

## 3.3 Air Quality

### Environmental Setting

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This section assesses the local and regional air quality impacts of implementing the Proposed Project. This analysis focuses on criteria pollutants and toxic air contaminants. Greenhouse gases (GHGs) are evaluated in Section 3.5: Energy and Greenhouse Gases.

#### PHYSICAL SETTING

While air quality is largely a regional issue, the land use, circulation, and growth decisions made by local communities, such as Redlands, affects regional air quality. Located within the South Coast Air Basin (SCAB or Basin), Redlands' air quality is overseen by the South Coast Air Quality Management District (SCAQMD). The SCAQMD includes Orange County, most of Los Angeles County, and the western portions of San Bernardino and Riverside counties.

The SCAQMD covers an overall area of approximately 10,743 square miles, and is generally bounded by the Pacific Ocean to the west, and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east.

#### Topography, Climate, and Meteorology

The climate within the SCAQMD varies considerably as a result of the coastal zone, inland valleys, mountain areas, and deserts. Much of the Basin is generally arid, with little rainfall, and abundant sunshine during summer months.

The topography and climate of Southern California contribute to the SCAB as an area of high air pollution potential. Within this Basin, a warm air mass frequently descends over the cool, moist marine layer of the atmosphere, and the warm upper layer can form a cap over the cooler surface layer, which traps pollutants near the ground. Light winds can further limit or minimize ventilation, and abundant sunlight triggers photochemical reactions that produce ozone and the majority of particulate matter (SCAQMD, 2017a).

In general, the SCAB's air pollution is a consequence of emissions from the nation's largest urban area, meteorological conditions adverse to the dispersion of those emissions, and mountainous terrain surrounding the Basin, as the sea breeze pushes those pollutants inland. Within the Basin, high concentrations of ozone (O<sub>3</sub>) are normally recorded during the late spring and summer months when more intense sunlight results in enhanced photochemical reactions. The SCAB can experience elevated levels of PM<sub>10</sub>(particulate matter less than or equal to 10 microns) and PM<sub>2.5</sub>

(particulate matter less than or equal to 2.5 microns) concentrations throughout the year, but occur most frequently in fall and winter (SCAQMD, 2017a).

### **Sensitive Populations and Receptors**

Populations most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Thus, there are numerous sensitive receptors in the Planning Area.

### **Pollutants and Effects**

Criteria air pollutants are defined as pollutants for which the federal or State governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and State standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O<sub>3</sub>, nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>), and lead. These pollutants are discussed below, based on the U.S. Environmental Protection Agency's (EPA's) website for Criteria Air Pollutants and the CARB Glossary of Air Pollution Terms (EPA, 2017). In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

**Ozone.** O<sub>3</sub> is a colorless gas that is formed in the atmosphere when volatile organic compounds (VOCs), sometimes referred to as reactive organic gases (ROGs), and NO<sub>x</sub> react in the presence of ultraviolet sunlight. O<sub>3</sub> is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of VOCs and NO<sub>x</sub>, the precursors of O<sub>3</sub>, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O<sub>3</sub> formation, and ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to O<sub>3</sub> at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

**Nitrogen Dioxide.** Most NO<sub>2</sub>, like O<sub>3</sub>, is not directly emitted into the atmosphere but is instead formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO<sub>2</sub> are collectively referred to as NO<sub>x</sub> and are major contributors to O<sub>3</sub> formation. High concentrations of NO<sub>2</sub> can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO<sub>2</sub> and chronic pulmonary fibrosis, and some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million by volume (ppm).

**Carbon Monoxide.** CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as Redlands, automobile exhaust

accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

**Sulfur Dioxide.** SO<sub>2</sub> is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Main sources of SO<sub>2</sub> are coal and oil used in power plants and industries; as such, the highest levels of SO<sub>2</sub> are generally found near large industrial complexes. In recent years, SO<sub>2</sub> concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO<sub>2</sub> and the limits on the sulfur content of fuels. SO<sub>2</sub> is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. SO<sub>2</sub> can also yellow plant leaves and erode iron and steel.

**Particulate Matter.** Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. PM<sub>2.5</sub> and PM<sub>10</sub> represent fractions of particulate matter. Fine particulate matter, or PM<sub>2.5</sub>, is roughly 1/28 the diameter of a human hair. PM<sub>2.5</sub> results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, PM<sub>2.5</sub> can be formed in the atmosphere from gases such as sulfur oxides (SO<sub>x</sub>), NO<sub>x</sub>, and VOC. Inhalable or coarse particulate matter, or PM<sub>10</sub>, is about 1/7 the thickness of a human hair. Major sources of PM<sub>10</sub> include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

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

**Lead.** Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline, the manufacturing of batteries, paint, ink, ceramics, and ammunition and secondary lead smelters.

Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95 percent. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emission sources of greater concern.

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

**Toxic Air Contaminants.** A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC). Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced either on short-term (acute) or long-term (chronic) exposure to a given TAC. CARB has identified diesel engine exhaust particulate matter as the predominant TAC in California. Diesel particulate matter is emitted into the air by diesel-powered mobile vehicles, including heavy-duty diesel trucks, construction equipment, and passenger vehicles. Certain ROGs may also be designated as TACs.

## **Local Air Quality**

### **SCAB Attainment Designation**

An area is designated in attainment when it is in compliance with the NAAQS (federal) and/or California Ambient Air Quality Standards (CAAQS) (State). These standards are set by the EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. Table 3.3-4 in the “Regulatory Setting” section lists the current NAAQS and CAAQS.

As noted above, the criteria pollutants of primary concern that are considered in this air quality assessment include O<sub>3</sub>, NO<sub>2</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. There are no ambient standards for VOCs or NO<sub>x</sub>, though they are important as precursors to O<sub>3</sub>.

SCAB is in attainment of the current PM<sub>10</sub> 24-hour NAAQS, and is in attainment of the NAAQS for SO<sub>2</sub>, CO, and NO<sub>2</sub> (SCAQMD, 2017a). Although the 1-hour NO<sub>2</sub> federal standard was exceeded in the SCAB at one station on one day in 2015, the NAAQS NO<sub>2</sub> design value has not been exceeded; thus, the SCAB is in attainment of the NO<sub>2</sub> NAAQS. The EPA designated the Los Angeles County portion of the SCAB as nonattainment for the revised 2008 federal lead standard on the basis of source-specific monitoring at two locations determined by the EPA using 2007-2009 data, though all other stations in the SCAB, including those in Los Angeles County, have remained below the lead National Ambient Air Quality Standards (NAAQS) for the 2012 to 2015 period. As such, the

SCAQMD will request that the EPA re-designate the Los Angeles County portion of the basin as in attainment for lead (SCAQMD, 2017a). SCAB is designated as a non-attainment area for current and former federal and State O<sub>3</sub> standards, the current federal and State PM<sub>2.5</sub> standards, and State PM<sub>10</sub> standards.

Table 3.3-1, SCAB Attainment Classification, summarizes the SCAB’s federal and State attainment designations for each criteria pollutant.

**Table 3.3-1: SCAB Attainment Classification**

<i>Pollutant (Averaging Time and Level)<sup>1</sup></i>	<i>Federal Designation<sup>2</sup></i>	<i>State Designation<sup>3</sup></i>
O <sub>3</sub> (1 hour - 1979)	Nonattainment <sup>2</sup> (Extreme)	Nonattainment
O <sub>3</sub> (8-hour – 1997) <sup>4</sup>	Nonattainment(Extreme)	
(8-hour – 2008) <sup>4</sup>	Nonattainment (Extreme)	Nonattainment
(8-hour – 2015) <sup>4</sup>	Nonattainment (Extreme) <sup>5</sup>	
CO (1-hour – 1971)	Attainment (Maintenance)	Attainment
(8-hour – 1971)	Attainment (Maintenance)	Attainment
PM <sub>10</sub> <sup>6</sup> (24-hour – 1987)	Attainment (Maintenance)	Nonattainment
(Annual)	N/A	Nonattainment
PM <sub>2.5</sub> <sup>7</sup> (24-hour – 2006)	Nonattainment (Serious)	
(Annual – 1997)	Attainment (Pending) <sup>5</sup>	Nonattainment
(Annual – 2012)	Nonattainment (Moderate)	
NO <sub>2</sub> <sup>8</sup> (1-hour – 2010)	Unclassifiable/Attainment	Attainment
(Annual – 1971)	Attainment (Maintenance)	Attainment
SO <sub>2</sub> <sup>9</sup> (1-hour – 2010)	Unclassifiable/Attainment <sup>5</sup>	Attainment
(24-hour – 1971)	Unclassifiable/Attainment	Attainment
(Annual – 1971)	Unclassifiable/Attainment	
Lead <sup>10</sup> (3-months rolling – 2008)	Nonattainment (Partial) (Attainment determination to be Requested)	Attainment
Sulfates	(no federal standard)	Attainment
Hydrogen Sulfide	(no federal standard)	Attainment

