4.7 AIR QUALITY

This section describes the existing air quality conditions, identifies associated regulatory requirements, evaluates potential impacts, and establishes mitigation measures related to implementation of the Alta Oceanside project (proposed project). The following analysis is based on the Air Quality and Greenhouse Gas Emissions Analysis Technical Report and the Health Risk Assessment Report prepared for the proposed project by Dudek in 2019, which are included as Appendix I, respectively.

4.7.1 Existing Conditions

The project site is located within the San Diego Air Basin (SDAB) and is subject to San Diego County Air Pollution Control District (SDAPCD) guidelines and regulations. The SDAB is 1 of 15 air basins that geographically divide California. The SDAB lies in the southwest corner of California. The SDAB comprises the entire San Diego region and covers approximately 4,260 square miles.

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted. Meteorological and topographical conditions, however, are also important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of air pollutants. Meteorological and topographical factors that affect air quality in the SDAB are described below.

Climate

The climate of the San Diego region, as in most of Southern California, is influenced by the strength and position of the semi-permanent high-pressure system over the Pacific Ocean, known as the Pacific High. This high-pressure ridge over the West Coast often creates a pattern of late night and early morning low clouds, hazy afternoon sunshine, daytime onshore breezes, and little temperature variation year-round. The SDAB is characterized as a Mediterranean climate with dry, warm summers and mild, occasionally wet winters. Average temperature ranges (in degrees Fahrenheit (°F)) from the mid-40s to the high 90s, with an average of 201 days warmer than 70°F.

The SDAB experiences 9 to 13 inches of rainfall annually, with most of the region's precipitation falling from November through March, with infrequent (approximately 10%) precipitation during the summer. El Niño and La Niña patterns have large effects on the annual rainfall received in San Diego, where San Diego receives less than normal rainfall during La Niña years. The interaction of ocean, land, and the Pacific High maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). The winds tend to blow onshore in the day and offshore at night. 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.

The favorable climate of San Diego also works to create air pollution problems. Sinking, or subsiding air from the Pacific High, creates a temperature inversion known as a subsidence inversion, which acts as a "lid" to vertical dispersion of pollutants. Weak summertime pressure gradients further limit horizontal dispersion of pollutants in the mixed layer below the subsidence inversion. Poorly dispersed anthropogenic emissions combined with strong sunshine leads to photochemical reactions that result in the creation of ozone (O_3) at this surface layer. In addition, light winds during the summer further limit ventilation.

In the fall months, the SDAB is often impacted by Santa Ana winds, which are the result of a high-pressure system over the Nevada and Utah regions that overcomes the westerly wind pattern and forces hot, dry winds from the east to the Pacific Ocean. The Santa Ana winds are powerful and can blow the SDAB's pollutants out to sea. However, a weak Santa Ana can transport air pollution from the South Coast Air Basin (located to the north) and greatly increase O_3 concentrations in the San Diego area.

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 San Diego County. The transport of air pollutants from Los Angeles to San Diego can also occur within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

Site-Specific Meteorological Conditions

The local climate on the project site is characterized as semi-arid with consistently mild, warmer temperatures throughout the year. The average summertime high temperature in the region is approximately 67.6°F, with highs reaching 73.6°F on average during the months of July through September. The average wintertime low temperature is approximately 52.9°F, reaching as low as 44.2°F on average during the months of November through March. Average precipitation in the local area is approximately 10.54 inches per year, with the bulk of precipitation falling between November and March (WRCC 2016).

Air Pollution Climatology

The project site is located within the SDAB and is subject to the SDAPCD guidelines and regulations. Pursuant to the 1990 federal Clean Air Act amendments, the Environmental Protection Agency (EPA) classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the National Ambient Air Quality Standards (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 re-designated 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 California Ambient Air Quality Standards (CAAQS) rather than the NAAQS.

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. The other 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, predominately 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 basin 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.

Air Quality Characteristics

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 meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. 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 include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences,

schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

SDAB Attainment Designation

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 California Air Resources Board (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.

