiences high O_3 levels has decreased dramatically over the last two decades. The maximum 8-hour O_3 levels measured in the Basin were well above 200 parts per billion (ppb) in the early 1990s and are now less than 140 ppb.[4] As Table 5.2-4, *South Coast Air Basin Reductions by Source Category*, indicates, emissions have decreased from 1987 to 2008 by 67 percent for ROGs, 42 percent for NO_X, 66 percent for CO, 57 percent for SO_X, and 67 percent for PM_{10}, and are projected to decrease even further through 2014.

[2] California Code of Regulations, Title 17, Section 70301.
[3] California Air Resources Board, *State Area Designations Definitions,* http://www.arb.ca.gov/desig/adm/Define.htm#regulatory, Accessed September 19, 2014.
[4] South Coast Air Quality Management District, *Final 2012 Air Quality Management Plan*, February 2013.

Table 5.2-4
South Coast Air Basin Reductions by Source Category

Source Category	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$[1]
Percent Reductions from 1987 - 2008						
Stationary / Area Sources	64%	61%	-23%	66%	74%	-
Mobile Sources	70%	38%	67%	52%	-4%	-
Total	**67%**	**42%**	**66%**	**57%**	**67%**	**-**
Percent Reductions from 1987 – 2014 (Projected)						
Stationary / Area Sources	67%	68%	-47%	71%	74%	-
Mobile Sources	80%	60%	77%	93%	24%	-
Total	**75%**	**61%**	**75%**	**86%**	**69%**	**-**

Note:
1. The 1997 SCAQMD AQMP did not include emissions for $PM_{2.5}$

Sources: South Coast Air Quality Management District. *Final 1997 Air Quality Management Plan.* November 1996.
South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. February 2013.

In addition to the *2012 AQMP* and its rules and regulations, the SCAQMD published the *CEQA Air Quality Handbook*. The SCAQMD *CEQA Air Quality Handbook* provides guidance to assist local government agencies and consultants in developing the environmental documents required by CEQA. With the help of the *CEQA Air Quality Handbook*, local land use planners and other consultants are able to analyze and document how proposed and existing projects affect air quality and should be able to fulfill the requirements of the CEQA review process. The SCAQMD is in the process of developing an *Air Quality Analysis Guidance Handbook* to replace the current *CEQA Air Quality Handbook* approved by the SCAQMD Governing Board in 1993.

CITY OF WHITTIER

Whittier General Plan

The City of Whittier General Plan Air Quality Element includes the following goals and policies related to the improvement of air quality.

Goal 1: Reduce emissions associated with single occupancy automobile use.

Policy 1.2: Promote transit service and availability.

Policy 1.6: Encourage walking and bicycling.

Goal 2: Reduce truck emissions.

Policy 2.1: Encourage diversion of peak hour truck traffic, whenever feasible to off-peak periods to reduce roadway congestion and associated emissions.

Policy 2.2: Work to improve roadway safety by designing roadways to accommodate trucks and reduce potential for accidents that create congestion and associated emissions.

Goal 3: Reduce directly emitted vehicle emissions.

Policy 3.1: Reduce idling emissions by improving traffic flow and the level of service through the use of synchronized traffic signals.

Goal 4: Reduce vehicle emissions through improved parking design and transportation demand management.

Policy 4.1: Promote parking facility designs which discourage queuing.

Policy 4.5: Encourage landscaping in parking areas to reduce fugitive dust and improve local air quality.

Goal 5: Reduce emissions associated with vehicle miles traveled by providing a balance of jobs and housing.

Policy 5.1: Maintain the City of Whittier's existing favorable balance of job and housing opportunities.

Policy 5.3: Encourage mixed-use developments which combine housing and related commercial uses.

Policy 5.4: Encourage residential growth to occur in and around commercial activity centers and transportation node corridors.

Goal 6: Reduce emissions associated with energy consumption.

Policy 6.1: Support the use of energy-efficient equipment and design in City facilities and infrastructure.

Policy 6.2: Encourage incorporation of energy conservation features in new developments and in the renovation of existing development.

Policy 6.3: Support passive solar design in new construction.

Policy 6.4: Support public participation in recycling programs.

Policy 6.5: Support use of drought-resistant vegetation in City landscaping areas and new development to reduce energy needed to pump water.

Goal 7: Reduce fugitive dust emissions.

Policy 7.1: Encourage feasible fugitive dust reduction techniques to be utilized during construction activities.

Policy 7.2: Support the use of efficient equipment procedure in cleaning streets and parking areas.

Policy 7.3: Support subdivision design which minimizes grading and maintains the natural topography to the maximum extent feasible.

Goal 8: Reduce potential air pollution emissions and impacts through siting and building design standards.

Policy 8.1: Support the use of low polluting construction materials and coatings.

Policy 8.2: Assess the air pollution impacts of all projects uniformly.

Policy 8.3: Actively encourage the separation of sensitive receptors, such as schools and hospitals, from sources of toxic emissions.

Policy 8.4: Actively encourage the separation of sensitive receptors from potential carbon monoxide hotspots.

Policy 8.5: Encourage the provision of bus shelters, turn-out lanes, etc. in new developments to promote the use of public transit.

Goal 9: Maximize the effectiveness of air quality control programs through coordination with other government agencies.

Policy 9.1: Participate in the SCAQMD rule development process on regulations which impact the City of Whittier to ensure that City concerns are resolved early in the process.

Policy 9.2: Verify that new local commercial and industrial establishments obtain all necessary SCAQMD permits prior to development.

Policy 9.3: Support state and federal legislation that results in improved air quality in the South Coast Air Basin.

Policy 9.4: Participate with neighboring cities in efforts to improve regional and subregional transit.

Whittier Municipal Code

Whittier Municipal Code (WMC) Chapter 3.40, *Mobile Source Air Pollution Reduction Program*, addresses air quality by establishing a fund to support the SCAQMD's imposition of the vehicle registration fee and to bring the city into compliance with the requirements set forth in Section 44243 of the Health and Safety Code, in order to receive fee revenues for the purpose of implementing programs to reduce air pollution from motor vehicles.

5.2.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

REGIONAL AIR QUALITY

Under CEQA, the SCAQMD is an expert commenting agency on air quality within its jurisdiction or impacting its jurisdiction. Under the FCAA, the SCAQMD has adopted federal attainment plans for O_3 and PM_{10}. The SCAQMD reviews projects to ensure that they would not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan.

SCAQMD's *CEQA Air Quality Handbook* also provides significance thresholds to assess the impact of project related air pollutant emissions. Table 5.2-5, *SCAQMD Regional Pollutant Emission Thresholds of Significance*, presents these significance thresholds. There are separate thresholds for short-term construction and long-term operational emissions. A project with daily emission rates below these thresholds is considered to have a less than significant effect on regional air quality. The SCAQMD is in the process of updating the thresholds.