Notes:

1. CA State standards, or CAAQS, for ozone, CO, SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are values not to be exceeded; lead, sulfates, and H<sub>2</sub>S standards are values not to be equaled or exceeded; CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable.
3. CA State designations shown were updated by CARB in 2016, based on the 2013–2015 3-year period; stated designations are based on a 3-year data period after consideration of outliers and exceptional events (Source: <http://www.arb.ca.gov/degis/statedesig.htm#current>).
4. The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked in June 2005; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard.
3. The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm in December 2015 with classifications and implementation goals to be finalized October 2017; the 1997 8-hour ozone NAAQS (0.08 ppm) was revoked in the 2008 ozone NAAQS implementation rule in April 2015; there are continuing obligations under the revoked 1997 and revised 2008 ozone NAAQS until they are attained.
5. Indicated pending status and/or classification; however, these final statuses are expected and/or anticipated.

**Table 3.3-1: SCAB Attainment Classification**

<i>Pollutant (Averaging Time and Level)<sup>1</sup></i>	<i>Federal Designation<sup>2</sup></i>	<i>State Designation<sup>3</sup></i>
6.	The annual PM <sub>10</sub> NAAQS was revoked, effective 12/18/06; the 24-hour PM <sub>10</sub> NAAQS deadline was 12/31/2006; the Basin's Attainment Redesignation Request and PM <sub>10</sub> Maintenance Plan was approved by EPA on 6/26/13, effective 7/26/13.	
7.	The attainment deadline for the 2006 24-hour PM <sub>2.5</sub> NAAQS was 12/31/15 for the former "moderate" classification; U.S.EPA approved reclassification to "serious," effective 2/12/16 with an attainment deadline of 12/31/2019; the 2012 (proposal year) annual PM <sub>2.5</sub> NAAQS was revised on 1/15/13, effective 3/18/13, from 15 to 12 µg/m <sup>3</sup> ; new annual designations were final 1/15/15, effective 4/15/15; on July 25, 2016 EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m <sup>3</sup> ) and 24-hour PM <sub>2.5</sub> (65 µg/m <sup>3</sup> ) NAAQS, effective August 24, 2016.	
8.	New 1-hour NO <sub>2</sub> NAAQS became effective 8/2/10, with attainment designations 1/20/12; annual NO <sub>2</sub> NAAQS retained.	
9.	The 1971 annual and 24-hour SO <sub>2</sub> NAAQS were revoked, effective 8/23/10; however, these 1971 standards will remain in effect until one year after EPA promulgates area designations for the 2010 SO <sub>2</sub> 1-hour NAAQS; final area designations expected by 12/31/20 due to new source-specific monitoring requirements; Basin expected to be in attainment due to ongoing clean data.	
10.	Partial Nonattainment designation – Los Angeles County portion of the Basin only for near-source monitors; expect to remain in attainment based on current monitoring data; attainment re-designation request pending.	

Sources: South Coast Air Quality Management District. 2016 Air Quality Management Plan, 2017. Table 2-3, page 2-8 and Table 2-5, page 2-10.

**Air Quality Monitoring Data**

The SCAQMD operates a network of ambient air monitoring stations throughout the SCAB, including the City of Redlands, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The SCAQMD monitors air quality conditions at 38 permanent monitoring stations and five single-pollutant source impact Lead (Pb) air monitoring sites (SCAQMD, 2016). The 500 North Dearborn Street ambient air quality monitoring station in Redlands monitors air pollutant data in the city. The air quality trends from this station are used to represent the city's ambient air quality. Ambient concentrations of pollutants from 2013 through 2015 are presented in Table 3.3-2. Where data were not available in Redlands, the 24302 4th Street ambient air quality monitoring station in San Bernardino was used. The number of days exceeding the ambient air quality standards (State and federal) is shown in Table 3.3-3.

**Table 3.3-2: Ambient Air Quality Monitored at the Redlands–500 North Dearborn Street Station**

Pollutant	Averaging Time	2013	2014	2015
O <sub>3</sub>	8-hour	0.119 ppm	0.104 ppm	0.115 ppm
	1-hour	0.133 ppm	0.128 ppm	0.137 ppm
PM <sub>10</sub>	Annual	27.1 µg/m <sup>3</sup>	25.9 µg/m <sup>3</sup>	24.7 µg/m <sup>3</sup>
	24-hour	72.0 µg/m <sup>3</sup>	62.0 µg/m <sup>3</sup>	95.0 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual <sup>1</sup>	11.4 µg/m <sup>3</sup>	ND	10.7 µg/m <sup>3</sup>
	24-hour	55.3 µg/m <sup>3</sup>	32.2 µg/m <sup>3</sup>	68.0 µg/m <sup>3</sup>
NO <sub>2</sub>	Annual	0.018 ppm	0.018 ppm	0.015 ppm
	1-hour	0.072 ppm	0.072 ppm	0.071 ppm
CO <sup>2</sup>	8-hour	1.7 µg/m <sup>3</sup>	2.4 µg/m <sup>3</sup>	1.8 µg/m <sup>3</sup>
	1-hour	3.8 µg/m <sup>3</sup>	4.1 µg/m <sup>3</sup>	2.3 µg/m <sup>3</sup>
SO <sub>2</sub>	Annual	ND	ND	ND
	24-hour	ND	ND	ND

Notes: Data represent maximum values

1. Data were taken from the 24302 4th Street, San Bernardino ambient air quality monitoring station.

2. Data were taken from EPA, “Monitor Values Report.”

µg/m<sup>3</sup> = micrograms per cubic meter

ppm = parts per million

µg/m<sup>3</sup> = micrograms per cubic meter

ND = No data. There was insufficient (or no) data to determine the value.

Source: CARB. “Air Quality Data Statistics.” 2013.

**Table 3.3-3: Frequency of Air Quality Standard Violations in the South Coast Air Basin**

Year	Number of Days Exceeding Standard				
	State		Federal	State 24-hour PM101, 2	Federal 24-hour PM2.51
	State 1-Hour O3	8-Hour O3 (0.070 ppm)	8-Hour O3 (0.075 ppm)		
2013	45	101	98	86	13
2014	50	97	93	119	10
2015	52	86	96	87	30

Notes:

1. Measured # of Days > 24-hour Standard

2. Measurements are usually collected every six days. Measured day’s counts the days that a measurement was greater than the level of the standard. N/D = no data or insufficient data

Source: CARB. “Air Quality Data Statistics.” 2017.

## **EXISTING SOURCES OF AIR POLLUTION**

The primary source of air pollution in Redlands is from on-road mobile sources such as automobiles, trucks, motorcycles, buses, and motor homes. These sources account for the majority of the O<sub>3</sub> precursor emissions in the city. On-road mobile source emissions are directly related to regional VMT on both local roadways and interstate freeways. As population growth in the region occurs, VMT increases, resulting in increased O<sub>3</sub> precursor emissions. Particulate emissions are generated by woodsmoke from residential fireplaces and from construction activities. Consumer products, architectural coatings, fertilizers, and asphalt paving are also sources of air pollution within Redlands.