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 proposed project is located in is designated as attainment or unclassifiable/unclassified for all other criteria pollutants under the NAAQS and CAAQS. The SDAB is designated as an attainment area for the 1997 8-hour O_3 NAAQS and as a nonattainment area for the 2008 8-hour O_3 NAAQS. The SDAB is designated as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ CAAQS.

Table 4.7-1 summarizes the SDAB's federal and state attainment designations for each of the criteria pollutants.

Table 4.7-1
San Diego Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Ozone (O_3) – 1 hour [a]	Attainment[a]	**Nonattainment**
O_3 (8-hour – 1997) (8-hour – 2008)	Attainment (Maintenance) **Nonattainment (Moderate)**	**Nonattainment**
Nitrogen Dioxide (NO_2)	Unclassifiable/Attainment	Attainment
Carbon Monoxide (CO)	Attainment (Maintenance)	Attainment
Sulfur Dioxide (SO_2)	Unclassifiable/Attainment	Attainment
Coarse Particulate Matter (PM_{10})	Unclassifiable/Attainment	**Nonattainment**
Fine Particulate Matter ($PM_{2.5}$)	Unclassifiable/Attainment	**Nonattainment**
Lead (Pb)	Unclassifiable/Attainment	Attainment
Hydrogen Sulfide	No federal standard	Attainment
Sulfates	No federal standard	Unclassified
Visibility-Reducing Particles	No federal standard	Unclassified
Vinyl Chloride	No federal standard	No designation

Sources: EPA 2016a (federal); CARB 2016a (state).

Notes: Attainment = meets the standards; Attainment/Maintenance = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; Unclassified or Unclassifiable = insufficient data to classify; Unclassifiable/Attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

[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 (SIPs).

Air Quality Monitoring Data

The SDAPCD operates a network of ambient air monitoring stations throughout San Diego County, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Local ambient air quality is monitored by the SDAPCD.

The nearest SDAPCD-operated monitoring station is the Camp Pendleton monitoring station, which is located approximately 1.1 miles northwest of the project site. This site was used to show the background ambient air quality for O_3 and NO_2. The closest monitoring site that measures CO, SO_2, PM_{10}, and $PM_{2.5}$ for years 2016 and 2017 is the First Street – El Cajon monitoring station located at 533 First Street, El Cajon, and for year 2015 is the Floyd Smith Drive – El Cajon monitoring station located at 10537 Floyd Smith Drive, El Cajon, which are about 36.0 miles southeast of the site. The most recent background ambient air quality data and number of days exceeding the ambient air quality standards from 2015 to 2017 are presented in Table 4.7-2.

Table 4.7-2
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2015	*2016*	*2017*	*2015*	*2016*	*2017*
Ozone (O_3) – Camp Pendleton									
Maximum 1-hour concentration	ppm	State	0.09	0.093	0.083	0.094	0	0	0
Maximum 8-hour concentration	ppm	State	0.070	0.076	0.073	0.081	2	4	4
		Federal	0.070	0.076	0.073	0.081	2	4	4
Nitrogen Dioxide (NO_2) – Camp Pendleton									
Maximum 1-hour concentration	ppm	State	0.18	0.060	0.072	0.063	0	0	0
		Federal	0.100	0.060	0.072	0.063	0	0	0
Annual concentration	ppm	State	0.030	0.007	0.006	0.006	—	—	—
		Federal	0.053	0.007	0.006	0.006	—	—	—
Carbon Monoxide (CO) – El Cajon – First Street; Floyd Smith Drive									
Maximum 1-hour concentration	ppm	State	20	1.4	1.6	1.5	0	0	0
		Federal	35	1.4	1.6	1.5	0	0	0
Maximum 8-hour concentration	ppm	State	9.0	1.1	1.3	1.4	0	0	0
		Federal	9	1.1	1.3	1.4	0	0	0

