4.4 AIR QUALITY

4.4.1 Introduction and Methodology

The purpose of the air quality section of this environmental impact report (EIR) is to estimate and evaluate the potential air quality impacts associated with implementation of the proposed The Inns at Buena Vista Creek Project (project) relative to significance thresholds recommended by the San Diego Air Pollution Control District (SDAPCD) and other air quality thresholds of significance. This section is based on the ~~2016~~ 2020 Air Quality Technical Report prepared by Dudek, which analyzed how the proposed project may impact existing and future air quality conditions within the City of Oceanside and San Diego County (County). The methods used to generate specific impact calculations are contained in the Air Quality Technical Report, which is included as Appendix F to this EIR.

4.4.2 Existing Conditions

Environmental Setting

The project site is located within the San Diego Air Basin (SDAB) and is subject to the SDAPCD guidelines and regulations. The SDAB is one of 15 air basins that geographically divide the State of California.

Climate and Topography

The weather of the San Diego region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in degrees Fahrenheit (°F)) from the mid-40s to the high 90s. Most of the region's precipitation falls from November to April, with infrequent (approximately 10%) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains.

The topography in the San Diego region varies greatly, from beaches on the west to mountains and desert on the east; along with local weather, it influences the dispersal and movement of pollutants in the SDAB. The mountains to the east prevent dispersal of pollutants in that direction and help trap them in inversion layers.

The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

Air Pollution Climatology

The SDAB is currently classified as a federal nonattainment area for 8-hour ozone (O_3) and a state nonattainment area for coarse particulate matter (particulate matter less than or equal to10 microns in diameter; PM_{10}), fine particulate matter (particulate matter less than or equal to 2.5 microns in diameter; $PM_{2.5}$, and O_3.

The SDAB lies in the southwest corner of California and comprises the entire San Diego region, covering 4,260 square miles, and is an area of high air pollution potential. The SDAB experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The SDAB experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. Another type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce O_3, commonly known as smog.

Light daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to carbon monoxide (CO) and oxides of nitrogen (NO_x) emissions. CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are elevated due to cold temperatures and the large number of motor vehicles traveling. Higher CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the SDAB are associated with heavy traffic. Nitrogen dioxide (NO_2) levels are also generally higher during fall and winter days.

Under certain conditions, atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County. This often produces high O_3 concentrations, as measured at air pollutant monitoring stations within the County. The transport of air pollutants from Los Angeles to San Diego has also occurred within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

Sensitive Receptors

Reduced visibility, eye irritation, and adverse health impacts upon those persons termed sensitive receptors are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, the elderly, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes. Because hotels have the potential to house children, the elderly, and people with cardiovascular and chronic respiratory diseases, although for a temporary period, patrons of the proposed hotel are considered sensitive receptors. The closest existing sensitive receptors consist of single-family residential development located approximately 0.18 miles north of the project site, and single- and multiple-family residential development located approximately 0.27 miles south of the project site.

Pollutants and Effects

"Criteria air pollutants" are defined as pollutants for which the federal and 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_3, NO_2, CO, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed in this section.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 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_x react in the presence of ultraviolet sunlight. O_3 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_x, the precursors of O_3, are automobile exhaust and industrial sources. Weather and terrain play major roles in O_3 formation; 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_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

Nitrogen Dioxide. Most NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_x and are major contributors to O_3 formation. High

1 The descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on the U.S. Environmental Protection Agency's (EPA) Six Common Air Pollutants (EPA 2012) and the CARB Glossary of Air Pollutant Terms (CARB 2014) published information.

concentrations of NO_2 result in a brownish-red cast to the atmosphere with reduced visibility, and can cause breathing difficulties. There is some indication of a relationship between NO_2 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 the project location, 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 weather 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_2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 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. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Fine particulate matter, or $PM_{2.5}$, is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs. Inhalable or coarse particulate matter, or PM_{10}, is about 1/7 the thickness of a human hair. Major sources of PM_{10} 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.

$PM_{2.5}$ and PM_{10} 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. $PM_{2.5}$ and PM_{10} 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_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ 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 producing haze and reducing 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%. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling facilities, 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 a decline in neurobehavioral performance including intelligence quotient (IQ) 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 non-cancer health effects. A toxic substance released into the air is considered a 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 non-carcinogenic effects. Non-carcinogenic 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.

Regulatory Setting

Air quality is defined by ambient air concentrations of specific pollutants that are related to the health and welfare of the general public.

Federal

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The U.S. Environmental Protection Agency (EPA) is responsible for implementing most aspects of the Clean Air Act, including the setting of National Ambient Air Quality Standards (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_3 protection, and enforcement provisions. NAAQS are established for criteria pollutants under the Clean Air Act: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, 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_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ 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 5 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 that demonstrates how those areas will attain the standards within mandated time frames.

State

The California Clean Air Act was adopted in 1988 and establishes the state's air quality goals, planning mechanisms, regulatory strategies, and standards of progress.

Under the Clean Air Act, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB is responsible for ensuring implementation of the California Clean Air Act, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products. Pursuant to the authority granted to it, CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The NAAQS and CAAQS are presented in Table 4.4-1.

Table 4.4-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³
Lead[j,k]	30-day Average	1.5 μg/m³	—	—
	Calendar Quarter	—	1.5 μg/m³ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 μg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m³)	—	—
Sulfates	24- hours	25 μg/m³	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	—

Source: CARB 2016.
Notes: ppm = parts per million by volume; μg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter.

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

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] 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.

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

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

[f] On October 1, 2015, the primary and secondary NAAQS for O_3 were lowered from 0.075 ppm to 0.070 ppm.

[g] 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 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

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

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

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

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ 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.