There are numerous stationary sources of emissions in the city as well, including industrial facilities. SCAQMD maintains a Facility Information Detail (FIND) database of AQMD-regulated facilities (facilities that are required to have a permit to operate equipment that releases pollutants into the air). A search of the database found over 700 permits for facilities within Redlands (392 active) and 23 permits for facilities (21 active) in the Planning Area outside of city limits (SCAQMD, 2017b). The database included two Title V-permitted facilities, the Southern California Edison Mountainview Generating Station at 2492 W. San Bernardino Avenue and the San Bernardino County Waste Management facility at 31 Refuse Road. Title V applies to “major sources,” or facilities that emit, or have the potential to emit, any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than thresholds established by the EPA. Additionally, the Teledyne Battery Products facility at 840 W. Brockton Avenue, also listed in the FIND database, issued a Proposition 65 warning in 2016 regarding lead emissions. The warning showed an area within the vicinity of the facility where persons may be exposed to lead at or above a threshold level determined by the State. Results from the FIND database search and the Proposition 65 warning are included in Appendix B of this EIR.

## **REGULATORY SETTING**

### **Federal Regulations**

#### ***Clean Air Act***

The Federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including the setting of NAAQS for major air pollutants, hazardous air pollutant standards, approval of State attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O<sub>3</sub> protection, and enforcement provisions. NAAQS are established for “criteria pollutants” under the Clean Air Act, which are O<sub>3</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O<sub>3</sub>, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O<sub>3</sub>, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every five years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State

Implementation Plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

### State Regulations

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts (AQMDs) and air pollution control districts (APCDs) at the regional and county levels. CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established CAAQS, which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. The CAAQS for O<sub>3</sub>, CO, SO<sub>2</sub> (1-hour and 24-hour), NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 3.3-4, Ambient Air Quality Standards.

**Table 3.3-4: Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>		
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>
Ozone <sup>8</sup> (O <sub>3</sub> )	1-Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m <sup>3</sup> )		0.070 ppm (137 µg/m <sup>3</sup> )		
Respirable Particulate Matter (PM <sub>10</sub> ) <sup>9</sup>	24-Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		–		
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>9</sup>	24-Hour	–	–	35 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	12.0 µg/m <sup>3</sup>		
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry	35 ppm (40 mg/m <sup>3</sup> )	–	Non-Dispersive Infrared Photometry
	8-Hour	9.0 ppm (10 mg/m <sup>3</sup> )		9 ppm (10 mg/m <sup>3</sup> )	–	

**Table 3.3-4: Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>		
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>
	8-Hour (Lake Tahoe)	6 ppm (7 µg/m <sup>3</sup> )		–	–	
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>10</sup>	1-Hour	0.18 ppm (339 µg/m <sup>3</sup> )	Gas Phase Chemiluminescence	100 ppb (188 µg/m <sup>3</sup> )	–	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )		0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary Standard	
Sulfur Dioxide (SO <sub>2</sub> ) <sup>11</sup>	1-Hour	0.25 ppm (655 µg/m <sup>3</sup> )	Ultraviolet Fluorescence	75 ppb (196 µg/m <sup>3</sup> )	–	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1300 µg/m <sup>3</sup> )	
	24-Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm (for certain areas) <sup>9</sup>	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas) <sup>9</sup>	–	
Lead (Pb) <sup>12, 13</sup>	30-Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m <sup>3</sup> (for certain areas) <sup>12</sup>	Same as Primary Standard	
	Rolling 3-Month Average <sup>9</sup>	–		0.15 µg/m <sup>3</sup>		
Visibility-Reducing Particles <sup>14</sup>	8-Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	Federal Standards		
Sulfates	24-Hour	25 µg/m <sup>3</sup>	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence			

**Table 3.3-4: Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>		
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>
Vinyl Chloride <sup>12</sup>	24-Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography			
<p>Notes:</p> <p>ppm= parts per million by volume      µg/m<sup>3</sup> = micrograms per cubic meter      mg/m<sup>3</sup>= milligrams per cubic meter</p> <ol style="list-style-type: none"> <li>California standards for O<sub>3</sub>, carbon monoxide (except 8-hour Lake Tahoe), SO<sub>2</sub> (1- and 24-hour), NO<sub>2</sub>, and suspended particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, 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.</li> <li>National standards (other than O<sub>3</sub>, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O<sub>3</sub> standard is attained when the fourth-highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM<sub>10</sub>, 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<sup>3</sup> is equal to or less than 1. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.</li> <li>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.</li> <li>Any equivalent procedure which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.</li> <li>National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.</li> <li>National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</li> <li>Reference method as described by the USEPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the USEPA.</li> <li>On October 1, 2015, the national 8-hour O<sub>3</sub> primary and secondary standards were lowered from 0.075 ppm to 0.070 ppm.</li> <li>On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.</li> <li>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 standard of 100 ppb is identical to 0.100 ppm.</li> <li>On June 2, 2010, a new 1-hour SO<sub>2</sub> 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<sub>2</sub> national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standards 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</li> <li>CARB has identified Pb 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.</li> </ol>						

**Table 3.3-4: Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>		
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>
13. The national standard for Pb was revised on October 15, 2008, to a rolling 3-month average. The 1978 Pb standard (1.5 µg/m <sup>3</sup> as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.						
14. 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: CARB “Ambient Air Quality Standards,” 2016.

### California Clean Air Act

In 1988, the California Clean Air Act (CCAA) required that all air districts in the State endeavor to achieve and maintain CAAQS for carbon monoxide, ozone, sulfur dioxide, and nitrogen dioxide by the earliest practical date. The CCAA provides districts with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

### California Air Resources Board Handbook

The CARB has developed an Air Quality and Land Use Handbook, which is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process (CARB, 2005). According to the CARB Handbook, recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high-traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. The CARB Handbook recommends that planning agencies strongly consider proximity to these sources when finding new locations for “sensitive” land uses such as homes, medical facilities, daycare centers, schools, and playgrounds.

Air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners, and large gasoline service stations. Key recommendations in the CARB Handbook include taking steps to avoid siting new, sensitive land uses:

- Within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
- Within 1,000 feet of a major service and maintenance rail yard.
- Immediately downwind of ports (in the most heavily affected zones) and petroleum refineries.

- Within 300 feet of any dry cleaning operation (for operations with two or more machines, provide 500 feet).
- Within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater).

The CARB Handbook specifically states that its recommendations are advisory and acknowledges land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

The recommendations are generalized and do not consider site-specific meteorology, freeway truck percentages, or other factors that influence risk for a particular project site. The purpose of this analysis is to further examine project sites for actual health risk associated with the location of new sensitive land uses.

## **Local Regulations**

### **South Coast Air Quality Management District**

While CARB is responsible for the regulation of mobile emission sources within the State, local AQMDs and APCDs are responsible for enforcing standards and regulating stationary sources. The SCAQMD is responsible for clean air in the SCAB. Redlands is located within the SCAB and is subject to SCAQMD guidelines and regulations. The 2016 Air Quality Management Plan (AQMP) is the regional blueprint for achieving federal and State air quality standards, and includes a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures within the SCAB. The SCAQMD develops rules based on control measures identified within the AQMP which are designed to reduce air pollution from specific sources.

In general, the SCAQMD has several regulations and rules that would apply to future development under implementation of the proposed General Plan. SCAQMD regulations establish rules for the following:

- **Regulation IV – Prohibitions:** This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air pollutant emissions, fuel contaminants, start-up/shutdown exemptions and breakdown events.
  - **Rule 402 – Nuisance:** This rule restricts the discharge of any contaminant in quantities that cause or have a natural ability to cause injury, damage, nuisance, or annoyance to businesses, property, or the public.
  - **Rule 403 – Fugitive Dust:** This rule requires the prevention, reduction, or mitigation fugitive dust emissions from a project site. Rule 403 restricts visible fugitive dust to a project property line, restricts the net PM<sub>10</sub> emissions to less than 50 µg/m<sup>3</sup> and restricts the tracking out of bulk materials onto public roads. Additionally, Rule 403 requires an applicant to utilize one or more of the best available control measures (identified in the tables within the rule). Mitigation measures may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers, and/or ceasing all activities. Finally, Rule 403 requires that a contingency plan be

prepared if so determined by the EPA. Future development resulting from approval of the project will comply with Rule 403.

- **Regulation XI – Source Specific Standards:** Regulation XI sets emissions standards for different sources.
  - **Rule 1113 – Architectural Coatings:** This rule limits the amount of VOCs from architectural coatings and solvents, which lowers the emissions of odorous compounds.