Table 4.7-2
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2015	*2016*	*2017*	*2015*	*2016*	*2017*
Sulfur Dioxide (SO_2) – El Cajon – First Street; Floyd Smith Drive									
Maximum 1-hour concentration	ppm	Federal	0.075	0.0012	0.0006	0.0011	0	0	0
Maximum 24-hour concentration	ppm	Federal	0.14	0.0004	0.0002	0.0004	0	0	0
Annual concentration	ppm	Federal	0.030	0.00011	0.00008	0.00011	0	0	0
Coarse Particulate Matter (PM_{10})[a] – El Cajon – First Street; Floyd Smith Drive									
Maximum 24-hour concentration	µg/m3	State	50	48	50	50	0.0 (0)	0.0 (0)	0.0 (0)
		Federal	150	48	50	50	0.0 (0)	0.0 (0)	0.0 (0)
Annual concentration	µg/m3	State	20	—	—	—	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a] – El Cajon – First Street; Floyd Smith Drive									
Maximum 24-hour concentration	µg/m3	Federal	35	24.7	19.3	31.8	0.0 (0)	0.0 (0)	0.0 (0)
Annual concentration	µg/m3	State	12	8.2	7.4	9.6	0.0 (0)	0.0 (0)	0.0 (0)
		Federal	12.0	8.2	7.4	9.6	0.0 (0)	0.0 (0)	0.0 (0)

Sources: CARB 2019c; EPA 2019.
Notes: ppm = parts per million; — = not available; $\mu g/m^3$ = micrograms per cubic meter;
[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

4.7.2 Regulatory Setting

Federal

Criteria Air Pollutants

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 setting NAAQS for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: 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 (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

Hazardous Air Pollutants

The 1977 federal CAA amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants to protect public health and welfare. Hazardous air pollutants include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 CAA amendments, which expanded the control program for hazardous air pollutants, 187 substances and chemical families were identified as hazardous air pollutants.

State

Criteria Air Pollutants

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 and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency 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. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ 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 4.7-3.

Table 4.7-3
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 the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2018a.

Notes: μg/m³ = micrograms per cubic meter; CO = carbon monoxide; mg/m³= milligrams per cubic meter; NO_2 = nitrogen dioxide; O_3 = ozone; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ppm = parts per million by volume; SO_2 = sulfur dioxide

[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 per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/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 on 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 EPA Administrator signed the notice for the final rule to revise the primary and secondary NAAQS for O_3. The EPA is revising the levels of both standards from 0.075 ppm to 0.070 ppm and retaining their indicators (O_3), forms (fourth-highest daily maximum, averaged across 3 consecutive years) and averaging times (8 hours). The EPA is in the process of submitting the rule for publication in the Federal Register. The final rule will be effective 60 days after the date of publication in the Federal Register. The lowered national 8-hour standards are reflected in the table.

[g] To attain the national 1-hour 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 national 1-hour 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 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 were also 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 µg/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.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment (HRA), and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. DPM is typically composed of carbon particles ("soot," also called black carbon, or BC) and numerous organic compounds, including over 40 known cancer-causing organic substances. The CARB

classified "particulate emissions from diesel-fueled engines" (i.e., DPM; 17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars, and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000).

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000 (CARB 2000). Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment. Several Airborne Toxic Control Measures (ATCMs) that reduce diesel emissions including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

Health risk assessments (HRAs) are used to estimate health risk impacts to existing sensitive receptors from exposure to toxic air contaminant (TAC) emissions from construction of a project. HRAs also predict the potential exposure to future residents of the project from TAC emissions related to motor vehicles. HRA analyses use air dispersion modeling and Hotspots Analysis and Reporting Program Version 2 (HARP2) to evaluate potential health risks associated with a particular project.

California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

Local

San Diego Air Pollution Control District

Although CARB is responsible for the regulation of mobile emissions 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.

Federal Attainment Plans

In December 2016, the SDAPCD adopted an update to the Eight-Hour Ozone Attainment Plan for San Diego County (2008 O_3 NAAQS). The 2016 Eight-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 8-hour O_3 standard (1997 O_3 NAAQS) by 2018 (SDAPCD 2016). In this plan, SDAPCD relies on the Regional Air Quality Strategy (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 (NOx and VOCs) by identifying measures and regulations intended to reduce these pollutants. 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.