Local

San Diego Air Pollution Control District

Although CARB is responsible for the regulation of mobile emission sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The project site is located within the SDAB and is subject to the guidelines and regulations of the SDAPCD.

In San Diego County, O_3 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 SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and O_3 standards. The SDAB is also a federal O_3 attainment (maintenance) area for 1997 8-hour O_3 standard, an O_3 nonattainment area for the 2008 8-hour O_3 standard, and a CO maintenance area (western and central part of the SDAB only). The project area is in the CO maintenance area.

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The County Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis, most recently in 2009 (SDAPCD 2009a; the SDAPCD is currently in the process of updating the RAQS). The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, and information regarding projected growth in the cities and San Diego County, to project future emissions and determine the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the cities and the County as part of the development of their general plans.

In December 2016, ~~T~~the SDAPCD adopted an update to the 8-Hour Ozone Attainment Plan for San Diego County indicates that local controls and state programs would allow the region to reach attainment of the federal 1997 8-hour O_3 standard by ~~2009~~ 2018 (SDAPCD ~~2007~~2016). In this plan, SDAPCD relies on the RAQS to demonstrate how the region will comply with the federal O_3 standard. The RAQS details how the region will manage and reduce O_3 precursors (NO_x and VOCs) by identifying measures and regulations intended to reduce these contaminants. The control measures identified in the RAQS generally focus on stationary sources; however, the emissions inventories and projections in the RAQS address all potential sources, including those under the authority of CARB and the EPA. Incentive programs for reduction of emissions from heavy-duty diesel vehicles, off-road equipment, and school buses are also established in the RAQS. ~~In the Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County, the SDAB did not reach attainment of the federal 1997 standard until 2011 (SDAPCD 2012). This plan, however, demonstrates the region's attainment of the 1997 O_3 NAAQS and outlines the plan for maintaining attainment status.~~

In December 2005, SDAPCD prepared a report titled Measures to Reduce Particulate Matter in San Diego County to address implementation of Senate Bill 656 in San Diego County (Senate Bill 656 required additional controls to reduce ambient concentrations of PM_{10} and $PM_{2.5}$) (SDAPCD 2005). In the report, SDAPCD evaluated the implementation of source-control measures that would reduce particulate matter emissions associated with residential wood combustion; various construction activities including earthmoving, demolition, and grading; bulk material storage and handling; carryout and trackout removal and cleanup methods; inactive disturbed land; disturbed open areas; unpaved parking lots/staging areas; unpaved roads; and windblown dust.

As stated previously, the SDAPCD is responsible for planning, implementing, and enforcing the CAAQS and NAAQS in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD:

- **SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance.** Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1969).
- **SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust.** Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site (SDAPCD 2009b).
- **SDAPCD Regulation IV: Prohibitions; Rule 67.0: Architectural Coatings.** Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2001).

Oceanside General Plan

The Oceanside General Plan (City of Oceanside 2002) includes various policies related to improving air quality (both directly and indirectly). Applicable policies from the Land Use Element (City of Oceanside 1989) and the Circulation Element (City of Oceanside 2012) include the following:

Land Use Element

Bicycle Facilities

Policy A: Development shall provide Class II Bikeways (Bike Lanes) on all secondary, major, and prime arterials.

Policy D: The use of land shall integrate the Bicycle Circulation System with auto, pedestrian, and transit systems:

1. Development shall provide short-term bicycle parking and long-term bicycle storage facilities such as bicycle racks, pedestal posts, and rental bicycle lockers.
2. Development shall provide safe and convenient bicycle access to high activity land uses, such as schools, parks, shopping, employment, and entertainment centers.

Pedestrian

Policy A: The construction of five (5) foot wide sidewalks adjacent to the curb shall be required in all new developments and street improvements.

Transit System

Policy B: The City shall investigate the responsibilities of development in providing necessary on-site and off-site bus system improvements including bus shelters within new commercial, residential, and industrial developments.

Circulation Element

Transportation Demand Management

Policy 4.1: The City shall encourage the reduction of vehicle miles traveled, reduction of the total number of daily and peak hour vehicle trips, and provide better utilization of the circulation system through development and implementation of TDM strategies. These may include, but not limited to, implementation of peak hour trip reduction, encourage staggered work hours, telework programs, increased development of employment centers where transit usage is highly viable, encouragement of ridesharing options in the public and private sector, provision for park-and-ride facilities adjacent to the regional transportation system, and provision for transit subsidies.

Policy 4.2: The City shall maintain and implement the policies and recommendations of the Bicycle Master Plan as part of the Recreational Trails Element. These facilities shall connect residential areas with schools, parks, recreation areas, major employment centers, and neighborhood commercial areas.

Policy 4.3: The City shall maintain and implement the policies and recommendations of the Pedestrian Master Plan as part of the Recreational Trails Element to ensure pedestrian access along streets and other locations throughout the City are properly maintained and provided.

Policy 4.4: The City shall support parking policies that increase the cost of parking and/or reduce the supply of off-street parking to encourage drivers to consider using alternative modes of transportation or carpool/vanpool opportunities where transit facilities are available.

Policy 4.5: The City shall encourage businesses to offer financial incentives to use modes of transportation other than the single occupant vehicle by way of subsidized transit, carpool/vanpool programs, bike to work programs, parking cash-out programs, or some combination of these.

Policy 4.6: The City shall encourage new developments to provide on-site facilities such as showers, lockers, carpool stalls, and bicycle racks.

Policy 4.7: The City shall coordinate with businesses and employers to organize and facilitate transportation commuter fairs that provide information on carpools, vanpools, transit, bicycling, and other alternative commute modes to the single occupant vehicle, as well as the advantages and costs savings of alternative forms of transportation.

Policy 4.8: The City shall support and promote SANDAG's regional iCommute program that encourages the reduction of the use of the single occupancy vehicle.