The SCAQMD is responsible for demonstrating regional compliance with ambient air quality standards but has limited indirect involvement in reducing emissions from fugitive, mobile, and natural sources. To that end, the SCAQMD works cooperatively with the CARB, the Southern California Association of Governments (SCAG), county transportation commissions, local governments, and other federal and State government agencies. It has responded to this requirement by preparing a series of Air Quality Management Plans (AQMPs) to meet the CAAQS and National Ambient Air Quality Standards (NAAQS). The SCAQMD has developed the 2016 AQMP, which incorporates the latest scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and updated emission inventory methodologies for various source categories.

The AQMP is the region's Clean Air Plan, which guides the region's air quality planning efforts to attain the CAAQS. The SCAQMD's 2016 AQMP contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO<sub>x</sub>), particulate matter, and greenhouse gas emissions. The 2016 AQMP developed integrated strategies and measures to meet the following NAAQS:

- 8-hour Ozone (75 ppb) by 2032;
- Annual PM<sub>2.5</sub> (12 µg/m<sup>3</sup>) by 2021–2025;
- 8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs);
- 1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP); and
- 24-hour PM<sub>2.5</sub> (35 µg/m<sup>3</sup>) by 2019 (updated from the 2012 AQMP).

The 2016 AQMP also included an initial look at the new 2015 Federal 8-hour ozone standard (70 ppb), as well as incorporated energy, climate, transportation, goods movement, infrastructure, and other planning efforts that affect future air quality. The most significant air quality challenge in the Basin is to reduce NO<sub>x</sub> emissions sufficiently to meet the upcoming ozone standard deadlines. Based on preliminary analyses, the approximately 580 tons per day (tpd) of total Basin NO<sub>x</sub> emissions are projected to drop to approximately 300 tpd and 250 tpd in the attainment years of 2023 and 2031 respectively, due to continued implementation of already adopted control measures.

The primary challenge is that mobile sources currently contribute about 88 percent of the region's total NO<sub>x</sub> emissions, and SCAQMD has limited authority to regulate mobile sources. SCAQMD is working closely with the CARB and EPA, which have primary authority over mobile sources to ensure mobile sources do their fair share of pollution reduction.

Since NO<sub>x</sub> emissions also lead to the formation of PM<sub>2.5</sub>, the NO<sub>x</sub> reductions needed to meet the ozone standards will lead to significant improvements in PM<sub>2.5</sub> levels. The 2016 AQMP includes PM<sub>2.5</sub> control strategies as needed to ensure that the PM<sub>2.5</sub> NAAQS will also be met on time.

SCAQMD has published the *CEQA Air Quality Handbook* (Handbook) and updates on its website that are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs, which were used in this analysis.

The SCAQMD adopted land use planning guidelines in the May 2005 “Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning,” which, like the Handbook, also consider impacts to sensitive receptors from facilities that emit TACs. The SCAQMD’s distance recommendations are the same as those provided by the CARB (e.g., the same siting criteria for freeways, distribution centers, and dry cleaning facilities). The SCAQMD’s document introduces land use-related policies that rely on design and distance parameters to manage potential health risk that are suggested for use by local governments. These guidelines are voluntary initiatives recommended for consideration by local planning agencies.

### ***Southern California Association of Governments***

SCAG is a council of governments for Los Angeles, Orange, Riverside, San Bernardino, Imperial, and Ventura Counties. It is a regional planning agency and serves as a forum for regional issues relating to transportation, the economy and community development, and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With regard to air quality planning, SCAG prepares the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP), which address regional development and growth forecasts and form the basis for the land use and transportation control portions of the AQMP, and are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP. The RTP, RTIP, and AQMP are based on projections originating within local jurisdictions.

Although SCAG is not an air quality management agency, it is responsible for developing transportation, land use, and energy conservation measures that affect air quality. SCAG’s Regional Comprehensive Plan (RCP) provides growth forecasts that are used in the development of air quality-related land use and transportation control strategies by the SCAQMD. The RCP is a framework for decision-making for local governments, assisting them in meeting federal and State mandates for growth management, mobility, and environmental standards, while maintaining consistency with regional goals regarding growth and changes through the year 2015, and beyond. Policies within the RCP include consideration of air quality, land use, transportation, and economic relationships by all levels of government.

On April 7, 2016, SCAG adopted the 2016–2040 RTP/SCS. Using growth forecasts and economic trends, the RTP provides a vision for transportation throughout the region for the next 20 years. It considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address mobility needs. The SCS is a newly required element of the RTP, which integrates land use and transportation strategies to achieve CARB emissions reduction targets. The inclusion of the SCS is required by Senate Bill 375 (SB 375), which was enacted to reduce greenhouse gas emissions from

automobiles and light trucks through integrated transportation, land use, housing, and environmental planning. The RTP/SCS would successfully achieve and exceed the greenhouse gas emission-reduction targets set by the CARB by achieving an 8 percent reduction by 2020, an 18 percent reduction by 2035, and a 21 percent reduction by 2040 compared to the 2005 level on a per capita basis. This RTP/SCS also meets criteria pollutant emission budgets set by the EPA.

The 2016–2040 RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with SB 375, improve public health, and meet the NAAQS as set forth by the CAA. Even with ongoing aggressive control strategies, ever more stringent national O<sub>3</sub> standards require further NO<sub>x</sub> emission reductions in the SCAG region. In the Basin, for example, it is estimated that NO<sub>x</sub> emissions will need to be reduced by approximately 50 percent in 2023 and an additional 15 percent NO<sub>x</sub> reduction beyond 2023 levels by 2031. Most sources of NO<sub>x</sub> emissions, cars and factories, are already controlled by over 90 percent. The level of emission reduction required is so significant that 2030 emissions forecast from just three sources—ships, trains, and aircraft—would lead to O<sub>3</sub> levels near the Federal standard. To accomplish the reduction required to meet O<sub>3</sub> standards, the 2016–2040 RTP/SCS contains a regional commitment for the broad deployment of zero- and near-zero emission transportation technologies in the 2023 to 2040 timeframe and clear steps to move toward this objective.

## Impact Analysis

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### SIGNIFICANCE CRITERIA

For the purposes of this Program EIR, a significant impact would occur if the Proposed Project would:

- Criterion 1: Conflict with or obstruct the implementation of the applicable air quality plan;**
- Criterion 2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation;**
- Criterion 3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O<sub>3</sub> precursors);**
- Criterion 4: Expose sensitive receptors to substantial pollutant concentrations; or**
- Criterion 5: Create objectionable odors affecting a substantial number of people.**

### SCAQMD Thresholds

SCAQMD is in the process of developing an “Air Quality Guidance Guidebook” to replace the California Environmental Quality Act (CEQA) Air Quality Handbook originally approved by the AQMD Governing Board in 1993. Although the Guidebook is being developed, the SCAQMD has still made available the Air Quality Thresholds, which are identified below in Table 3.3-5.

**Table 3.3-5: SCAQMD Air Quality Significance Thresholds**

<b>Construction Emissions</b>	
<i>Pollutant</i>	<i>Total Emissions (Pounds per Day)</i>
Respirable Particulate Matter (PM <sub>10</sub> )	150
Fine Particulate Matter (PM <sub>2.5</sub> )	55
Oxides of Nitrogen (NO <sub>x</sub> )	100
Oxides of Sulfur (SO <sub>x</sub> )	150
Carbon Monoxide (CO)	550
Lead	3
Volatile Organic Compounds (VOC)	75
<b>Operational Emissions</b>	
<i>Pollutant</i>	<i>Total Emissions (Pounds per Day)</i>
Respirable Particulate Matter (PM <sub>10</sub> )	150
Fine Particulate Matter (PM <sub>2.5</sub> )	55
Oxides of Nitrogen (NO <sub>x</sub> )	55
Sulfur Oxides (SO <sub>x</sub> )	150
Carbon Monoxide (CO)	550
Lead	3
Volatile Organic Compounds (VOC)	55
<b>TAC's and Odor Thresholds</b>	
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Risk > 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas > 1 in 1 million Chronic & Acute Hazard Index > 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402a
<p>Note: Rule 402 states that A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.</p>	

Sources: SCAQMD. Air Quality Significance Thresholds, March 2015.