Currently, the County is designated as moderate nonattainment for the 2008 NAAQS and maintenance for the 1997 NAAQS. As documented in the 2016 8-Hour Ozone Attainment Plan for San Diego County, the County has a likely chance of obtaining attainment due to the transition to low emission cars, stricter new source review rules, and continuing the requirement of general conformity for military growth and the San Diego International Airport. The County will also continue emission control measures including ongoing implementation of existing regulations in ozone precursor reduction to stationary and area-wide sources, subsequent inspections of facilities and sources, and the adoption of laws requiring Best Available Retrofit Control Technology for control of emissions (SDAPCD 2016).

State Attainment Plans

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 RAQS for the SDAB was initially adopted in 1991 and is updated on a triennial basis, most recently in 2016 (SDAPCD 2016). 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 the County and the cities in the county, to forecast 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 the County and the cities in the county as part of the development of their general plans (SANDAG 2017a, 2017b).

In December 2016, the SDAPCD adopted the revised RAQS for the County. Since 2007, the San Diego region reduced daily VOC emissions and NOx emissions by 3.9% and 7.0% respectively; the SDAPCD expects to continue reductions through 2035 (SDAPCD 2016). These reductions were achieved through implementation of six VOC control measures and three NO_x control measures adopted in the SDAPCD's 2009 RAQS (SDAPCD 2009a); in addition, the SDAPCD is considering additional measures, including three VOC measures and four control measures to reduce 0.3 daily tons of VOC and 1.2 daily tons of NO_x, provided they are found to be feasible region-wide. In addition, SDAPCD has implemented nine incentive-based programs, has worked with SANDAG to implement regional transportation control measures, and has reaffirmed the state emission offset repeal[1].

In regards to particulate matter emissions reduction efforts, in December 2005, the SDAPCD prepared a report titled "Measures to Reduce Particulate Matter in San Diego County" to address implementation of Senate Bill (SB) 656 in San Diego County (SB 656 required additional controls to reduce ambient concentrations of PM_{10} and $PM_{2.5}$) (SDAPCD 2005). In the report, SDAPCD evaluated 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 (SDAPCD 2005).

SDAPCD Rules and Regulations

As stated above, the SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD, and would apply to the proposed project:

SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions. Prohibits discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes that is darker in shade than that designated as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or of such opacity as to obscure an observer's view to a degree greater than does smoke of a shade designated as Number 1 on the Ringelmann Chart (SDAPCD 1997).

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 1967).

[1] The 2016 RAQS Revision includes a detailed reassessment and reaffirmation of the SDAPCD's previous findings that state emission offset requirements are not necessary for San Diego County to achieve and maintain the state ozone standards by the earliest practicable date.

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 67.0.1: 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 2015a).

SDAPCD Regulation XII: Toxic Air Contaminates; Rule 1200: Toxic Air Contaminants - New Source Review. Requires new or modified stationary source units with the potential to emit TACs above rule threshold levels to either demonstrate that they will not increase the maximum incremental cancer risk above 1 in 1 million at every receptor location, or demonstrate that toxics best available control technology (T-BACT) will be employed if maximum incremental cancer risk is equal to or less than 10 in 1 million, or demonstrate compliance with SDAPCD's protocol for those sources with an increase in maximum incremental cancer risk at any receptor location of greater than 10 in 1 million but less than 100 in 1 million (SDAPCD 2017a.

SDAPCD Regulation XII: Toxic Air Contaminates; Rule 1210: Toxic Air Contaminant Public Health Risks – Public Notification and Risk Reduction. Requires each stationary source that is required to prepare a public risk assessment to provide written public notice of risks at or above the following levels: maximum incremental cancer risks equal to or greater than 10 in 1 million, or cancer burden equal to or greater than 1.0, or total acute noncancer health hazard index equal to or greater than 1.0, or total chronic noncancer health hazard index equal to or greater than 1.0 (SDAPCD 2017b).