Table 5.2-5
SCAQMD Regional Pollutant Emission Thresholds of Significance

Phase	Pollutant (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction	75	100	550	150	150	55
Operation	55	55	550	150	150	55
CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns						
Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook,* November 1993.						

LOCAL AIR QUALITY

Localized Significance Thresholds

Localized Significance Thresholds (LSTs) were developed in response to the SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (revised July 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level analyses. The SCAQMD provides the LST lookup tables for one, two, and five acre projects emitting CO, NO_X, PM_{10}, and $PM_{2.5}$. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over 5.0 acres perform air quality dispersion modeling to assess impacts to nearby sensitive receptors.

Localized CO

Additionally, a project would result in a local air quality impact if it results in increased traffic volumes and/or decreased Levels of Service (LOS) that would result in an exceedance of the CO ambient air quality standards of 20 parts per million (ppm) for 1-hour CO concentration levels, and 9 ppm for 8-hour CO concentration levels. If the CO concentrations at potentially impacted intersections with a project are lower than the standards, then there is no significant impact. If future CO concentrations with a project are above the standard, then the project would have a significant local air quality impact.

Cumulative Emissions

The SCAQMD's *2012 AQMP* was prepared to accommodate growth, meet state and federal air quality standards, and minimize the fiscal impact that pollution control measures have on the local economy. According to the SCAQMD *CEQA Air Quality Handbook*, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary.

If a project exceeds these emission thresholds, the SCAQMD *CEQA Air Quality Handbook* states that the significance of a project's contribution to cumulative impacts should be determined based on whether the rate of growth in average daily trips exceeds the rate of growth in population.

CEQA SIGNIFICANCE CRITERIA

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by Appendix G of the *CEQA Guidelines*, as amended, and used by the City of Whittier in its environmental review process. The Initial Study Checklist includes questions relating to air quality. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant adverse environmental impact 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 that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; refer to Section 8.0, *Effects Found Not To Be Significant*.

Based on these standards/criteria, the Project's effects have been categorized as either a "less than significant impact" or a "potentially significant impact." If a potentially significant impact cannot be reduced to a less than significant level through the application of goals, policies, standards, or mitigation, it is categorized as a significant and unavoidable impact. The standards used to evaluate the significance of impacts are often qualitative rather than quantitative because appropriate quantitative standards are either not available for many types of impacts or are not applicable for some types of projects.

5.2.4 IMPACTS AND MITIGATION MEASURES

AIR QUALITY STANDARDS – SHORT-TERM

- **THE PROJECT WOULD VIOLATE AN AIR QUALITY STANDARD AND CONTRIBUTE TO AN EXISTING OR PROJECTED AIR QUALITY VIOLATION DURING CONSTRUCTION.**

Impact Analysis: Short-term air quality impacts are predicted to occur during demolition, grading and construction operations associated with implementation of the Project. Temporary impacts would result from Project construction activities. Short-term air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from grading and building construction; and
- Exhaust emissions from the construction equipment and the motor vehicles of the construction crew.

The Project site is currently comprised of two areas: a former youth correctional facility area (approximately 74 acres); and an adjacent commercial area (approximately 2 acres) located at the eastern corner of the site. The Project involves the following primary components: demolition of approximately 406,261 square feet of existing buildings associated with the former Nelles facility and existing onsite commercial use; construction of 750 DU, approximately 208,350 square feet of commercial land uses, and 4.6 acres of open space; and offsite utility and roadway infrastructure improvements. For the purposes of this analysis, the Project is assumed to begin construction in 2015 and occur over several years. The estimated earthwork would require 970,000 cubic yards of cut and an equal amount of fill.

Project construction would require bore/drill rigs, concrete/industrial saws, cranes, crawler tractors, crushing/processing equipment, excavators, off-highway tractors, off-highway trucks, rough terrain forklifts, and rubber tired loaders during demolition; crawler tractors, graders, off-highway tractors, off-highway trucks, rubber tired loaders, scrapers, tractors/loaders/backhoes, and other construction equipment during grading; graders, off-highway trucks, pavers, paving equipment, rollers, rubber tired loaders, signal boards, and tractors/loaders/backhoes during paving, bore/drill rigs, cranes, excavators, rough terrain forklifts, rubber tired loaders, tractors/loaders/backhoes, and trenchers during building construction. Emissions for each construction phase have been quantified based upon the phase durations and equipment types. The analysis of daily construction emissions has been prepared utilizing the California Emissions Estimator Model (CalEEMod). Refer to Appendix 11.4, *Air Quality/Greenhouse Gas Emissions Data and Health Risk Assessment*, for the CalEEMod outputs and results. Table 5.2-6, *Maximum Daily Pollutant Emissions During Construction*, presents the anticipated daily short-term construction emissions.

Air pollutants would be emitted by construction equipment and fugitive dust would be generated during demolition of the existing structures and improvements, as well as during grading of the site. Emissions during the phases of construction were calculated using the CalEEMod program.[5] The equipment modeled during each phase was based on Project information provided by the Project Applicant. All fugitive dust calculations accounted for watering and other dust control methods required to be implemented per SCAQMD Rule 403.

Fugitive Dust Emissions

Fugitive dust (PM_{10} and $PM_{2.5}$) from grading and construction is expected to be short-term and would cease following Project completion. Most of this material is composed of inert silicates, which are less harmful to health than the complex organic particulates released from combustion sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and SO_X combining with ammonia. The greatest amount of fugitive dust generated is expected to occur during site grading and excavation. Dust generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular concern is the amount of PM_{10} generated as a part of fugitive dust emissions.

[5] Emissions calculated using CalEEMod represents the worst case scenario. The Project's construction schedule does not involve overlapping phases.