The thresholds listed in Table 3.3-5 represent screening-level thresholds that can be used for CEQA purposes to evaluate whether project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. In the

event that emissions exceed these thresholds, modeling would be required to demonstrate that the project's total air quality impacts result in ground-level concentrations that are below the CAAQS and NAAQS, including appropriate background levels. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 3.3-5, the project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

## **METHODOLOGY AND ASSUMPTIONS**

Information and analysis have been compiled based on an understanding of the existing ambient air quality of the SCAB and review of existing technical data, aerial maps, and applicable laws, regulations, and guidelines. Vehicle miles traveled (VMT) associated with the proposed General Plan were derived from the traffic impact analysis prepared by Fehr and Peers. The California Emissions Estimator Model version 2016.3.1 (CalEEMod) was utilized to estimate project-related mobile and stationary source emissions.

## **SUMMARY OF IMPACTS**

Implementation of the proposed General Plan could result in significant air quality impacts. These impacts could occur due to future construction activities such as grading and excavation associated with development, and due to increased vehicular traffic associated with future growth within the City. The proposed Climate Action Plan (CAP) does not include any land use changes or any mandatory actions that would affect air quality and would therefore have no impact. As described below, the proposed General Plan includes principles and actions that would help to reduce potential air quality impacts through reductions in construction and operational emissions, and buffering new residential uses from the freeways. However, as described below, even with implementation of the proposed General Plan principles and actions, long-term operation air quality impacts would remain significant and unavoidable.

## **IMPACTS**

### **Impact 3.3-1      Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan. (Less than Significant)**

As mentioned earlier in this analysis, the SCAQMD is responsible for developing and implementing the clean air plan for attainment and maintenance of the NAAQS and CAAQS in the SCAB. This air quality evaluation was prepared to determine if significant air quality impacts are likely to occur in conjunction with future development that would be accommodated by the proposed General Plan. As discussed above, SCAQMD has published the *CEQA Air Quality Handbook* and updates on its website that are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs, which were used in this analysis.

It is noted that the SCAQMD thresholds for operational emissions are designed for analysis of individual development projects, not for a long-range planning program such as the City of

Redlands' proposed General Plan, which will be implemented over a long period of time. In order to quantify the level of emissions associated with individual development projects, specific information regarding the size and type of development and the location of receptors would be needed. Emissions associated with the operation of individual projects, depending on project type and size, could exceed project-specific thresholds established by the SCAQMD.

CEQA requires general plans be evaluated for consistency with the AQMP. A consistency determination plays an important role in local-agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental effects of the project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean-air goals in the AQMP. Only new or amended general plan elements, specific plans, and major projects need to undergo a consistency review. This is because the AQMP strategy is based on projections from local general plans. Projects that are consistent with the local general plan are considered consistent with the air quality-related regional plan. There are two key indicators of consistency:

- **Indicator 1:** Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the AAQS or interim emission reductions in the AQMP.
- **Indicator 2:** Whether the project would exceed the assumptions in the AQMP. The AQMP strategy is, in part, based on projections from local general plans.

*Indicator 1:* The Basin is designated nonattainment for O<sub>3</sub> and PM<sub>2.5</sub> under the CAAQS and NAAQS, nonattainment for lead (Los Angeles County only) under the NAAQS, and nonattainment for PM<sub>10</sub> under the CAAQS. Because the proposed project involves long-term growth associated with buildout of the City of Redlands, emissions of criteria pollutants associated with future development consistent with the proposed project may exceed the thresholds for PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, and VOCs. Future development under the proposed project would be required to comply with CARB motor vehicle standards, SCAQMD regulations from stationary sources and architectural coatings, Title 24 energy efficiency standards, and the proposed General Plan principles and actions. While existing City policies and regulations and proposed General Plan principles and actions are intended to reduce impacts associated with air quality violations, specific measures that implement these policies and regulations are proposed to ensure that the intended environmental protections are achieved. Consequently, emissions generated by development projects in addition to existing sources within the city are not considered to cumulatively contribute to the nonattainment designations of the Basin. Buildout of the proposed General Plan would not contribute to an increase in frequency or severity of air quality violations and delay attainment of the AAQS or interim emission reductions in the AQMP, and emissions generated from buildout of the proposed General Plan would not result in a significant air quality impact. Therefore, the proposed General Plan would result in a less than significant impact associated with air quality. The proposed project would be consistent with the AQMP under the first indicator.

*Indicator 2:* The land-use designations in the existing General Plan form, in part, the foundation for the emissions inventory for the SCAB in the AQMP. The AQMP is based on projections in population, employment, and VMT in the Basin projected by SCAG. If a project proposes

development that is greater than that anticipated in the local general plan and SCAG's growth projections, the project might be in conflict with the AQMP and may contribute to a potentially significant cumulative impact on air quality. Future land uses and development projects that occur consistent with the proposed General Plan would increase vehicle trips and VMT that would result in ozone precursor emissions and particulate matter. However, individual projects under the proposed General Plan would be required to undergo subsequent environmental review pursuant to CEQA, and as part of this review effort, projects requiring discretionary approval would be required to demonstrate compliance with the AQMP. Individual projects would also be required to demonstrate compliance with SCAQMD rules and regulations governing air quality, specifically particulate matter. The City of Redlands would continue to coordinate with the SCAQMD and SCAG to ensure city-wide growth projections, land use planning efforts, and local development patterns are accounted for in the regional planning and air quality planning processes. The proposed General Plan principles and actions listed below would help to reduce potential impacts related to conflicts with an applicable air quality plan. For these reasons, and emission control measures established by the AQMP, the proposed General Plan would not conflict with or obstruct the implementation of the applicable air quality plan. Impacts would be less than significant.

The proposed CAP provides optional measures to reduce greenhouse gas (GHG) emissions and energy use from future development, and does not contain any land use changes. Any renewable energy, energy-efficient, or water utilities improvements installation as result of the proposed CAP would be subject to the development review and permitting process, and State and federal laws, as well as proposed policies listed below. Therefore, impacts on air quality from the proposed CAP would be beneficial and less than significant.

### ***Proposed General Plan Principles and Actions that Reduce the Impact***

#### ***Livable Community Element***

##### **Transit Villages Principles**

4-P.44 Provide choices for travel options, including walking, biking, vehicular, and transit.

#### ***Connected City Element***

##### **Layered, Multi-Modal Network Principles**

5-P.4 Support transportation infrastructure improvements such as safer street crossings and attractive streetscapes to encourage bicyclists, walkers, and users of mobility devices.

5-P.5 Manage the city's transportation system to minimize traffic congestion, improve flow, and improve air quality.

##### **Pedestrian, Bicycle, and Vehicular Movement Actions**

5-A.19 Provide pedestrian routes between offices, neighborhoods, Downtown, and Transit Villages. Plan for direct connections from the interiors of residential tracts to neighboring parks, schools, retail, and other services using sidewalks, trails, and paseos.

##### **Bicycle Movement Principles**

5-P.19 Establish and maintain a comprehensive network of on- and off-roadway bike routes to encourage the use of bikes for both commuter and recreational trips.

- 5-P.20 Develop bike routes that provide access to rail stations, Downtown, schools, parks, the University, employment, and shopping destinations.

### **Bicycle Movement Actions**

- 5-A.27 Incorporate end-of-trip facilities into Transportation Demand Management (TDM) plans at employment sites and public facilities, depending upon distance from bikeways. Provide well-located, secure bike storage facilities at employment sites, shopping and recreational areas, and schools in order to facilitate bike use. Encourage major employers to provide shower and changing facilities or assist in funding bicycle transit centers in nearby locations.

### **Vehicular Movement Actions**

- 5-A.32 Utilize transportation demand management strategies, non-automotive enhancements (bicycle, pedestrian, transit, train, trails, and connectivity), and traffic signal management techniques as part of a long-term transportation solution and traffic mitigation strategy.
- 5-A.34 Encourage the use of car share and car hire services within Redlands to provide vehicular transportation alternatives.
- 5-A.37 Plan for areas where alternative fueling stations can be located throughout the city such as electric charging stations, CNG, hydrogen, and flex fuels.

### **Transit Principles**

- 5-P.25 Improve public transit as a viable form of transportation in Redlands.
- 5-P.26 Support passenger rail as an alternative mode of regional transit.

### **Transportation Demand Management (TDM) Principles**

- 5-P.27 Adopt and implement a Transportation Demand Management Program.