San Diego Association of Governments

SANDAG is the regional planning agency for San Diego County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SANDAG serves as the federally designated metropolitan planning organization for San Diego County. With respect to air quality planning and other regional issues, SANDAG has prepared *San Diego Forward: The Regional Plan* (Regional Plan) for the San Diego region (SANDAG 2015). The Regional Plan combines the big-picture vision for how our region will grow over the next 35 years with an implementation program to help make that vision a reality. The Regional Plan, including its Sustainable Communities Strategy (SCS), is built on an integrated set of public policies, strategies, and investments to maintain, manage, and improve the transportation system so that it meets the diverse needs of the San Diego region through 2050.

In regard to air quality, the Regional Plan sets the policy context in which SANDAG participates in and responds to the air district's air quality plans and builds off the air district's air quality plan processes that are designed to meet health-based criteria pollutant standards in several ways

(SANDAG 2015). First, it complements air quality plans by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in air quality plans. Second, the Regional Plan emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On September 23, 2016, SANDAG's Board of Directors adopted the final *2016 Regional Transportation Improvement Program* (RTIP). The 2016 RTIP is a multi-billion dollar, multi-year program of projects for major transportation projects in the San Diego region. Transportation projects supported through federal, state, and TransNet (the San Diego transportation sales tax program) funds must be included in an approved RTIP. The programming of locally funded projects also may be programmed at the discretion of the agency. The 2016 RTIP covers five fiscal years and incrementally implements the Regional Plan (SANDAG 2016).

4.7.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to traffic and circulation are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to traffic and circulation would occur if the proposed project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. 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.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the proposed project would have a significant impact on air quality.

As part of its air quality permitting process, the SDAPCD and the County of San Diego has established thresholds in Rule 20.2 requiring the preparation of Air Quality Impact Assessments (AQIA) for permitted stationary sources (SDAPCD 2016b). The SDAPCD sets forth quantitative emission thresholds below which a stationary source would not have a significant impact on ambient air quality. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes, these levels may be used to evaluate the increased emissions which would be discharge to the SDAB from proposed land development projects (County of San Diego

2007). Proposed-project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4.7-4, SDAPCD Air Quality Significance Thresholds, are exceeded.

Table 4.7-4
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		
Oxides of Sulfur (SO_x)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOC)	75*		
Operational Emissions			
Pollutant	*Total Emissions*		
	Pounds per Hour	*Pounds per Day*	*Tons 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 (VOC)	—	75*	13.7

Sources: SDAPCD Rules 1501 (SDAPCD 1995) and 20.2(d)(2) (SDAPCD 2016b).

* VOC threshold based on the threshold of significance for VOCs from the South Coast Air Quality Management District for the Coachella Valley as stated in the San Diego County Guidelines for Determining Significance.

The thresholds listed in Table 4.7-4 represent screening-level thresholds that can be used to evaluate whether proposed-project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. The emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an "O_3 significance threshold" (i.e., the potential for adverse O_3 impacts to occur). This approach is used because O_3 is not emitted directly on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 4.7-4, the proposed 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.

With respect to odors, SDAPCD Rule 51 (Public Nuisance) 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.

4.7.4 Impacts Analysis

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

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. Pursuant to the Clean Air Act, the U.S. Environmental Protection Agency (EPA) classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the National Ambient Air Quality Standards (NAAQS) have been achieved. The EPA set the NAAQS for six pollutants based on parts per million, parts per billion and micrograms per cubic meter. States with areas that exceed the NAAQS must prepare a state implementation plan (SIP) that demonstrates how those areas would attain the NAAQS within mandated time frames. In addition, the 2016 Regional Air Quality Strategy (RAQS) were adopted on the local level to demonstrate how the region would comply with the federal standards. Due to the San Diego Air Basin (SDAB) nonattainment of the federal O_3 standard, RAQs have been established for O_3 and O_3 precursors (NOx and VOCs) (SDAPCD 2016).

If a project involves development that is greater than that anticipated in the local plan and SANDAG's growth projections, the project might be in conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality. The zoning for this project site is Subdistrict 7B of the Downtown District. The Subdistrict is intended to provide for a mix of recreational and commercial uses conveniently located near recreational and residential areas, with residential uses allowed as part of a mixed-use project. Thus, the project is consistent with the zoning designation and is anticipated in the local plan and SANDAG's growth projections. Furthermore, the SANDAG's Regional Plan population, employee population, and housing estimates for the years 2020 and 2035 was compared to the estimated increase in population, employees, and housing generated by the project.