Table 5.2-6
Maximum Daily Pollutant Emissions During Construction

Emissions Source	Daily Pollutant Emissions (lbs/day)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Year 1 (2015)						
Unmitigated	46.06	470.24	420.13	0.42	25.18	18.12
Mitigated[2]	19.14	208.11	393.24	0.42	10.82	7.76
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Mitigated Emissions Exceed Thresholds?	***No***	***Yes***	***No***	***No***	***No***	***No***
Year 2 (2016)						
Unmitigated	21.37	203.93	155.82	0.28	18.44	12.55
Mitigated[2]	7.74	106.37	167.50	0.28	10.84	6.99
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Mitigated Emissions Exceed Thresholds?	***No***	***Yes***	***No***	***No***	***No***	***No***
Year 3 (2017)						
Unmitigated	19.86	188.78	150.31	0.28	17.51	11.69
Mitigated[2]	7.41	105.16	163.62	0.28	10.82	6.98
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Mitigated Emissions Exceed Thresholds?	***No***	***Yes***	***No***	***No***	***No***	***No***
Year 4 (2018)						
Unmitigated	17.13	163.17	143.51	0.28	15.69	10.02
Mitigated[2]	7.14	104.14	160.32	0.28	10.81	6.97
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Mitigated Emissions Exceed Thresholds?	***No***	***Yes***	***No***	***No***	***No***	***No***
Year 5 (2019)						
Unmitigated	15.64	147.93	139.06	0.27	14.67	9.08
Mitigated[2]	6.95	103.27	157.70	0.27	10.80	6.96
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Mitigated Emissions Exceed Thresholds?	***No***	***Yes***	***No***	***No***	***No***	***No***
Year 6 (2020)						
Unmitigated	14.59	136.07	135.86	0.27	13.89	8.36
Mitigated[2]	6.79	102.10	155.67	0.27	10.79	6.95
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Mitigated Emissions Exceed Thresholds?	***No***	***Yes***	***No***	***No***	***No***	***No***

CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns

Notes:

1. Emissions were calculated using CalEEMod, as recommended by the SCAQMD.
2. The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as typically required by the SCAQMD through Rule 403. The mitigation includes the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads three times daily; limit speeds on unpaved roads to 15 miles per hour; and use CARB certified Tier 3 engines.

Refer to Appendix 11.4, *Air Quality/Greenhouse Gas Emissions Data and Health Risk Assessment*, for assumptions used in this analysis.

CalEEMod calculates PM_{10} and $PM_{2.5}$ fugitive dust as part of the site earthwork activity emissions; refer to Table 5.2-6. Maximum particulate matter emissions would occur during the initial stages of construction, when grading activities would occur. Mitigation Measure AQ-1 requires that construction activities comply with SCAQMD Rule 403, such that excessive fugitive dust emissions shall be controlled by regular watering or other dust prevention measures. In addition, SCAQMD Rule 402 is required for implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site and after implementation would reduce short-term fugitive dust impacts on nearby sensitive receptors. With adherence to Mitigation Measures AQ-1, AQ-2, and other dust control techniques, the maximum mitigated particulate matter concentration would be 10.82 pounds per day (lbs/day) for PM_{10} and 7.76 lbs/day for $PM_{2.5}$ in construction Year 1. Emissions in each subsequent year would be lower and would also fall below the SCAQMD thresholds of 150 lbs/day for PM_{10} and 55 lbs/day for $PM_{2.5}$. Although the unmitigated particulate matter levels are below the SCAQMD thresholds absent of specific dust reduction measures, Mitigation Measures AQ-1 and AQ-2 are recommended to ensure compliance with SCAQMD rules and regulations (i.e., Rules 402 and 403).

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. As shown in Table 5.2-6, ROG emissions would be below SCAQMD thresholds and impacts would be less than significant.

Construction Exhaust Emissions

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the Project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. The majority of construction equipment and vehicles would be diesel powered, which tends to be more efficient than gasoline-powered equipment. Diesel-powered equipment produces lower carbon monoxide and hydrocarbon emissions than gasoline equipment, but produces greater amounts of NO_X, SO_X, and particulates per hour of activity. The transportation of machinery, equipment and materials to and from the Project site, as well as construction worker trips, would also generate vehicle emissions during construction. As presented in Table 5.2-6, construction-related unmitigated NO_X emissions during construction Years 1 through 6 would result in a significant impact due to its contribution in forming ozone. As NO_X emissions are primarily generated by engine combustion in construction equipment, haul trucks, and employee commuting, requiring the use of newer construction equipment with better emissions controls would reduce short-term NO_X emissions. Therefore, Mitigation Measure AQ-3 would be required to ensure that the development associated with proposed Specific Plan utilizes diesel construction equipment that complies with Tier 3-level emissions standards during all construction phases. Adherence to Mitigation Measure AQ-3 would reduce construction equipment and worker vehicle exhaust emissions. However, as shown in Table 5.2-6, the mitigated NO_X emissions would remain above SCAQMD thresholds. Therefore, impacts in this regard would be significant and unavoidable.

Asbestos

Pursuant to guidance issued by the Governor's Office of Planning and Research, State Clearinghouse, lead agencies are encouraged to analyze potential impacts related to naturally occurring asbestos (NOA). Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of

asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, Federal, and international agencies and was identified as a toxic air contaminant by the CARB in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. According to the California Geological Survey, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (dated August 2000), the Project is not located in an area where NOA is likely to be present. Therefore impacts would be considered less than significant.

Total Daily Construction Emissions

In accordance with the SCAQMD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Construction would occur over several years, with the greatest emissions being generated during the first year of construction. CalEEMod allows the user to input mitigation measures such as watering the construction area to limit fugitive dust and applying soil stabilizers to the Project area. Mitigation measures selected within CalEEMod allow for certain reduction credits and result in a decrease of pollutant emissions. Reduction credits are based upon studies developed by CARB, SCAQMD, and other air quality management district's throughout California, and were programmed within the CalEEMod model.

As indicated in Table 5.2-6, NO_X emissions would exceed SCAQMD thresholds during construction. Implementation of Mitigation Measures AQ-1 through AQ-3 would lessen construction-related impacts by requiring measures to reduce air pollutant emissions from construction activities. These measures call for the maintenance of construction equipment, use of non-polluting and non-toxic building equipment, and minimizing fugitive dust. However, NO_X emissions would not be reduced to a less than significant level. Impacts would be less than significant for all other criteria pollutants emitted during project construction. Due to the exceedance of the SCAQMD's thresholds for NO_X, construction related air emissions would be significant and unavoidable.

Mitigation Measures:

AQ-1 Before issuance of a Grading Permit, the City Engineer and Chief Building Official shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, in compliance with SCAQMD Rule 403, excessive fugitive dust emissions shall be controlled by regular watering or other dust prevention measures, as specified in the SCAQMD's Rules and Regulations. In addition, SCAQMD Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating

a nuisance off-site. Implementation of the following measures would reduce short-term fugitive dust impacts on nearby sensitive receptors:

- All active portions of the construction site shall be watered twice daily during daily construction activities, on as needed during wet weather, and when dust is observed migrating from the Project site to prevent excessive amounts of dust.
- Pave or apply water every three times daily during daily construction activities or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas, during dry weather. More frequent watering shall occur if dust is observed migrating from the site during site disturbance.
- During dry weather, any on-site stockpiles of debris, dirt, or other dusty material with five percent or greater silt contrast shall be enclosed, covered, watered twice daily, or non-toxic soil binders shall be applied.
- All grading and excavation operations shall be suspended when wind speeds exceed 25 miles per hour.
- Disturbed areas shall be replaced with ground cover or paved immediately after construction is completed in the affected area.
- Track-out devices such as gravel bed track-out aprons (3 inches deep, 25 feet long, 12 feet wide per lane and edged by rock berm or row of stakes) shall be installed to reduce mud/dirt trackout from unpaved truck exit routes. Alternatively a wheel washer shall be used at truck exit routes.
- On-site vehicle speed shall be limited to 15 miles per hour.
- All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust before departing the job site.
- Reroute construction trucks away from congested streets or sensitive receptor areas.
- Trucks associated with soil-hauling activities shall avoid residential streets and utilize City-designated truck routes to the extent feasible.