Policy 4.9: The City shall look for opportunities to incorporate TDM programs into their Energy Roadmap that contributes to state and regional goals for saving energy and reducing greenhouse gas emissions.

Policy 4.10: The City shall maintain curb use priorities that consider, in descending order, the needs of through traffic, transit stops, bus turnouts, passenger loading needs, and short- and long-term parking.

<u>City of Carlsbad General Plan</u>

The City of Carlsbad's General Plan was updated and approved by the City Council on September 22, 2015. The General Plan includes goals and policies from the Mobility and Open Space, Conservation, and Recreation Elements (City of Carlsbad 2015) that are intended to improve air quality within the City, including the following:

3-P.6 Utilize transportation demand management strategies, non-automotive enhancements (bicycle, pedestrian, transit, and connectivity), and traffic signal management techniques as long-term transportation solutions and traffic mitigation measures to carry out the Carlsbad Community Vision.

3-P.11 Evaluate implementing a road diet to three lanes or fewer for existing four-lane streets currently carrying or projected to carry 25,000 average daily traffic volumes or less in order to promote biking, walking, safer street crossings, and attractive streetscapes.

3-P.12 Design new streets, and explore funding opportunities for existing streets, to minimize traffic volumes and/or speed, as appropriate, within residential neighborhoods without compromising connectivity for emergency first responders, bicycles, and pedestrians consistent with the city's Carlsbad Active Transportation Strategies. This should be accomplished through management and implementation of livable streets strategies and such programs like the Carlsbad Residential Traffic Management Plan.

3-P.13 Consider innovative design and program solutions to improve the mobility, efficiency, connectivity, and safety of the transportation system. Innovative design solutions include, but are not limited to, traffic calming devices, roundabouts, traffic circles, curb extensions, separated bicycle infrastructure, pedestrian scramble intersections, high visibility pedestrian treatments and infrastructure, and traffic signal coordination. Innovative program solutions include, but are not limited to, webpages with travel demand and traffic signal management information, car and bike share programs, active transportation campaigns, and intergenerational programs around schools to enhance safe routes to schools. Other innovative solutions include bicycle friendly business districts, electric and solar power energy transportation systems, intelligent transportation systems, semi- or full autonomous vehicles, trams, and shuttles.

3-P.16 Engage Caltrans, the Public Utilities Commission, transit agencies, the Coastal Commission, and railroad agency(s) regarding opportunities for improved connections within the city, including:

- Improved connections across the railroad tracks at Chestnut Avenue and other locations
- Completion and enhancements to the Coastal Rail Trail and/or equivalent trail along the coastline
- Improved connectivity along Carlsbad Boulevard for pedestrians and bicyclists, such as a trail
- Improved access to the beach and coastal recreational opportunities
- Improved crossings for pedestrians across and along Carlsbad Boulevard

3-P.17 Implement connections and improvements identified in the Mobility Element.

3-P.21 Implement the projects recommended in the pedestrian, trails, and bicycle master plans through the city’s capital improvement program, private development conditions, and other appropriate mechanisms.

3-P.30 Actively pursue grant programs such as SANDAG’s Active Transportation Grant Program and Smart Growth Incentive Program to improve non-automotive connectivity throughout the city. The emphasis of grant-funded projects shall be on implementation, which includes planning documents that guide and prioritize implementation, programs that encourage the use of active transportation modes, education for the use of active transportation modes, or physical improvements themselves.

3-P.37 Consider supporting new development and existing businesses with various incentives (such as parking standards modifications) for implementing TDM programs that minimize the reliance on single-occupant automotive travel during peak commute hours.

4-G.13 Protect air quality within the city and support efforts for enhanced regional air quality.

4-P.52 Participate in the implementation of transportation demand management programs on a regional basis.

4-P.53 To the extent practical and feasible, maintain a system of air quality alerts (such as through the city website, internet, email to city employees, and other tools) based on San Diego Air Pollution Control District forecasts. Consider providing incentives to city employees to use alternative transportation modes during alert days.

4-P.54 Provide, whenever possible, incentives for carpooling, flex-time, shortened work weeks, and telecommunications and other means of reducing vehicular miles traveled.

4-P.55 Cooperate with the ongoing efforts of the U.S. Environmental Protection Agency, the San Diego Air Pollution Control District, and the State of California Air Resources Board in improving air quality in the regional air basin.

4-P.56 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 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 mononitrogen oxides (NO_x) emissions from vehicle and equipment operations; and

c. Monitor all construction to ensure that proper steps are implemented.

Regional and Local Air Quality

<u>San Diego Air Basin Attainment Designation</u>

An area is designated in attainment when it is in compliance with the NAAQS and/or CAAQS. 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.

Pursuant to the 1990 federal Clean Air Act Amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on the CAAQS rather than the NAAQS. The criteria pollutants of primary concern that are considered in this analysis are O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. Although there are no ambient standards for VOCs or NO_x, they are important as precursors to O_3. The portion of the SDAB where the project site is located is designated by the EPA as an attainment area for the 1997 8-hour NAAQS for O_3 and as a marginal nonattainment area for the 2008 8-hour NAAQS for O_3.The SDAB is designated in attainment for all other criteria pollutants under the NAAQS with the exception of PM_{10}, which was determined to be unclassifiable. The SDAB is currently designated nonattainment for O_3 and particulate matter, PM_{10} and $PM_{2.5}$, under the CAAQS. It is designated attainment for the CAAQS for CO, NO_2, SO_2, lead, and sulfates.

Table 4.4-2 summarizes San Diego County's federal and state attainment designations for each of the criteria pollutants.