The number of housing units in the City was projected to be 67,817 in 2020 and 70,395 in 2035, or increase in 2,578 housing units over the period. Furthermore, the population in the City was projected to be 177,840 residents in 2020 and 188,597 residents in 2035, or increase in 10,757 residents over the period (SANDAG 2015). The average household size is 2.8 people per dwelling unit (City of Oceanside 2013). The project would construct 309 dwelling units, which would have the potential to house approximately 866 residents.

The number of employee population in the City was projected to be 48,205 in 2020 and 53,283 in 2035, or increase in 10,078 employees over the period (SANDAG 2015). Based on information from the applicant, the project would employ 25 persons.

Therefore, the project would be within SANDAG's population growth forecast, thus, would not conflict with the SIP and RAQS. The project would not conflict with or obstruct implementation of the applicable air quality plan, and impacts would be **less than significant.**

Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

As discussed above in Section 5.3(a), the SDAB is in nonattainment of the federal O_3 standard. Refer to Appendix I for additional details regarding existing conditions and regulations. Below is an analysis of the criteria pollutants, including ozone and ozone precursors.

Construction Emissions

Construction of the project would result in the temporary addition of pollutants to the local SDAB caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). The project's construction emissions were estimated using CalEEMod and compared to the San Diego Air Pollution Control District (SDAPCD) Thresholds of Significance. The project would include project design features related to dust control in compliance with the SDAPCD Rule 55 (see Section 3.2.5.2). The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SDAPCD Rule 67.0.1 (Architectural Coatings). Maximum daily construction emissions of VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. As show in in Table 4.7-5, the project would not exceed SDAPCD's significance thresholds. Therefore, the project's air pollutant emission impact during construction would be **less than significant**.

Table 4.7-5
Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
2021	8.65	101.41	56.70	0.15	14.61	9.22
2022	55.63	29.42	33.23	0.10	4.77	1.94
2023	55.31	25.47	32.01	0.10	4.81	1.86
Maximum	55.63	101.41	56.70	0.15	14.61	9.22
SDAPCD Threshold	75	250	550	250	100	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix I

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; SDAPCD = San Diego Air Pollution Control District; <0.01 = reported emissions are less than 0.01. Emissions include reductions from implementing dust control strategies such as water exposed area three times per day (61% reduction in PM_{10} and $PM_{2.5}$), applying soil stabilizer to unpaved surfaces (61% reduction in PM_{10} and $PM_{2.5}$), limit vehicle speeds on unpaved roads to 15 miles per hour, and removing dirt debris onto adjacent paved roadways at the end of each workday (26% reduction in PM).

Operational Emissions

The project would generate criteria pollutant emissions during operation from area, energy, and mobile sources. The emissions were estimated using CalEEMod and compared to SDAPCD's significance thresholds for operation. Project-generated mobile source emissions were estimated in CalEEMod based on project-specific trip rates (see Section 4.5 and Appendix H). CalEEMod default values were used to estimate emissions from the project area and energy sources. The project did not exceed the mass emissions significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ during operation (Table 4.7-6). Additionally, project design features such as bicycle parking would reduce mobile emissions (see Section 3.2.5); however, the emission reductions were conservatively not quantified. Therefore, the project impacts would be **less than significant**.

Table 4.7-6
Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
Area	9.37	0.34	25.58	<0.01	0.15	0.15
Energy	0.10	0.85	0.47	<0.01	0.07	0.07
Mobile	3.25	11.72	31.23	0.11	9.76	2.66
Total	**12.72**	**12.91**	**57.28**	**0.11**	**9.98**	**2.88**
SDAPCD Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix I
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; SDAPCD = San Diego Air Pollution Control District; <0.01 = reported emissions are less than 0.01. Community space was assumed to have three natural gas fireplaces, residential units were not equipped with fireplaces or woodstoves. The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect operational year 2024.