AQ-2 During construction, all trucks that are to haul excavated or graded material on-site shall comply with State Vehicle Code Section 23114 (Spilling Loads on Highways), with special attention to Sections 23114(b)(F), (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads. Before the issuance of Grading Permits, the Project Applicant shall demonstrate to the City Engineer how operations subject to that specification during hauling activities shall comply with the provisions set forth in Sections 23114(b)(F), (e)(4).

AQ-3 Before issuance of each Grading Permit, the construction contractor shall provide evidence to the City Engineer that the following measures would be implemented during construction:

- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.

- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.

- Improve traffic flow by signal synchronization, and ensure that all vehicles and equipment will be properly tuned and maintained according to manufacturers' specifications.

- Require the use of electricity from power poles rather than temporary diesel or gasoline powered generators, as feasible.

- Require the use of 2010 and newer diesel haul trucks (e.g., material delivery trucks and soil import/export) and if the lead agency determines that 2010 model year or newer diesel trucks cannot be obtained the lead agency shall use trucks that meet EPA 2007 model year NOX emissions requirements.

- During Project construction, all internal combustion engines/construction, equipment operating on the project site shall meet EPA-Certified Tier 3 emissions standards, or higher according to the following:

    - Project start, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 horsepower shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

    - Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
    - A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

Level of Significance: Significant Unavoidable Impact for NO_X emissions. Less Than Significant Impact for ROG, CO, SO_X, $PM_{10,}$ and $PM_{2.5}$.

AIR QUALITY STANDARDS – LONG-TERM

- **THE PROJECT WOULD VIOLATE AN AIR QUALITY STANDARD AND CONTRIBUTE TO AN EXISTING OR PROJECTED AIR QUALITY VIOLATION DURING LONG-TERM OPERATIONS.**

Impact Analysis: Operational emissions generated by both stationary and mobile sources would result from normal daily activities on the Project site after occupancy (i.e., increased concentrations of O_3, PM_{10}, and CO). Stationary area source emissions would be generated by consumption of natural gas for space and water heating devices, operation of landscape maintenance equipment, and use of consumer products. Stationary energy emissions would result from energy consumption associated with the Project. Mobile emissions would be generated by the motor vehicles traveling to and from the Project site. Emissions associated with each of these sources were calculated and are discussed below.

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using CalEEMod. This model predicts ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ emissions from motor vehicle traffic associated with new or modified land uses; refer to Appendix 11.4, *Air Quality/Greenhouse Gas Emissions Data and Health Risk Assessment*. According to the Project *Traffic Impact Analysis* (Appendix 11.16), the Project would generate 20,331 new daily trips at buildout. Table 5.2-7, *Long-Term Operational Air Emissions*, presents the anticipated mobile source emissions.

Table 5.2-7
Long-Term Operational Air Emissions

Emissions Source	Pollutant (pounds/day)[1, 2, 3]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Proposed Unmitigated Emissions						
Area[2]	223.69	5.72	439.74	0.60	57.63	57.62
Energy	0.61	5.33	3.19	0.03	0.42	0.42
Mobile	99.38	208.54	882.24	1.70	120.37	33.93
Total Proposed Unmitigated Emissions	***323.69***	***219.60***	***1,325.16***	***2.34***	***178.42***	***91.97***
Proposed Mitigated Emissions						
Area[2]	28.48	0.73	62.83	0.00	1.24	1.23
Energy	0.56	4.87	2.96	0.03	0.38	0.38
Mobile	95.52	179.28	787.67	1.41	98.89	27.90
Total Proposed Mitigated Emissions	***124.55***	***184.89***	***85.45***	***1.44***	***100.52***	***29.52***
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Is Threshold Exceeded? (Significant Impact?)	***Yes***	***Yes***	***No***	***No***	***No***	***No***

Notes:
1. Based on CalEEMod results, worst-case seasonal emissions for area and mobile emissions have been modeled.
2. Area sources include natural gas burning fireplaces and exclude the use of wood burning fireplaces and wood burning stoves per SCAQMD Rule 445 (Wood-Burning Devices).
3. Refer to Appendix 11.4, *Air Quality/Greenhouse Gas Emissions Data and Health Risk Assessment*, for assumptions used in this analysis.

Stationary Source Emissions

Stationary source emissions would be generated due to increased demands for electrical energy and natural gas with Project implementation; refer to Table 5.2-7. This assumption is based on the supposition that power plants supplying electricity to the site are utilizing fossil fuels. Electric power generating plants are distributed throughout the Basin and western United States, and their emissions contribute to the total regional pollutant burden. The primary use of natural gas by the proposed land uses would be for combustion to produce space heating, water heating, other miscellaneous heating, or air conditioning, consumer products, and landscaping.

Health Effects

The Project is located in the City of Whittier, and is bounded by State Route (SR) 72, Whittier Boulevard. Based on California Department of Transportation (Caltrans) Traffic Census, SR-72 has traffic volumes of 28,000 daily vehicles, including 2,580 daily trucks.[6] Additionally, the Project includes a community shopping center with retail stores as well as restaurants, banks, drug stores, grocers and other commercial uses. The commercial center allows for loading docks that have the potential for heavy truck trips adjacent to nearby single-family residential along Sorensen Avenue as well as future residences proposed on-site. The proximity of existing and proposed sensitive uses to SR-72 and to the commercial loading docks poses concerns for potential exposure of future development to toxic air contaminants from these sources.

The Multiple Air Toxics Exposure Study IV (MATES IV) is a monitoring and evaluation study conducted by the SCAQMD. The MATES IV study consists of a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk throughout the Basin. The study concentrates on the carcinogenic risk from exposure to air toxics. Ten monitoring locations measured toxic air contaminants (over 30 air pollutants) once every three days for two years.