Table 4.4-2
San Diego Air Basin Attainment Status

Pollutant	Federal Designation	State Designation
O_3 (1 hour)	Attainment[a]	Nonattainment
O_3 (8 hour – 1997) (8 hour – 2008)	Attainment (maintenance) Nonattainment (marginal)	Nonattainment
CO	Unclassifiable/attainment[b]	Attainment
PM_{10}	Unclassifiable[c]	Nonattainment
$PM_{2.5}$	Attainment	Nonattainment
NO_2	Unclassifiable/attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen sulfide	(No federal standard)	Unclassified
Visibility-reducing particles	(No federal standard)	Unclassified

Sources: EPA 2016a (Federal Designation); CARB 2016 (State Designation).

[a] The federal 1-hour standard of 0.12 ppm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.

[b] The western and central portions of the basin are designated attainment, while the eastern portion is designated unclassifiable/ attainment.
[c] At the time of designation, if the available data do not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Local Ambient Air Quality

The SDAPCD operates a network of ambient air monitoring stations throughout the County that measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The SDAPCD monitors air quality conditions at 10 locations throughout the SDAB. Due to its proximity to the project site and similar geographic and climatic characteristics, the Camp Pendleton monitoring station concentrations for all pollutants are considered most representative of the project site. However, data for this site were only available for 8-hour O_3 and 1-hour O_3 concentrations. The Escondido–East Valley Parkway monitoring station concentrations were used for the NO_2, CO, and PM_{10}, because this was the closest station to the project site where these pollutants are monitored. The El Cajon–Redwood Avenue monitoring station is the nearest location to the project site where SO_2 and $PM_{2.5}$ concentrations are monitored. Ambient concentrations of pollutants from 2013 through 2015 are presented in Table 4.4-3. The state 8-hour O_3 standards were exceeded in 2014 and 2015. The federal 8-hour O_3 standard was exceeded in 2014 and 2015. The state 24-hour PM_{10} standard was exceeded in 2013; the state annual PM_{10} standard was exceeded in 2013, 2014, and 2015; the federal 24-hour $PM_{2.5}$ standard was exceeded in 2014. Air quality within the project region was in compliance with both the CAAQS and NAAQS for NO_2, CO, SO_2, and PM_{10} (NAAQS only) during this monitoring period.

Table 4.4-3
Local Ambient Air Quality Data

	Ambient Air Quality Standard	2013	2014	2015
Ozone (O3) (Camp Pendleton Monitoring Station)				
Maximum 1-hour concentration (ppm)	0.09 ppm (state)	0.078	0.097	0.093
Number of days exceeding state standard (days)		*0*	*0*	*0*
Maximum 8-hour concentration (ppm)	0.070 ppm (state)	0.066	0.080	0.077
	0.070 ppm (federal)	0.066	0.079	0.076
Number of days exceeding state standard (days)		*0*	*6*	*3*
Number of days exceeding federal standard (days)		*0*	*1*	*1*
Nitrogen Dioxide (NO2) (Escondido–East Valley Monitoring Station)				
Maximum 1-hour concentration (ppm)	0.18 ppm (state)	0.061	0.063	0.048
	0.100 ppm (federal)	0.061	0.063	0.048
Number of days exceeding state standard (days)		*0*	*0*	*0*
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Annual concentration (ppm)	0.030 ppm (state)	0.013	0.011	—
	0.053 ppm (federal)	—	—	—

Table 4.4-3
Local Ambient Air Quality Data

	Ambient Air Quality Standard	2013	2014	2015
Carbon Monoxide (CO) (Escondido–East Valley Monitoring Station)				
Maximum 1-hour concentration (ppm)	20 ppm (state)	—	—	—
	35 ppm (federal)	3.2	3.8	3.1
Number of days exceeding state standard (days)		—	—	—
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Maximum 8-hour concentration (ppm)	9.0 ppm (state)	—	—	—
	9 ppm (federal)	2.6	3.1	2.0
Number of days exceeding state standard (days)		—	—	—
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Sulfur Dioxide (SO2) (El Cajon–Redwood Avenue Monitoring Station)				
Maximum 1-hour concentration (ppm)	0.075 ppm (federal)	0.065	0.010	0.012
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Maximum 24-hour concentration (ppm)	0.14 ppm (federal)	0.006	0.003	ND
Number of days exceeding federal standard (days)		*0*	*0*	*ND*
Annual concentration (ppm)	0.030 ppm (federal)	0.014	0.014	0.011
Coarse Particulate Matter (PM10) (Escondido–East Valley Monitoring Station)				
Maximum 24-hour concentration ($\mu g/m^3$)	50 $\mu g/m^3$ (state)	82.0	44.0	31.0
	150 $\mu g/m^3$ (federal)	80.0	43.0	30.0
Number of days exceeding state standard (days)		*6.0 (1)*	*0.0 (0)*	*ND (0)*
Number of days exceeding federal standard (days)		*0.0 (0)*	*0.0 (0)*	*ND (0)*
Annual concentration (state method) ($\mu g/m3$)	20 $\mu g/m^3$ (state)	23.0	23.0	23.0
Fine Particulate Matter (PM2.5) (El Cajon–Redwood Avenue Monitoring Station)				
Maximum 24-hour concentration ($\mu g/m^3$)	35 $\mu g/m^3$ (federal)	23.1	38.1	ND
Number of days exceeding federal standard (days)		*0.0 (0)*	*ND (2)*	*ND (0)*
Annual concentration ($\mu g/m^3$)	12 $\mu g/m^3$ (state)	10.6	ND	ND
	12.0 $\mu g/m^3$ (federal)	10.6	ND	ND

Sources: CARB 2015; EPA 2016b.

Notes: ppm = parts per million by volume; $\mu g/m^3$ = micrograms per cubic meter; — = not available; ND = insufficient data available to determine the value.