### **Transportation Demand Management (TDM) Actions**

- 5-A.66 Evaluate and include the following appropriate elements in a Transportation Demand Management (TDM) Program:
- Telecommuting from home
  - Telecommuting from a satellite work Center
  - Compressed work week
  - Flex time
  - Ridesharing
  - Ridesharing subsidy and tax credits
  - Ridesharing parking cost subsidy
  - Ridematching and carpooling
  - Guaranteed ride home

- Car hire services
- Commuter stores
- Car share programs
- Bike share programs
- On-site facilities for commuters
- Remote park-and-ride lots with amenities
- Preferential parking for ride sharers
- Transit pass programs
- Other new and innovate alternatives that may arise in the future

*Healthy Community Element*

**Public Health Actions**

- 7-A.44 Support the use of clean fuel and “climate friendly” vehicles in order to reduce energy use, energy costs, and greenhouse gas emissions by residents, businesses, and City government activities.
- 7-A.46 Encourage the provision of bike lockers, bike-sharing, and other methods of supporting active transportation that can contribute to healthy lifestyles.

**Air Quality Principles**

- 7-P.44 Protect air quality within the city and support efforts for enhanced regional air quality.
- 7-P.45 Aim for a diverse and efficiently-operated ground transportation system that generates the minimum amount of pollutants feasible.
- 7-P.46 Increase average vehicle ridership during peak commute hours as a way of reducing vehicle miles traveled and peak period auto travel.
- 7-P.47 Cooperate in efforts to expand bus, rail, and other forms of mass transit in the portion of the South Coast Air Basin within San Bernardino County.
- 7-P.48 Involve environmental groups, the business community, and the general public in the formulation and implementation of programs that enhance air quality in the city and the region.

**Air Quality Actions**

- 7-A.144 To the extent practicable and feasible, maintain a system of air quality alerts (such as through the City website, internet, e-mail to City employees, and other tools) based on South Coast Air Quality Management District forecasts. Consider providing incentives to City employees to use alternative transportation modes during alert days.
- 7-A.145 Provide, whenever possible, incentives for carpooling, flex time, shortened work weeks, telecommuting, and other means of reducing vehicular miles traveled.
- 7-A.146 Promote expansion of all forms of mass transit to the urbanized portions of San Bernardino, Orange, Los Angeles, and Riverside counties. Support public transit

providers in efforts to increase funding for transit improvements to supplement other means of travel.

- 7-A.147 Cooperate with the ongoing efforts of the U.S. Environmental Protection Agency, the South Coast Air Quality Management District, and the State of California Air Resources Board in improving air quality in the regional air basin.
- 7-A.148 Develop requirements for retrofitting existing residential buildings within the 500 foot AQMD buffer along the freeway to abate air pollution, and limitations on new residential developments within the buffer.
- 7-A.149 Ensure that construction and grading projects minimize short-term impacts to air quality.
  - a. Require grading projects to provide a storm water pollution prevention plan (SWPPP) in compliance with City requirements, which include standards for best management practices (BMPs) that control pollutants from dust generated by construction activities and those related to vehicle and equipment cleaning, fueling, and maintenance;
  - b. Require grading projects to undertake measures to minimize mono-nitrogen oxides (NO<sub>x</sub>) emissions from vehicle and equipment operations; and
  - c. Monitor all construction to ensure that proper steps are implemented.
- 7-A.150 Establish and implement a Transportation Demand Management (TDM) Program.
- 7-A.151 Convert the City fleet to zero emissions vehicles where financially feasible and provide associated infrastructure for such vehicles.
- 7-A.152 Enforce regulations to prevent trucks from excessive idling in residential areas.

*Sustainable Community Element*

**Energy Efficiency and Conservation Principles**

- 8-P.1 Promote energy efficiency and conservation technologies and practices that reduce the use and dependency of nonrenewable resources of energy by both City government and the community.
- 8-P.2 Promote energy awareness community-wide by educating the community regarding energy audits and incentive programs (tax credits, rebates, exchanges, etc.) available for energy conservation.
- 8-P.3 Proactively review and update City plans, resolutions, and ordinances to promote greater energy efficiency in both existing and new construction in regard to site planning, architecture, and landscape design.

**Energy Efficiency and Conservation Actions**

- 8-A.1 Work with Southern California Edison Company (SCE) and Southern California Gas Company (SCG) to educate the public about the need to conserve energy resources and the higher energy efficiency of new appliances and building materials.

- 8-A.2 Support San Bernardino County and San Bernardino Associated Governments (SANBAG) in implementation of their energy-related policies.
- 8-A.4 Continue pursuit of sustainable energy sources—such as hydroelectricity; geothermal, solar, and wind power; and biomethane—to meet the community’s needs.
- 8-A.7 Seek alternatives to reduce non-renewable energy consumption attributable to transportation within the Planning Area. Seek funding and other assistance from the South Coast Air Quality Management District (AQMD) for installation of electric vehicle charging stations at appropriate locations throughout the city.
- 8-A.8 Implement and enforce California Code of Regulations Title 24 building standards (parts 6 and 11) to improve energy efficiency in new or substantially remodeled construction. Consider implementing incentives for builders that exceed the standards included in Title 24 and recognize their achievements over the minimum standards.

**Green Building and Landscape Principles**

- 8-P.8 Promote sustainability by reducing the community’s greenhouse gas (GHG) emissions and fostering green development patterns—including buildings, sites, and landscapes.

**Green Building and Landscape Actions**

- 8-A.39 Continue implementation and enforcement of the California Building and Energy codes to promote energy efficient building design and construction.
- 8-A.40 Promote the Leadership in Energy and Environmental Design (LEED) certification program for the design, operation, and construction of high-performance green buildings.
- 8-A.41 Promote energy conservation and retrofitting of existing buildings through:
  - Encouraging point-of-sale residential energy and water efficiency audits. Provide information on upgrading requirements and/or incentives if necessary;
  - Providing financial incentives and low-cost financing products and programs that encourage investment in energy efficiency and renewable energy within existing residential buildings; and
  - Educating residents about the availability of free home energy audit programs and encouraging the implementation of audit findings.

**Greenhouse Gas Reduction Principles**

- 8-P.9 Undertake initiatives to enhance sustainability by reducing the community’s GHG emissions.
- 8-P.10 Demonstrate leadership by reducing the use of energy and fossil fuel consumption in municipal operations, including transportation, waste reduction, and recycling, and by promoting efficient building design and use.

### **Greenhouse Gas Reduction Actions**

- 8-A.45 Prepare a Climate Action Plan to ensure that the Planning Area complies with State-mandated GHG emissions.
- 8-A.46 Continue to monitor the City's compliance with State-mandated GHG emissions, as provided for in the Climate Action Plan. Make timely adjustments to City policies as required to continue meeting State GHG targets, and as changes in technology, federal and State programs, or other circumstances warrant.

### **Mitigation Measures**

None required.

### **Impact 3.3-2 Development under the proposed General Plan would violate air quality standards or contribute substantially to an existing or projected air quality violation. (Significant and Unavoidable)**

As stated previously, in the SCAB, O<sub>3</sub>, NO<sub>2</sub>, and particulate matter are the pollutants of main concern, since exceedances of CAAQS for those pollutants are experienced here in most years. For this reason, the SCAB has been designated as a nonattainment area for the State O<sub>3</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub> standards. The SCAB is also designated as a nonattainment area for the federal O<sub>3</sub> and PM<sub>2.5</sub> and is in attainment/maintenance for the federal PM<sub>10</sub>, CO, and NO<sub>2</sub> standards.

#### **Construction**

Construction activities associated with the proposed General Plan would occur over the buildout horizon of the proposed General Plan, which would cause short-term emissions of criteria air pollutants. The primary source of NO<sub>x</sub>, CO, and SO<sub>x</sub> emissions is the operation of construction equipment.

The primary sources of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions are activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. The primary source of VOC emissions is the application of architectural coating and off-gas emissions associated with asphalt paving.