The carcinogenic risk from air toxics in the Basin, based on average concentrations at the fixed monitoring locations, is about 420 per million (a reduction from the 1,200 per million in the MATES III study). This risk refers to the expected number of additional cancers in a population of one million individuals that are exposed over a 70-year lifetime. Under the MATES IV methodology, approximately 68 percent of the risk is attributed to diesel particulate emissions. This is a lower portion of the overall risk compared to the MATES III estimate of about 84 percent. About 90 percent of the risk is attributed to emissions associated with mobile sources, with the remainder attributed to toxics emitted from stationary sources, which include large industrial operations such as refineries and metal processing facilities, as well as smaller businesses such as gas stations and chrome plating. Overall, the MATES IV Study found a decreasing risk for air toxics exposure compared to previous MATES studies. Additionally, the MATES IV study found an estimated Basin-wide population-weighted risk reduced by 57 percent from the MATES III Study, which includes the City of Whittier. Additionally, the ambient air toxics data from the ten fixed monitoring sites demonstrated a reduction in air toxic levels and risks.

[6] California Department of Transportation, *2012 Annual Average Daily Truck Traffic on the California State Highway System.*

The CARB *Air Quality and Land Use Handbook* (April 2005), recommends avoiding siting new sensitive land uses within 500 feet of a freeway or urban road with 100,000 vehicles per day and/or within 1,000 feet of a distribution center that accommodates more than 100 trucks per day. This limit for trucks applies to diesel trucks with a gross vehicle weight rating (GVWR) greater than 14,000 pounds (GVWR Classes 4 through 8). The Project includes various single-family and multi-unit residential buildings. As Whittier Boulevard is an urban road that has 28,000 vehicles per day, which is fewer than 100,000 vehicles per day, the proposed Project would not locate sensitive uses near a high-traffic road that would result in health effects.

However, the Project would potentially locate a commercial use (and associated truck trips) within 1,000 feet of existing and proposed residential uses. The range of exposure from diesel trucks varies greatly, based on specific travel patterns, size and number of diesel trucks, types of trucks, on-site diesel equipment, and use of auxiliary diesel-powered equipment (e.g., diesel-powered transport refrigeration units [TRU]). The diesel PM emissions from these facilities are dependent on the size (horsepower), age, and number of engines, emission rates, the number of hours the truck engines and/or TRUs operate, distance, and meteorological conditions at the site. CARB's assessment assumes a total on-site operating time for all TRUs of 300 hours per week, equivalent of 40 TRU-equipped trucks a day, each loading or unloading on-site for one hour, 12 hours a day and seven days a week. As CARB has not conducted a risk assessment for distribution centers based on truck traffic alone, but on an emissions basis, CARB expects similar risks for a facility with truck volumes in the range of 100 per day.[7]

The Lincoln Specific Plan does not include a detailed site plan, nor does it identify specific commercial uses that would occur onsite. The Specific Plan does not allow intensive warehousing or distribution uses. Urban Crossroads prepared a Health Risk Assessment (HRA) to evaluate Project-related impacts to sensitive receptors (residential, schools) and adjacent workers as a result of heavy-duty diesel trucks accessing the site. The results of the HRA of lifetime cancer risk from Project-generated diesel particulate matter (DPM) emissions are depicted in Table 5.2-8, *Summary of Cancer Risk*. The entire HRA is provided in Appendix 11.4, *Air Quality/Greenhouse Gas Emissions Data and Health Risk Assessment*.

Table 5.2-8
Summary of Cancer Risk

Time Period	Location	Maximum Lifetime Cancer Risk (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold
70 Year Exposure (2020 to 2089)	Maximum Exposed Off-Site Sensitive Receptor	4.38	10	No
70 Year Exposure (2020 to 2089)	Maximum Exposed On-Site Sensitive Receptor	4.89	10	No
40 Year Exposure (2020 to 2059)	Maximum Exposed Worker Receptor	1.76	10	No
9 Year Exposure (2020 to 2028)	Maximum Exposed School Child	0.104	10	No

Source: Urban Crossroads, *Lincoln Specific Plan Mobile Source Health Risk Assessment*, September 30, 2014.

[7] As described above, CARB's *Air Quality and Land Use Handbook* recommends that land use agencies avoid siting new sensitive land uses within 1,000 feet of a distribution center that accommodate more than 100 trucks per day. For further information, refer to: http://www.arb.ca.gov/ch/handbook.pdf.

Offsite Residential Exposure Scenario. The offsite residential land use with the greatest potential exposure to Project DPM source emissions is located to the north of the Project site near the intersection of Rincon Drive and Sorensen Avenue. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 4.38 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 0.003, which would not exceed the applicable threshold of 1.0.

Onsite Residential Exposure Scenario. The onsite residential land use with the greatest potential exposure to Project DPM source emissions is located in the eastern portion of Planning Area 7 immediately adjacent to the commercial land uses of Planning Areas 1 and 2. At the MEIR, the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 4.89 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 0.003, which would not exceed the applicable threshold of 1.0.

Worker Exposure Scenario. The worker receptor land use with the greatest potential exposure to Project DPM source emissions is located at the Denny's located at 11891 Whittier Boulevard, Whittier, CA 90601. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact at this location is 1.76 in one million, which is less than the threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be 0.006, which would not exceed the applicable threshold of 1.0.

School Child Exposure Scenario. The school site land use with the greatest potential exposure to Project DPM source emissions is Hadley Preschool located at 11703 Hadley Street, Whittier, CA 90601. At the maximally exposed individual school child (MEISC), the maximum incremental cancer risk impact at this location is 0.104 in one million which is less than the threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be 0.0005 which would not exceed the applicable threshold of 1.0.

As described above, the results of the analysis indicate that the Project would not result in a significant health risk. Therefore, impacts were determined to be below established significance thresholds for cancer risk. However, given the conceptual nature of the current configuration of the proposed commercial portion of the Project, Mitigation Measure AQ-4 would be implemented. Mitigation Measure AQ-4 would require that the City review plans for commercial development prior to final plan approval to ensure that the proposed commercial facilities fall within the assumptions provided within the HRA. If substantial changes to site design occur, the City shall require the preparation of a supplement or addendum to the HRA to ensure that significant health risks do not occur. Thus, impacts in this regard would be less than significant with mitigation.

Impact Conclusion

Modeled area source emissions include the natural gas burning fireplaces and exclude the use of wood burning fireplaces per SCAQMD Rule 445. Additionally, mobile source emissions would be reduced as the Project would increase diversity (the Project includes residential, office, commercial, and retail/restaurant uses) and density, and since the Project site is located within 0.5 miles of the City's downtown area (Uptown Whittier) and located within 0.32 miles of the Metro Bus Routes 270 (located south along Washington Boulevard and Lambert Road). Additionally, the Project would improve the pedestrian network on-site and provide connections to the off-site network. These land use attributes that are inherent in the Project's location and design were incorporated into the CalEEMod mitigation module. It is noted that although the

CalEEMod results depict these emissions as "mitigated" emissions, they are considered Project Design Features. Therefore, no additional mitigation measures are available to reduce air pollutant emissions that can be quantified in CalEEMod.