Data were taken from CARB iADAM (2015; http://www.arb.ca.gov/adam) or EPA AirData (2016; http://www.epa.gov/airdata/) and represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are only shown for ozone and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed either federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

4.4.3 Thresholds of Significance

Based on the significance criteria established by Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) and the City of Oceanside, a significant impact related to air quality would generally occur as a result of project implementation if the project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Violate any air quality standard or contribute to an existing or projected air quality violation.
3. Result in a cumulatively considerable net increase of attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people.

SDAPCD

The City of Oceanside has not adopted numerical thresholds of significance for determining whether air quality impacts are significant. As part of its air quality permitting process, however, the SDAPCD has established thresholds in Rule 20.2 requiring the preparation of Air Quality Impact Assessments for permitted stationary sources. The SDAPCD sets forth quantitative emission thresholds below which a stationary source would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4.4-4 are exceeded.

For CEQA purposes, these screening criteria can be used as numeric methods to demonstrate that a project’s total emissions would not result in a significant impact to air quality.

Table 4.4-4
SDAPCD Air Quality Significance Thresholds

Construction Emissions	
Pollutant	*Total Emissions (Pounds per Day)*
Respirable particulate matter (PM_{10})	100
Fine particulate matter ($PM_{2.5}$)	55
Oxides of nitrogen (NO_x)	250
Sulfur oxides (SO_x)	250
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	137*

Table 4.4-4
SDAPCD Air Quality Significance Thresholds

Operational Emissions			
	Total Emissions		
Pollutant	*Pounds per Hour*	*Pounds per Day*	*Pounds per Year*
Respirable particulate matter (PM_{10})	—	100	15
Fine particulate matter ($PM_{2.5}$)	—	55	10
Oxides of nitrogen (NO_x)	25	250	40
Sulfur oxides (SO_x)	25	250	40
Carbon monoxide (CO)	100	550	100
Lead and lead compounds	—	3.2	0.6
Volatile organic compounds (VOCs)	—	137*	13.7

Sources: SDAPCD 1999, 1998.
* VOC threshold based on South Coast Air Quality Management District (SCAQMD) levels per SCAQMD and the Monterey Bay Air Pollution Control District, which has similar federal and state attainment status to San Diego.

The thresholds listed in Table 4.4-4 represent screening-level thresholds that can be used 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 4.4-4, the project would 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.

SDAPCD Rule 51 (Public Nuisance; 1969) prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

4.4.4 Environmental Impacts

1. Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

The SDAPCD and SANDAG are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The RAQS was initially adopted in 1991 and is updated every 3 years—most recently in ~~2009~~ 2016~~(the SDAPCD is currently in the process of updating the RAQS)~~. The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The RAQS relies on information from CARB and

SANDAG, including mobile and area source emissions, as well as information regarding projected growth in San Diego County and the cities in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by San Diego County and the cities in the County as part of the development of their general plans.

The RAQS relies on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and by the County as part of the development of their general plans. As such, projects that propose development that is consistent with the growth anticipated by local plans would be consistent with the RAQS. However, if a project proposes development that is greater than that anticipated in the local plan and SANDAG's growth projections, the project might be in conflict with the RAQS and may contribute to a potentially significant cumulative impact on air quality. The Oceanside portion of the proposed project site is designated as Special Commercial (SC). The SC designation is used for sites within and/or adjacent to areas with unique characteristics, such as scenic areas, historic areas, freeway off-ramps, the coastal zone, and other unique or special uses. The Carlsbad portion of the project site is designated as Regional Commercial (R) within the northern part of the project site, and the southern portion, where the site intersects Buena Vista Creek, is designated as Open Space (OS). The R designation typically provides shopping goods, general merchandise, automobile sales, apparel, furniture, home furnishing, convenience stores, service facilities, and business and professional offices. The OS designation includes special resource areas and existing parks, and in this case coincides with the location of Buena Vista Creek. The proposed project would change a portion of the site designated as R within the City of Carlsbad to OS. This change would not allow for increased development that would generate additional criteria air pollutants. As such, the proposed project would be consistent with the existing General Plan and zoning for both the City of Oceanside and the City of Carlsbad; therefore, the proposed project would be considered consistent with the RAQS. Impacts would be considered less than significant.

2. Would the proposed project violate any air quality standard or contribute to an existing or projected air quality violation?

Construction Emissions

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. Construction emissions can vary substantially from day to day, depending on the level of activity, specific type of operation, and (for dust) prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty of precise ambient air quality impacts. Fugitive dust (PM_{10} and $PM_{2.5}$) emissions would primarily result from grading and site preparation activities. NO_x and CO emissions would mainly result from the use of construction equipment and motor vehicles.

Emissions from the construction phase of the project were estimated using the California Emissions Estimator Model (CalEEMod), Version ~~2013~~2016.~~2~~3.2 (available online at www.caleemod.com). Emissions from construction of the proposed bridge were estimated using the Sacramento Metropolitan Air Quality Management District Road Construction Emission Model, Version ~~8~~9.~~1~~1.0 (SMAQMD ~~2016~~2018).

For the purposes of estimating the proposed project's emissions, it was assumed that construction of the proposed project would include the following subphases:

- Mass grading (3 months), which is further broken down into eight distinct, sequential rough grading and soil amendment phases
- Retaining wall construction (2 months)
- Caissons (2 months)
- Water, sewer, and storm drain (4 months)
- Buena Vista Creek bridge construction (7 months)
- Construction of parking structure (7 months)
- Construction of off-site features for Jefferson Street and Ring Road (3 months)
- Dry utilities (1 month)
- Street improvements (3 months)
- Off-site 12-kilovolt underground conversion (9 months)
- Construction of Hotel Building 1 (16 months)
- Precise grading (3 months)
- Construction of Hotel Building 2 (13 months)
- Construction of Hotel Building 3 (13 months)
- Application of architectural coatings (2 months)

For the purposes of estimating the project's emissions, it was assumed that construction of the project would start in January ~~2018~~ 2021 and reach completion in April ~~2020~~2023.[2] Total construction is expected to take approximately ~~23~~ 28 months. The subphases mentioned above would experience overlap in order to meet this schedule. This overlap is accounted for in the construction emission estimates, which are provided in Appendix F.