Information regarding specific development projects, soil types, and the locations of receptors would be necessary in order to quantify the level of impact associated with construction activity. Due to the scale of development activity associated with buildout of the proposed General Plan, emissions would likely exceed the SCAQMD regional significance thresholds. In accordance with the SCAQMD methodology, emissions that exceed the regional significance thresholds would cumulatively contribute to the nonattainment designations of the Basin. The Basin is designated nonattainment for O<sub>3</sub> and particulate matter. Emissions of VOC and NO<sub>x</sub> are precursors to the formation of O<sub>3</sub>. In addition, NO<sub>x</sub> is a precursor to the formation of particulate matter. Therefore, the project would cumulatively contribute to the nonattainment designations of the Basin for O<sub>3</sub> and particulate matter. Air quality related to construction must be addressed on a project-by-project basis.

For this program EIR, it is not possible to determine whether the scale and phasing of individual projects would exceed the SCAQMD's short-term regional or localized construction emissions

thresholds. In addition to regulatory measures (e.g., SCAQMD Rule 201 for a permit to operate, Rule 403 for fugitive dust control, Rule 1113 for architectural coatings, Rule 1403 for new source review, and the CARB's Airborne Toxic Control Measures), mitigation imposed at the project level may include extension of construction schedules and/or use of special equipment. Existing City policies and regulations and proposed General Plan principles and actions are intended to minimize impacts associated with non-attainment criteria pollutants. While these regulations and policies would reduce impacts associated with construction activities, there is no guarantee emissions would be mitigated below SCAQMD thresholds. Therefore, impacts would remain significant and unavoidable during construction.

### *Operation*

Long-term air emission impacts are those associated with area sources and mobile sources involving any change related to the proposed General Plan. In addition to the short-term construction emissions, buildout of the proposed General Plan would also generate long-term air emissions. These long-term emissions are primarily mobile source emissions that would result from vehicle trips and VMT associated with buildout of the proposed General Plan. Area sources, such as natural gas heaters, landscape equipment, and use of consumer products, would also result in pollutant emissions.

PM<sub>10</sub> emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. PM<sub>10</sub> occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline-powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles. Since much of the future traffic fleet would be made up of light-duty gasoline-powered vehicles, a majority of the PM<sub>10</sub> emissions would result from entrainment of roadway dust from vehicle travel.

Energy source emissions result from activities in buildings for which electricity and natural gas are used (non-hearth). The quantity of emissions is the product of usage intensity (i.e., the amount of electricity or natural gas) and the emission factor of the fuel source. Major sources of energy demand include building mechanical systems, such as heating and air conditioning, lighting, and plug-in electronics, such as refrigerators or cooking equipment. Greater building or appliance efficiency reduces the amount of energy for a given activity and thus lowers the resultant emissions. The emission factor is determined by the fuel source, with cleaner energy sources, like renewable energy, producing fewer emissions than conventional sources.

Area source emissions associated with buildout of the proposed General Plan would include emissions from water heating and the use of landscaping equipment. Stationary sources, other than area sources, were not included in operational emissions estimate calculations as new stationary source projects under the proposed General Plan are not proposed at this time. Additionally, should any future stationary sources be constructed, these projects would be subject to permitting review by the SCAQMD to ensure violations of current air quality standards would not occur, as well as independent environmental review under CEQA. Therefore, because future stationary source projects that would occur under the proposed General Plan would be required to obtain permits issued by the SCAQMD, and would be subject to independent environmental review, stationary source emissions are not provided.

Emission estimates for the proposed General Plan were calculated using CalEEMod. Model results are shown in Table 3.3-6 and provided in Appendix C. For the purposes of this analysis, the net new land uses associated with buildout of the proposed General Plan in year 2035 were estimated in CalEEMod to determine operational emissions associated with its implementation. Existing land uses were not included in the analysis, therefore the emissions estimates shown in Table 3.3-6 are assumed to be the net new project emissions over baseline conditions. Buildout of the proposed General Plan would allow for future residential, office, commercial, commercial/industrial, light industrial, and public/institutional uses, and increases in land use densities and development intensities. These land uses were included in CalEEMod. VMT estimates for the project were based on the traffic impact analysis for the proposed General Plan prepared by Fehr and Peers for this EIR, which estimates that buildout of the proposed General Plan would result in an increase in 417,930 total VMT per day. Complete details of the emissions calculations are provided in Appendix C.

**Table 3.3-6: Estimated Daily Maximum Operational Emissions (pounds/day)**

Emission Source	General Plan Buildout (2035)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Area	2,103.75	138.48	3,771.15	8.31	490.43	490.43
Energy	10.98	96.47	59.48	0.60	7.58	7.58
Mobile	126.40	832.86	846.81	3.85	326.64	88.65
<b>Total</b>	<b>2,241.12</b>	<b>1,067.81</b>	<b>4,677.44</b>	<b>12.75</b>	<b>824.66</b>	<b>586.66</b>
Emission Threshold	55	55	550	150	150	55
<b>Threshold Exceeded?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

Note: Emissions represent summer. "Summer" emissions are representative of the conditions that may occur during the ozone season (May 1 to October 31), and "winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30).

Source: LSA, 2017.

As identified above, operational emissions associated with the additional development that would occur under Buildout conditions of the General Plan, would exceed the SCAQMD's significance threshold for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>; therefore, impacts would be potentially significant. SO<sub>x</sub> emissions would be below SCAQMD's significance thresholds. Future development under the proposed project would be required to comply with the AQMP, SIP, CARB motor vehicle standards, SCAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and the proposed General Plan principles and actions; however, there is no guarantee emissions would be mitigated below SCAQMD thresholds. Proposed General Plan principles and actions, as listed below, would reduce impacts associated with long-term operational criteria pollutant emissions; however, impacts would remain significant and unavoidable during operation.

#### Climate Action Plan

The proposed CAP provides optional measures to reduce greenhouse gas (GHG) emissions and energy use from future development. Any renewable energy, energy-efficient, or water utilities improvements installation as result of the proposed CAP would be subject to the development review and permitting process, and State and federal laws, as well as proposed policies listed below.

Therefore, impacts on air quality from the proposed CAP would be beneficial and less than significant.

### **Proposed General Plan Principles and Actions that Reduce the Impact**

The proposed General Plan principles and actions as listed under Impact 3.15-1 above, as well as the following policies.

#### *Healthy Community Element*

#### **Public Health Actions**

- 7-A.35 Implement street design features that facilitate walking and biking in both new and established areas. Require a minimum standard of these features for all new developments.
- 7-A.38 Revise development standards to require pedestrian connections into and inside commercial projects.

#### **Mitigation Measures**

No mitigation is available beyond measures identified in the AQMP, SIP, CARB motor vehicle standards, SCAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and principles and actions in the proposed General Plan that would partially reduce impacts. Therefore, impacts would remain significant and unavoidable.

#### **Impact 3.3-3 Development under the Proposed Project would result in a cumulatively considerable net increase of criteria pollutants for which the General Plan region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O<sub>3</sub> precursors). (Significant and Unavoidable)**

In analyzing cumulative impacts from the proposed General Plan, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SCAB is designated as nonattainment for the CAAQS and NAAQS. If the proposed General Plan does not exceed thresholds and is determined to have less-than-significant impacts, it may still contribute to a significant cumulative impact on air quality if the emissions from the proposed General Plan, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the proposed General Plan would only be considered to have a significant cumulative impact if its contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact).

The SCAB has been designated as a federal nonattainment area for O<sub>3</sub> and PM<sub>2.5</sub>, and a State nonattainment area for O<sub>3</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and NO<sub>2</sub>. PM<sub>10</sub> and PM<sub>2.5</sub> emissions associated with construction generally result in localized impacts. As discussed previously in Impact 3.2-2, future development projects allowed under the proposed General Plan and associated land uses would generate vehicle trips and VMT that would result in ozone precursor emissions and particulate matter. However, individual projects proposed under the proposed General Plan would be required to undergo subsequent environmental review pursuant to CEQA, and as part of this review effort,

projects requiring discretionary approval would be required to assess whether the project complies with the applicable air quality plan. Additionally, SCAQMD would require that individual projects demonstrate compliance with SCAQMD rules and regulations governing air quality, specifically particulate matter. The City of Redlands would continue to coordinate with SCAQMD to ensure city-wide growth projections, land use planning efforts, and local development patterns are accounted for in the regional planning and air quality planning processes. However, as shown in Table 3.3-6, implementation of the General Plan would result in an exceedance of SCAQMD's threshold for daily operational emissions. Therefore, the proposed General Plan would result in a cumulatively considerable impact.