The Project sets forth goals and objectives for sustainable development practices that would further reduce area and mobile source emissions, such as using sustainable building materials, water conservation, energy efficient lighting, and installing low-flow faucets, toilets, and showers. Additionally, Mitigation Measure GHG-1 (refer to Section 5.6, *Greenhouse Gas Emissions*) requires the project to implement transportation demand management measures, pedestrian amenities, energy efficiency measures, water conservation measures, and solid waste reduction measures that would also reduce operational emissions of criteria pollutants. As shown in Table 5.2-7, despite implementation of the Project Design Features and Mitigation Measure GHG-1, the operational mitigated emissions would remain above SCAQMD thresholds for ROG, and NO_X. Therefore, impacts in this regard would be significant and unavoidable. Impacts related to CO, SO_X, PM_{10}, and $PM_{2.5}$ emissions are below the SCAQMD thresholds and are concluded to be less than significant.

Long-term exposure to increased concentrations of ROGs and NO_x during operational activities poses higher rates of adverse health effects on the surrounding community. Health effects associated with long-term exposure to increased concentrations of ROGs include, but are not limited to, eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment. Many organic compounds are also known to cause cancer in both humans and animals. As discussed above, continued or frequent exposure to NO_x concentrations that are typically much higher than those normally found in the ambient air may increase respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Furthermore, chronic exposure to higher levels NO_x concentrations may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

The potential exposure of future development to toxic air contaminants would occur due to the proposed commercial center and associated loading docks that have the potential for heavy truck and delivery trips. However, as analyzed within the HRA prepared for the proposed project, truck trips associated with the potential commercial uses would not result in a significant health risk. Impacts related to air toxic contaminants would be less than significant.

Mitigation Measures: Refer to Mitigation Measure AQ-4, below, and Mitigation Measure GHG-1.

AQ-4 Prior to approval of final plans for onsite commercial development, the City Engineer and Chief Building Official shall confirm that proposed commercial facilities fall within the assumptions (e.g., commercial building location, proximity to residential uses, truck access points and internal circulation, loading dock locations) provided within the Health Risk Assessment prepared for the proposed Project (prepared by Urban Crossroads, dated September 30, 2014). If substantial changes are proposed, the City shall require the Project Applicant to prepare a supplement or addendum to the Health Risk Assessment to ensure that health risks to surrounding sensitive receptors are minimized.

Level of Significance: Significant Unavoidable Impact for ROG and NO_X emissions. Less Than Significant Impact for CO, SO_X, PM_{10}, and $PM_{2.5}$.

LOCALIZED EMISSIONS

- **DEVELOPMENT ASSOCIATED WITH THE PROJECT WOULD RESULT IN SIGNIFICANT LOCALIZED EMISSIONS IMPACTS DURING CONSTRUCTION.**

Impact Analysis:

Localized Significance Thresholds

Localized Significance Thresholds (LSTs) were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised October 2009]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level proposed projects. The SCAQMD provides the LST lookup tables for one, two, and five acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres perform air quality dispersion modeling to assess impacts to nearby sensitive receptors. The Project site is located within Sensitive Receptor Area (SRA) 5, Southeast LA County.

The closest sensitive receptors to the Specific Plan area are the residential uses that are located adjacent to the Project's western boundary. If receptors are within 25 meters of the site, the methodology document states that the threshold for the 25-meter distance should be used. Table 5.2-9, *Localized Significance of Emissions*, depicts the mitigated construction-related emissions for NO_X, CO, PM_{10}, and $PM_{2.5}$ compared to the LSTs for SRA 5, Southeast LA County. It is noted that Table 5.2-9 uses the 5-acre LST threshold for screening purposes.

Additionally, for Project operations, the five-acre threshold was conservatively used for receptors 25 meters away. The LST analysis only includes on-site sources; therefore, the operational emissions shown include area sources. As shown in Table 5.2-9, construction mitigated emissions would exceed the LST screening threshold for NO_X and $PM_{2.5}$ in Year 1 (2015). Construction impacts related to CO and PM_{10}, emissions are below the LST thresholds and are concluded to be less than significant.

Additionally, operational emissions would not exceed the LSTs for SRA 5. Therefore, localized significance impacts for Project operations would be less than significant.

As stated above, the project site would disturb approximately 74 acres during the construction activities in Year 1. NO_X and $PM_{2.5}$ emissions in construction Year 1 would exceed the LST screening threshold, and the size of the proposed project and the magnitude of the daily activities would exceed the maximum threshold of five acres of per day for an LST Analysis. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors.

Table 5.2-9
Localized Significance of Emissions

On-Site Sources	Pollutant (pounds/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
CONSTRUCTION [1]				
Year 1 (2015)				
Total Mitigated On-Site Emissions [2, 3]	178.89	217.25	9.62	7.28
Localized Significance Threshold	*172*	*1,480*	*14*	*7*
Thresholds Exceeded?	***Yes***	***No***	***No***	***Yes***
Year 2 (2016)				
Total Mitigated On-Site Emissions	93.12	121.44	5.36	5.36
Localized Significance Threshold	*172*	*1,480*	*14*	*7*
Thresholds Exceeded?	***No***	***No***	***No***	***No***
Year 3 (2017)				
Total Mitigated On-Site Emissions	93.12	121.44	5.36	5.36
Localized Significance Threshold	*172*	*1,480*	*14*	*7*
Thresholds Exceeded?	***No***	***No***	***No***	***No***
Year 4 (2018)				
Total Mitigated On-Site Emissions	93.12	121.44	5.36	5.36
Localized Significance Threshold	*172*	*1,480*	*14*	*7*
Thresholds Exceeded?	***No***	***No***	***No***	***No***
Year 5 (2019)				
Total Mitigated On-Site Emissions	93.12	121.44	5.36	5.36
Localized Significance Threshold	*172*	*1,480*	*14*	*7*
Thresholds Exceeded?	***No***	***No***	***No***	***No***
Year 6 (2020)				
Total Mitigated On-Site Emissions	93.12	121.44	5.36	5.36
Localized Significance Threshold	*172*	*1,480*	*14*	*7*
Thresholds Exceeded?	***No***	***No***	***No***	***No***
OPERATIONS				
Area Source Emissions	0.73	62.83	1.24	1.23
Localized Significance Threshold	*172*	*1,480*	*4*	*2*
Thresholds Exceeded?	***No***	***No***	***No***	***No***

Notes:
1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold conservatively uses the 5 acre threshold, the distance to sensitive receptors (25 meters), and the source receptor area (SRA 5).
2. The highest mitigated on-site NO_X, CO, and $PM_{2.5}$ emissions are from the Grading phase.
3. The highest mitigated on-site PM_{10} emissions are from the Demolition phase.