The construction equipment mix was provided by the applicant and represents a reasonably conservative estimate of construction activity. For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8–10 hours per day, 5 days per week (22 days per month), during project construction. Approximately 25,927~~24,970~~ cubic yards of high saline/Type D soil would be exported off site, requiring the import of approximately ~~24,974~~24,970 cubic yards of select soil. A more detailed description of the construction schedule—including information regarding subphases and equipment used during each subphase—is included in Appendix F.

To discern primary project development phases in CalEEMod, construction worker and vendor trip assumptions were assigned to each building construction phase for Hotel Building 1, Hotel Building 2, Hotel Building 3, and the parking structure. Construction worker and vendor trips for building construction were determined using CalEEMod default worker trip and vendor trip vehicle generation factors of 0.42 trips and 0.1639 trips, respectively, per 1,000 square feet of office/industrial space per day of construction.

The proposed project would be subject to SDAPCD Rule 55 – Fugitive Dust Control (2009b). This rule requires actions to restrict visible emissions of fugitive dust beyond the property line. Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. To account for dust control measures in the calculations, it was assumed that the active sites would be watered at least two times daily, resulting in an approximately 55% reduction of particulate matter. The proposed project would also be subject to SDAPCD Rule 67.0 – Architectural Coatings (2001). This rule establishes maximum VOC contents of 100 and 150 grams per liter (g/L) for flat and non-flat coatings, respectively. CalEEMod default values of 150 g/L for non-residential interior coatings and 250 g/L for non-residential exterior coatings were replaced with VOC contents of 100 and 150 g/L. The proposed parking structure would not require the application of architectural coatings; therefore, CalEEMod default square footages were

~~2 Because CalEEMod uses real dates (e.g., January 1, 2016) to calculate construction emissions, assumptions were made as to key dates for each phase. The analysis presented herein assumes a construction start date of January 1, 2017, which was the earliest date at which construction would initiate per the project's preliminary construction schedule. Although construction is currently anticipated to commence after January 2017, assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.~~

adjusted to reflect the application of architectural coatings for Hotel Building 1, Hotel Building 2, Hotel Building 3, and the pavilion only.

Table 4.4-5 shows the unmitigated estimated maximum daily construction emissions associated with the construction phases of the proposed project. Complete details of the emissions calculations are provided in Appendix F.

Table 4.4-5
Estimated Unmitigated Maximum Daily Construction Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
~~2018~~2021	12.82~~24.33~~	210.94~~253.02~~	183.39~~185.92~~	0.31~~0.35~~	11.38~~22.62~~	8.66~~13.18~~
~~2019~~2022	17.40~~20.77~~	138.45~~123.35~~	120.96~~106.80~~	0.24~~0.18~~	12.89~~14.84~~	7.70~~10.00~~
~~2020~~2023	8.25~~7.84~~	2.44~~1.82~~	2.79~~3.16~~	0.01~~0.01~~	0.44~~0.46~~	0.19~~0.20~~
Maximum daily emissions	**17.40~~24.33~~**	**210.94~~253.02~~**	**183.39~~185.92~~**	**0.31~~0.35~~**	**12.89~~22.62~~**	**8.66~~13.18~~**
Emission threshold	*137*	*250*	*550*	*250*	*100*	*55*
Threshold exceeded?	**No**	**~~Yes~~No**	**No**	**No**	**No**	**No**

Source: See Appendix F for complete results.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 4.4-5, daily construction emissions would not exceed the SDAPCD's significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. ~~However, daily construction emissions would exceed the SDAPCD's significance thresholds for NO_x.~~ Implementation of mitigation measure (MM) AQ-1 would ensure that impacts would be less than significant (refer to Appendix F for calculations~~ that demonstrate project construction emissions upon implementation of MM-AQ-1~~; see Section 4.4.5, Mitigation Measures, for details of MM-AQ-1) Therefore, construction-related impacts on air quality would be less than significant with mitigation incorporated.

Operational Emissions

Following the completion of construction activities, the proposed project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile and stationary sources, including vehicular traffic and area sources (e.g., space heating, water heating, and landscaping).

The proposed project would impact air quality through an increase in vehicular traffic generated by project customers, employees, and visitors. According to the traffic analysis conducted for the project by RBF Consulting (see Appendix B to this EIR), total project-generated daily traffic is estimated to be 4,260 trips per day (based on a trip generation rate of 10 trips per room). CalEEMod was used to estimate daily emissions from proposed vehicular sources (see Appendix F for complete results). CalEEMod default Saturday and Sunday trip-generation rates were adjusted based on weekday trip-generation rates per land use type, because weekend trip-generation rates were not provided in the traffic analysis. The model's default data, including temperature, trip characteristics, variable start information, emissions factors, and trip distances, were conservatively used for the model inputs.

Project-related traffic was assumed to consist of a mixture of vehicles in accordance with the model outputs for the motor vehicle fleet. Emission factors representing the vehicle mix and emissions for ~~2018~~ 2024 (full buildout) were used to estimate emissions.

In addition to estimating mobile source emissions, CalEEMod was used to estimate emissions from project area sources, including landscaping equipment, consumer products, and maintenance application of architectural coatings. Similar to construction-related architectural coating emission estimates, CalEEMod default values of 150 g/L for non-residential interior coatings and 250 g/L for non-residential exterior coatings were replaced with VOC contents of 50 and 100 g/L VOC, respectively. CalEEMod default square footages were adjusted to reflect the reapplication of architectural coatings for Hotel Building 1, Hotel Building 2, Hotel Building 3, the pavilion, the parking structure, and the parking lot.