The proposed CAP provides optional measures to reduce greenhouse gas (GHG) emissions and energy use from future development. Any renewable energy, energy-efficient, or water utilities improvements installation as result of the proposed CAP would be subject to the development review and permitting process, and State and federal laws, as well as proposed policies listed below. Therefore, cumulative air quality impacts from the proposed CAP would be less than significant.

#### **Proposed General Plan Principles and Actions that Reduce the Impact**

The proposed General Plan principles and actions as listed under Impact 3.15-1 above.

Actions 7-A.35 and 7-A.38 as listed under Impact 3.3-2 above.

#### **Mitigation Measures**

No mitigation is available beyond measures identified in the AQMP, SIP, CARB motor vehicle standards, SCAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and principles and actions in the proposed General Plan that would partially reduce impacts. Therefore, impacts would remain significant and unavoidable.

#### **Impact 3.3-4      Development under the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations. (Less than Significant)**

##### *Construction*

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the State and federal governments as TACs or HAPs. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and is aimed at HAPs that are a problem in California. The State has formally identified more than 200 substances as TACs, including the federal HAPs, and is adopting appropriate control measures for sources of these TACs. As examples, TACs include acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter. Some of the TACs are groups of compounds that contain many individual substances (for example, copper compounds and polycyclic organic matter). The greatest potential for TAC emissions during construction would be diesel particulate emissions from heavy equipment operations and heavy-duty trucks and the associated health impacts to sensitive receptors. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. SCAQMD designates an incremental cancer risk threshold of 10 in 1 million or greater. “Incremental Cancer Risk” is the likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 70-year lifetime will contract cancer quantified using standard risk-assessment methodology. The proposed General Plan construction activities would be dispersed intermittently over an 18-year period.

Off-road diesel construction equipment and heavy-duty diesel trucks (e.g., concrete trucks, building materials delivery trucks), which are sources of diesel exhaust particulate matter, are regulated under three airborne toxic control measures (ATCMs) adopted by CARB. The ATCM for diesel construction equipment specifies particulate matter emission standards for equipment fleets, which become increasingly stringent over time. Furthermore, most newly-purchased construction equipment introduced into construction fleets after 2013–2015, depending on the engine horsepower rating, are equipped with high-efficiency diesel particulate filters. One of ATCMs for heavy-duty diesel trucks specifies that commercial trucks with a gross vehicle weight rating over 10,000 pounds are prohibited from idling for more than 5 minutes unless the engines are idling while queuing or involved in operational activities. In addition, starting in model year 2008, new heavy-duty trucks must be equipped with an automatic shutoff device to prevent excessive idling or meet stringent NO<sub>x</sub> requirements. Lastly, fleets of diesel trucks with a gross vehicle weight rating greater than 14,000 pounds are subject to another ATCM. This ATCM requires truck fleet operators to replace older vehicles and/or equip them with diesel particulate filters, depending on the age of the truck. Therefore, over the life of the project, the diesel exhaust particulate matter emissions from off-road construction equipment and trucks will be controlled substantially. Accordingly, implementation of the proposed General Plan is not anticipated to result in a long-term exposure of sensitive receptors to substantial concentration of TACs. Impacts would be less than significant.

### *Operation*

Various industrial and commercial processes (e.g., manufacturing and dry cleaning) allowed under the proposed General Plan would be expected to release TACs. Industrial land uses, such as chemical processing facilities, chrome-plating facilities, dry cleaners, gasoline-dispensing facilities, the Southern California Edison, and the Teledyne Battery Products facility have the potential to be substantial stationary sources that would require a permit from SCAQMD for emissions of TACs. Emissions of TACs would be controlled by SCAQMD through permitting and would be subject to further study and health risk assessment prior to the issuance of any necessary air quality permits under SCAQMD Rule 1401. Until specific future projects are proposed, the associated emissions cannot be determined or modeled at this time. Implementation of the proposed General Plan would not result in projects that emit TACs. Therefore, this is considered a less than significant impact.

Buildout of the proposed General Plan could allow residential and other sensitive land uses to locate in the vicinity of air pollutant sources such as stationary sources and the freeways. Policies in the proposed General Plan would serve to protect new sensitive receptors from exposure to substantial pollutant concentrations. Proposed policies would require applicants for sensitive land uses to minimize the potential for air pollution exposure through siting and design. Proposed policies also would require the development of requirements for retrofitting existing residential buildings within a 500-foot buffer along the freeway to abate air pollution, and limit new residential developments

within the buffer. The SCAQMD permitting process for new emissions sources and existing sources in the vicinity of new sensitive developments would further help to ensure that substantial exposure to air pollutants would be avoided.

In addition to stationary/area sources of TACs, warehousing operations could generate a substantial amount of diesel particulate matter emissions from off-road equipment use and truck idling. Diesel particulate matter (DPM) accounts for approximately 84 percent of the excess cancer risk in the Basin (SCAQMD, 2008). New land uses in the City that use trucks, including trucks with transport refrigeration units, could generate an increase in DPM that would contribute to cancer and noncancer health risk in the Basin. Furthermore, trucks would travel on regional transportation routes through the Basin, contributing to near-roadway DPM concentrations. Land development projects are required to comply with AB 2588, SCAQMD Rule 1401, and CARB standards for diesel engines. Additionally, as described below the proposed General Plan includes measures to reduce DPM impacts and provide buffers between sensitive receptors and TAC sources. Therefore, the proposed project would be considered to have a less than significant impact associated with the exposure of sensitive receptors to substantial pollutant concentrations.

#### *Climate Action Plan*

The proposed CAP provides optional measures to reduce greenhouse gas (GHG) emissions and energy use from future development and does not contain any land use changes. Any renewable energy, energy-efficient, or water utilities improvements installation as result of the proposed CAP would be subject to the development review and permitting process, and State and federal laws, as well as proposed policies listed below. Therefore, air quality impacts as they relate to TACs or hazardous air pollutants (HAPs) from the proposed CAP would be less than significant.

#### **Proposed Plan Principles and Actions that Reduce the Impact**

Principles 5-P.5, 7-P.44, 7-P.45, 7-P.46, 7-P.47, and 7-P.48, and actions 5-A.27, 5-A.37, 5-A.66, 7-A.144, 7-A.145, 7-A.146, 7-A.147, 7-A.148, 7-A.150, 7-A.151, and 7-A.152, as listed under Impact 3.3-1 above, as well as the following policies.

#### *Healthy Community Element*

##### **Air Quality Principles**

7-P.49 Protect sensitive receptors from exposure to hazardous concentrations of air pollutants.

##### **Air Quality Actions**

- 7-A.153 Require applicants for sensitive land uses (e.g. residences, schools, daycare centers, playgrounds, and medical facilities) to site development and/or incorporate design features (e.g. pollution prevention, pollution reduction, barriers, landscaping, ventilation systems, or other measures) to minimize the potential impacts of air pollution on sensitive receptors.
- 7-A.154 Require applicants for sensitive land uses within a Proposition 65 warning contour to conduct a health risk assessment and mitigate any health impacts to a less than significant level.

**Mitigation Measures**

None required.

**Impact 3.3-5      Development under the Proposed Project would not create objectionable odors affecting a substantial number of people. (Less than Significant)**

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of future projects under the proposed General Plan. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and architectural coatings. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered less than significant.

Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Development under the proposed General Plan would be required to meet all local, State, and federal regulations related to odor control, including permit requirements. However, new sensitive receptors would be potentially located near odor-generating land uses. Future project-level analysis will demonstrate consistency with the proposed General Plan and principles and actions as listed below would ensure that odor impacts would be reduced to a level that is less than significant.

The proposed CAP provides measures to reduce greenhouse gas (GHG) emissions and energy use from future development. Any renewable energy, energy-efficient, or water utilities improvements installation as result of the proposed CAP would be subject to the development review and permitting process, and State and federal laws, as well as proposed policies listed below. Therefore, air quality impacts as they relate to odors from the proposed CAP would be less than significant.

**Proposed Plan Principles and Actions that Reduce the Impact**

Principles 7-P.44 and 7-P.48, and actions 7-A.144, 7-A.147, 7-A.148, and 7-A.149, as listed under Impact 3.3-1 above.

**Mitigation Measures**

None required.