Localized construction emissions were estimated using the EPA AERSCREEN model to determine the worst-case concentrations at the nearest off-site sensitive receptors. Table 5.2-10, *Construction Emissions Dispersion Modeling*, shows the construction-related emissions for NO_X, and $PM_{2.5}$ plus background concentrations, compared to the most stringent air quality standards. As shown in Table 5.2-10, construction $PM_{2.5}$ concentrations would not exceed the SCAQMD threshold. However, NO_X concentrations would exceed the SCAQMD thresholds. Therefore, although implementation of Mitigation Measure AQ-3 would reduce exhaust emissions, NO_X impacts for the first year of construction would not be reduced to a less than significant level. As a result, the nearest sensitive receptors could be exposed to criteria pollutant concentrations that would exceed the CAAQS and SCAQMD localized significance thresholds for NO_X, resulting in a significant and unavoidable impact during the first year of construction.

Table 5.2-10
Construction Emissions Dispersion Modeling

Emissions Source	Pollutant	
	NO_X	$PM_{2.5}$
	1- Hour	24-Hour
Maximum Modeled Concentration (µg/m³)	206.5	8.78
Highest Background Concentration (µg/m³)	184	N/A[1]
Total Concentration	*390.5*	*8.78*
Standard (µg/m³)	339	10.4
Exceed Significance?	***Yes***	*No*

Notes:
1. The South Coast Air Basin is nonattainment for $PM_{2.5}$ and background concentrations already exceed the most stringent standards.
2. Emissions are based on the worst-case on-site emissions. Worst-case NO_X and $PM_{2.5}$, emissions would occur in Construction Year 1. Emissions also include the incorporation of Mitigation Measures AQ-1 through AQ-3.

Source: EPA AERSCREEN, CalEEMod worst case on-site construction emissions. Refer to Appendix 11.4, *Air Quality/Greenhouse Gas Emissions Data and Health Risk Assessment*, for assumptions used in this analysis.

The increased concentration of NO_x from construction-related emissions exposes the surrounding community to higher rates of adverse health effects. While the increased concentration of NO_x from construction-related emissions may be relatively short in nature (first year of construction), current scientific evidence links short-term NO_x exposures, ranging from 30 minutes to 24 minutes, with adverse respiratory effects including airway inflammation in healthy individuals and increase respiratory symptoms in individuals with asthma.[8] Additionally, studies show a connection between breathing elevated short-term NOx concentrations, and increased visits to emergency department and hospital admissions for respiratory issues.

Carbon Monoxide Hotspots

CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (i.e., adversely affecting residents, school children, hospital patients, the elderly, etc.).

The SCAQMD requires a quantified assessment of CO hotspots when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service LOS D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersections.

The South Coast Air Basin is designated as an attainment/maintenance area for the Federal CO standards and an attainment area for State standards. There has been a decline in CO emissions even though vehicle miles traveled on U.S. urban and rural roads have increased. On-road mobile source CO emissions have declined 24 percent between 1989 and 1998, despite a 23 percent rise in motor vehicle miles traveled over the same 10 years. California trends have been consistent with national trends; CO emissions declined 20 percent in California from 1985 through 1997 while vehicle miles traveled increased 18 percent in the

[8] United States Environmental Protection Agency. *Nitrogen Dioxide: Health.* Available at: http://www.epa.gov/oaqps001/nitrogenoxides/health.html. Accessed September 25, 2014.

1990s. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

The South Coast Air Basin is designated as an attainment/maintenance area for the Federal CO standards and an attainment area for State standards. There has been a decline in CO emissions even though vehicle miles traveled on U.S. urban and rural roads have increased. On-road mobile source CO emissions have declined 24 percent between 1989 and 1998, despite a 23 percent rise in motor vehicle miles traveled over the same 10 years. California trends have been consistent with national trends; CO emissions declined 20 percent in California from 1985 through 1997 while vehicle miles traveled increased 18 percent in the 1990s. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

A detailed CO analysis was conducted in the *Federal Attainment Plan for Carbon Monoxide* (CO Plan) for the SCAQMD's 2003 Air Quality Management Plan. The locations selected for microscale modeling in the CO Plan are worst-case intersections in the Basin, and would likely experience the highest CO concentrations. Thus, CO analysis within the CO Plan is utilized in a comparison to the Project, since it represents a worst-case scenario with heavy traffic volumes within the Basin.

Of these locations, the Wilshire Boulevard/Veteran Avenue intersection in Los Angeles experienced the highest CO concentration (4.6 parts per million [ppm]), which is well below the 35-ppm 1-hr CO Federal standard. The Wilshire Boulevard/Veteran Avenue intersection is one of the most congested intersections in Southern California with an average daily traffic (ADT) volume of approximately 100,000 vehicles per day. Based on the Project's *Traffic Impact Analysis*, none of the study intersections would have an average daily traffic volume greater than 100,000 vehicles per day. As a CO hotspot would not be experienced at the Wilshire Boulevard/Veteran Avenue intersection, it can be reasonably inferred that CO hotspots would not be experienced at any Project study intersection. Therefore, impacts would be less than significant in this regard.

Mitigation Measures: Refer to Mitigation Measures AQ-1 through AQ-3.

Level of Significance: Significant Unavoidable Impact for localized NO_X construction emissions. Less Than Significant Impact for localized CO, $PM_{10,}$ and $PM_{2.5}$ construction emissions and localized operational emissions.

AIR QUALITY MANAGEMENT PLAN

- **THE PROJECT WOULD RESULT IN A CONFLICT WITH THE APPLICABLE AIR QUALITY PLAN.**

Impact Analysis: On December 7, 2012, the SCAQMD Governing Board approved the *2012 AQMP*, which outlines its strategies for meeting the NAAQS for $PM_{2.5}$ and ozone. The determination of *2012 AQMP* consistency is primarily concerned with a project's long-term influence on the Basin's air quality. The SCAQMD developed mass daily thresholds for criteria pollutants in order to achieve attainment in the Basin. Exceedance of the mass daily thresholds

would potentially conflict with the AQMP's goals and strategies for achieving attainment of State and Federal Ambient Air Quality Standards.

As described above, the proposed project would exceed exceedance of operational ROG and NO_X thresholds. As a result, the Project would potentially result in a long-term impact on the region's ability to meet State and Federal air quality standards. Therefore, impacts associated with compliance with the *2012 AQMP* would be significant and unavoidable with respect to ROG, and NO_X emissions, and less than significant for all other pollutant criterion emissions.

Mitigation Measures: Refer to Mitigation Measures AQ-1 through AQ-3.

Level of Significance: Significant and Unavoidable Impact.