Emissions from energy sources, which include natural gas appliances and space and water heating, were also estimated using CalEEMod. Default values for indoor and outdoor water use, solid waste generation, and natural gas consumption (through Title 24 and non-Title 24 natural gas energy intensities) were used for the proposed project.

Table 4.4-6 presents the maximum daily emissions associated with the operation of the proposed project. The values shown are the maximum daily summer or winter daily emissions results from CalEEMod. Appendix F provides complete details of the emissions calculations.

Table 4.4-6
Estimated Maximum Daily Operational Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Mobile	~~12.06~~5.28	~~20.13~~19.27	~~104.32~~52.58	~~0.24~~0.19	~~17.07~~16.96	~~4.74~~4.63
Area	~~11.72~~7.71	0.00	0.09	0.00	0.00	0.00
Energy	~~0.51~~0.57	~~4.62~~5.14	~~3.88~~4.32	0.03	~~0.35~~0.39	~~0.35~~0.39
Total	**~~24.29~~13.56**	**~~24.75~~24.41**	**~~108.30~~56.99**	**~~0.27~~0.22**	**~~17.42~~17.35**	**~~5.09~~5.02**
Emission threshold	*137*	*250*	*550*	*250*	*100*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: See Appendix F for complete results.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 4.4-6, daily area source and operational emissions would not exceed the significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. As such, the proposed project's operational impacts on air quality would be less than significant.

3. Would the proposed project result in a cumulatively considerable net increase of attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The proposed project, combined with known and reasonably foreseeable growth in the area, could result in cumulatively considerable emissions of nonattainment criteria air pollutants.

The analysis of cumulative impacts from a proposed project must specifically evaluate the project's contribution to the cumulative increase in pollutants for which the SDAB is designated as nonattainment for the CAAQS and NAAQS. If the proposed project does not exceed thresholds and is determined to have less than significant project-specific impacts, it may still contribute to a significant cumulative impact on air quality if the emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable projects, are in excess of established thresholds. However, the project would only be considered to have a significant cumulative impact if the project's 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 SDAB has been designated as a federal nonattainment area for O_3, and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions associated with construction generally result in near-field impacts. As discussed previously, the emissions of all criteria pollutants would below the significance levels ~~upon implementation of MM-AQ-1~~. Construction would be short term and consistent with the size and scale of the proposed project. Construction activities required for the implementation of the proposed project would be considered typical of hotel, bridge, and parking structure development and the project would not result in significant impacts to air quality upon implementation of mitigation. Construction of the proposed project would potentially be conducted at the same time and in the same general vicinity as other major construction projects; however, project construction is not anticipated to result in a cumulatively significant impact related to particulate matter emissions because all other identified cumulative projects would not be located close enough to the proposed project site to generate cumulatively considerable particulate matter emission levels. See Chapter 6, Cumulative, of this EIR for additional information regarding cumulative impacts, including the location of identified cumulative projects. Impacts would be less than significant.

As stated earlier, the RAQS relies on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and by the county as part of the development of their general plans. The proposed project site has an SC designation, as outlined in the General Plan. The SC designation is used for sites within and/or adjacent to areas with unique characteristics, such as scenic areas, historic areas, freeway off-ramps, the coastal zone, and other unique or special uses. The Carlsbad portion of the project site has an R designation within the northern part of the project site, and the southern portion, where the site intersects Buena Vista Creek, has an OS designation. The R designation typically provides shopping goods, general merchandise, automobile sales, apparel, furniture, home furnishing, convenience stores, service facilities, and business and professional offices. The OS designation includes special resource areas and existing parks, and in this case coincides with the location of Buena Vista Creek. The proposed project would redesignate additional open space and would be consistent with the existing General Plan and zoning for the Cities of Oceanside and Carlsbad; therefore, the proposed project would be considered consistent with the RAQS. Furthermore, operational emissions generated by the proposed project would be below the established significance thresholds for criteria pollutants, and the project's operational emissions would not be regarded as resulting in a cumulatively considerable contribution to the region's poor air quality. Cumulative air quality impacts would, therefore, be less than significant.

4. Would the proposed project expose sensitive receptors to substantial pollutant concentrations?

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing weather conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts on people termed "sensitive receptors" are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by CARB, include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases; however, for the purposes of this analysis, residents are also considered sensitive receptors. The closest existing sensitive receptors are single-family residential development approximately 0.18 miles north of the project site, and single- and multi-family residential development approximately 0.27 miles south of the project site.

Health Impacts of Toxic Air Contaminants

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as TACs or hazardous air pollutants. 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 TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal hazardous air pollutants, and is adopting appropriate control measures for sources of these TACs.

The greatest potential for TAC emissions during construction is diesel particulate emissions from heavy equipment operations and heavy-duty trucks and the associated health impacts to sensitive receptors.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SDAPCD recommends an incremental cancer risk threshold of 10 in a million. "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 based on the use of standard risk-assessment methodology. The project will not require the extensive use of heavy-duty construction equipment, which is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions, and would not involve extensive use of diesel trucks, which are also subject to an Airborne Toxics Control Measure. Total construction of the project will last for approximately 23 months, after which project-related TAC emissions will cease. Thus, the project will not result in a long-term (i.e., 70-year) source of TAC emissions. No residual TAC emissions and corresponding cancer risk are anticipated after construction, nor are any long-term sources of TAC emissions anticipated during operation of the project. As such, the exposure of sensitive receptors to project-related TAC emission impacts would be less than significant.