5.2.5 CUMULATIVE IMPACTS

Table 4-1, *Cumulative Projects List*, identifies the related projects and other possible development in the area determined as having the potential to interact with the Project to the extent that a significant cumulative effect may occur. The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

SHORT-TERM CONSTRUCTION AIR EMISSIONS

- **SHORT-TERM CONSTRUCTION ACTIVITIES ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS WOULD RESULT IN SIGNIFICANT AIR POLLUTANT EMISSION IMPACTS.**

Impact Analysis: The SCAQMD neither recommends quantified analyses of cumulative construction or operational emissions, nor does it provide separate methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project-specific impacts. Therefore, individual development projects that generate construction-related or operational emissions that exceed the SCAQMD recommended daily thresholds for project-specific impacts would also cause a cumulative considerable increase in emissions for those pollutants for which the Basin is nonattainment.

Of the projects that have been identified within the Project study area, there are a number of related projects that have not been built or are currently under construction. Since the Project Applicant has no control over the timing or sequencing of the related projects, any quantitative analysis to ascertain the daily construction emissions that assumes multiple, concurrent construction would be speculative. Based on the projects identified in Table 4-1, several development projects are anticipated.

With respect to the Project's construction-period air quality emissions and cumulative Basin conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the *2012 AQMP* pursuant to FCAA mandates. As such, the Project would comply with SCAQMD Rule 403 requirements and implement all feasible mitigation measures. In addition, the Project would comply with adopted *2012 AQMP* emissions control measures. Per SCAQMD rules and mandates, as well as the *CEQA* requirement that significant impacts be

mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted 2012 AQMP emissions control measures) would also be imposed on construction projects throughout the Basin, which would include each of the related projects identified in Table 4-1.

Although compliance with SCAQMD rules and regulations and Mitigation Measures AQ-1 through AQ-3 would reduce construction-related impacts, the project-related construction emissions have been concluded to be significant and unavoidable for NO_X emissions during construction. Thus, it can be reasonably inferred that the project-related construction activities, in combination with those from other projects in the area, would deteriorate the local air quality and lead to significant cumulative construction-related impacts.

Mitigation Measures: Refer to Mitigation Measures AQ-1 through AQ-3.

Level of Significance: Significant and Unavoidable Impact.

LONG-TERM OPERATIONAL AIR EMISSIONS

- **DEVELOPMENT ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS WOULD RESULT IN SIGNIFICANT IMPACTS PERTAINING TO OPERATIONAL AIR EMISSIONS.**

Impact Analysis: Due to the Basin's nonattainment status for O_3, $PM_{2.5}$, and PM_{10}, additional emissions in excess of SCAQMD thresholds under a long-term condition for ROG, NO_X, $PM_{2.5}$, and PM_{10} would be considered significant and unavoidable for cumulative impacts. ROG and NO_X emissions are projected to be above the significance thresholds for Project buildout conditions. Despite the fact that the Project is an infill project with a mix of uses in an urban area, Project-related operational emissions would still be significant and unavoidable for regional ROG, and NO_X. Thus, it can be reasonably inferred that Project-related operational activities, combined with those from other projects in the area, would deteriorate the local air quality and lead to cumulative operational-related significant and unavoidable impacts.

As described above, Urban Crossroads prepared a HRA to evaluate Project-related impacts to sensitive receptors (residential, schools) and adjacent workers as a result of heavy-duty diesel trucks accessing the site; refer to Appendix 11.4, *Air Quality/Greenhouse Gas Emissions Data and Health Risk Assessment*. The HRA included an evaluation of the cumulative with Project health risks and determined that impacts to off-site residents, on-site residents, nearby workers, and school children would not be cumulatively considerable. Impacts would be less than significant in this regard.

Mitigation Measures: Refer to Mitigation Measures AQ-4 and GHG-1.

Level of Significance: Significant Unavoidable Impact for cumulative ROG and NO_X emissions. Less Than Significant Impact for cumulative CO, SO_X, PM_{10}, and $PM_{2.5}$.

CONSISTENCY WITH REGIONAL PLANS

- **DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT AND RELATED CUMULATIVE PROJECTS WOULD CONFLICT WITH THE APPLICABLE AIR QUALITY PLAN.**

The City of Whittier is subject to the SCAQMD's *2012 AQMP*. Additionally, the City is located within the Los Angeles County subregion of the SCAG *2012-2035 RTP/SCS*, which governs population growth. The General Plan is consistent with the *2012-2035 RTP/SCS*, and since the *2012-2035 RTP/SCS* is consistent with the *2012 AQMP*, growth under the General Plan is consistent with the *2012 AQMP*. However, because operational ROG and NO_X emissions associated with the Project would exceed SCAQMD thresholds, the Project could conflict or obstruct the *2012 AQMP*. As such, the Project would cumulatively contribute to impacts in this regard, and a significant and unavoidable impact would occur. It is noted that all applicable ROG and NO_X emission reduction measures would be required for the Project to reduce emissions to the furthest extent possible (refer to Mitigation Measures AQ-1, AQ-2, and AQ-3).

Mitigation Measures: Refer to Mitigation Measures AQ-1 through AQ-3.

Level of Significance: Significant and Unavoidable Impact.

5.2.6 SIGNIFICANT UNAVOIDABLE IMPACTS

With implementation of the proposed Project, significant unavoidable impacts would occur for:

- *Project-Related Construction Emissions*. Despite implementation of Project Design Features and Mitigation Measures AQ-1 through AQ-3, the Project's construction mitigated emissions would remain above SCAQMD thresholds for NO_X resulting in a significant and unavoidable impact.

- *Project-Related Operational Emissions*. Despite implementation of Project Design Features, the Project's operational mitigated emissions would remain above SCAQMD thresholds for ROG, and NO_X resulting in a significant and unavoidable impact.

- *Localized Project-Related Construction Emissions*. Construction-related emissions would exceed the SCAQMD localized significance thresholds for NO_X after implementation of Mitigation Measures AQ-1 through AQ-3. Therefore, construction would have a significant and unavoidable impact on localized significance air quality.

- *AQMP Consistency*. Although the Project's long-term influence would be consistent with the AQMP and SCAG's goals and policies, the Projects exceedance of operational ROG, and NO_X thresholds would potentially result in a long-term impact on the region's ability to meet State and Federal air quality standards. Therefore, impacts associated with AQMP compliance would be significant and unavoidable.

- *Cumulative Emissions*. As stated above, construction activities would create a significant and unavoidable impact due to exceedances of SCAQMD thresholds for NO_X. Additionally, ROG, and NO_X emissions would exceed SCAQMD thresholds during operational activities creating a significant and unavoidable impact in this regard.

Implementation of recommended Mitigation Measures AQ-1 through AQ-3, would reduce impacts; however, a significant and unavoidable impact would remain.

If the City of Whittier approves the Project, the City would be required to cite their findings in accordance with *CEQA Guidelines* Section 15091 and prepare a Statement of Overriding Considerations in accordance with *CEQA Guidelines* Section 15093.

5.2.7 SOURCES CITED

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