Health Impacts of Carbon Monoxide

As described previously, exposure to high concentrations CO can result in dizziness, fatigue, chest pain, headaches, and impairment of central nervous system functions. Mobile-source impacts, including those related to CO, occur essentially on two scales of motion. Regionally, project-related construction travel would add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SDAB. Locally, construction traffic would be added to the roadway system in the vicinity of the project site. Although the SDAB is currently an attainment area for CO, there is a potential for the formation of microscale CO hotspots to occur immediately around points of congested traffic. Hotspots can form if such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and/or is operating on roadways already crowded with non-project traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SDAB is steadily decreasing (CARB 2004).

The Traffic Impact Analysis Report prepared for the project (see Appendix B) evaluated 18 intersections for four scenarios including Existing Conditions, Existing Plus Project Conditions, Existing Plus Cumulative Conditions Without Project, and Existing Plus Cumulative Conditions With Project. The results of the level of service (LOS) assessment show that under the all scenarios, all study intersections are forecasted to operate at acceptable LOS (LOS D or better) during the peak hours with the project. As such, localized CO impacts would be considered less than significant.

Health Impacts of Other Criteria Air Pollutants

Construction and operation of the project would not result in emissions that exceed the City of Oceanside emission thresholds for any criteria air pollutants, including VOC, NO_x, CO, SO_x, PM_{10} or $PM_{2.5}$~~, after implementation of MM-AQ-1, which is required to reduce NO_x emissions associated with construction equipment~~. Regarding VOCs, some VOCs would be associated with motor vehicles and construction equipment, while others are associated with architectural coatings, the emissions of which would not result in the exceedances of the Cities' thresholds, as shown in Table 4.4-4. Generally, the VOCs in architectural coatings are of relatively low toxicity. Additionally, SDAPCD Rule 67.0.1 restricts the VOC content of coatings for both construction and operational applications.

In addition, VOCs and NO_x are precursors to O_3, for which the SDAB is designated as nonattainment with respect to the NAAQS and CAAQS (the SDAB is designated by the EPA as an attainment area for the 1-hour O_3 NAAQS standard and 1997 8-hour NAAQS standard). The health effects associated with O_3, as discussed in Section 4.4.2, are generally associated with reduced lung function. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SDAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur because exceedances of the O_3 NAAQS and CAAQS tend to occur between April and October when solar radiation is highest.

The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the VOC and NO_x emissions associated with project construction could minimally contribute to regional O_3 concentrations and the associated health impacts. Due to the minimal contribution during construction and operation, as well as the existing good air quality in coastal San Diego areas, health impacts would be considered less than significant.

Similar to O_3, construction of the project would not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter. The project would also not result in substantial diesel particulate matter emissions during construction and operation and therefore would not result in significant health effects related to diesel particulate matter exposure. Due to the minimal contribution of particulate matter from the proposed project during construction and operation, health impacts would be considered less than significant.

Regarding NO_2, according to the construction emissions analysis, construction of the project would not contribute to exceedances of the NAAQS and CAAQS for NO_2. As described in Section 4.4.2, NO_2 and NO_x health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, these operations would be relatively short term, and the project would be required to comply with SDAPCD Rule 55, which limits the amount of fugitive dust generated during construction. Additionally, off-road construction equipment would be operating at various portions of the site and would not be concentrated in one portion of the site at any one time. ~~Additionally, implementation of MM-AQ-1 would reduce NO_x emissions associated with construction equipment.~~ Therefore, health impacts would be considered less than significant with mitigation incorporated.

In summary, construction and operation of the project would not result in exceedances of City's emission-based thresholds for criteria pollutants after implementation of MM-AQ-1. In addition, the proposed project would not increase traffic to unacceptable LOS at study area intersections, resulting in a less than significant impact in regard to generation of CO hotspots. Therefore, health impacts associated with criteria air pollutants would be considered less than significant with mitigation incorporated.

5. Would the proposed project create objectionable odors affecting a substantial number of people?

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the proposed project. 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 facilities. The proposed project entails hotel buildings and an associated parking structure and would not result in the creation of a land use that is commonly associated with odors. The proposed project would generate wastewater that would be treated at the adjacent Buena Vista Creek pump station; however, the proposed project would only slightly increase the flow of wastewater at the Buena Vista Creek pump station and would not result in a substantial change in odors compared to those that are currently being emitted from the existing structure. Therefore, project operations would result in a less than significant odor impact.

4.4.5 Mitigation Measures

As outlined above, the proposed project would not have a potentially significant air quality impact. Nonetheless, the City is requiring iMitigation measures required to minimize potentially significant air quality impacts during construction and operation of the proposed project include the following. Implementation of MM-AQ-1 below towould ensure that impacts would be less than significant.

MM-AQ-1 If required at the time of construction based on known construction equipment specifications:

- All project construction equipment with a horsepower of 150 or higher shall be equipped with a diesel engine rated Tier 3 or higher.
- All project construction equipment with a horsepower of 50 to 149 shall be equipped with a diesel engine rated Tier 2 or higher.

Table 4.4-7 presents estimated project-generated construction emissions with implementation of MM-AQ-1.

Table 4.4-7
Estimated Mitigated Maximum Daily Construction Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2018	15.39	211.77	193.83	0.35	14.91	9.87
2019	14.40	103.74	107.46	0.18	8.64	6.02
2020	7.71	2.49	3.16	0.01	0.44	0.19
Maximum daily emissions	**15.39**	**211.77**	**193.83**	**0.35**	**14.91**	**9.87**
Emission threshold	*137*	*250*	*550*	*250*	*100*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: See Appendix F for complete results.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 4.4-7, implementation of MM-AQ-1 would ensure that impacts would be less than significant.

4.4.6 Level of Significance After Mitigation

Upon implementation of MM-AQ-1, air quality impacts would be less than significant.

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