Cumulative Impacts

Air pollution is largely a cumulative impact and is cumulatively evaluated based on the air basin. The nonattainment status of regional pollutants is a result of past and present development, and SDAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. Potential cumulative effects to air quality is further discussed in Section 6.4.3. As discussed above, the project would not exceed SDAPCD's mass daily significance thresholds during construction or operation; therefore, the cumulative project impact would be **less than significant**.

Would the project expose sensitive receptors to substantial pollutant concentrations?

The closest sensitive receptors, MiraMar mobile home community, are located adjacent to the west and south boundary of the project site. The future residents of the site would also be considered sensitive receptors, as well as the Seacliff condominium residents. The evaluation of air quality impacts to sensitive receptors is based on the potential to result in physical health issues, as detailed in Appendix I. The potential air quality emissions with potential to result in health issues evaluated for the project include Toxic Air Contaminants (TACs), valley fever, carbon monoxide, and other criteria air pollutants. The proposed project consists of residential and commercial uses that are not associated with generating substantial pollutant concentrations. As the project operations would not generate substantial pollutant concentrations and the following analysis primarily focuses on construction-related emissions.

Toxic Air Contaminants (TACs)

Project impacts may include emissions of pollutants identified by the state and federal government as TACs or hazardous air pollutants (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 aimed at TACs 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. The Limited Phase II Environmental Site Assessment (Appendix K) determined no significant cancer risks or non-cancer hazards are anticipated due to the concentrations of chemicals detected during the vapor risk assessment. The greatest potential for TAC emissions during construction would be diesel particulate emissions from heavy equipment operations and heavy-duty trucks. Due to the site proximity to Interstate (I-) 5 and State Route (SR-) 76, there is also a potential for exposure of future on-site residents to vehicular-related TACs during project operations. These TACs of concern are addressed further below.

Construction

During project construction, DPM emissions would be emitted from heavy-duty construction equipment and heavy-duty trucks. The project would involve construction activities in several areas across the site, and would not require the extensive use of heavy-duty construction equipment or diesel trucks in any one location over the duration of development, which would limit the exposure of any proximate individual sensitive receptor to TACs. Heavy-duty construction equipment and diesel trucks are subject to CARB Airborne Toxic Control Measures to reduce DPM emissions. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period/duration of activities associated with a project (OEHHA 2015). Therefore, for this proposed project, the exposure period was conservatively analyzed as 26 months, consistent with the

duration of construction activities and considering DPM emissions will be limited or non-existent during some of the 26-month construction period.

A HRA was performed to estimate the maximum individual cancer and the non-cancer risk for residential receptors as a result of project construction (refer to Appendix I) using the conservative assumptions described above. Results of the construction HRA are shown in Table 4.7-7, Summary of Maximum Construction Cancer and Chronic Health Risks – Unmitigated, which presents cancer risk and chronic non-cancer health hazard indexes assessment results. No short term, acute relative exposure values are established and regulated for the type of construction activities contemplated by the project. Therefore, consistent with applicable HRA standards and regulatory guidance, short term, acute relative exposure values are not addressed in this construction-generated assessment (OEHHA 2019).

Table 4.7-7
Summary of Maximum Construction Cancer and Chronic Health Risks - Unmitigated

Impact Analysis	Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Maximally Exposed Individual Resident					
Construction HRA	Cancer Risk	Per Million	81.79	10	**Potentially Significant**
	Chronic Hazard Index	Index Value	0.047	1.0	Less than Significant

Source: See Appendix I for complete results.
Notes: CEQA = California Environmental Quality Act; HRA = Health Risk Assessment

As shown in Table 4.7-7, construction emissions would result in maximum individual cancer risk of 82 in one million for off-site residences, which is above the significance threshold of 10 in one million. As shown in Table 4.7-7, construction emissions would result in a chronic hazard index of 0.047, which is below the significance threshold of 1.0. Therefore, impacts related to a chronic hazard index would be less than significant. Project construction impacts related to calculated cancer risk would result in a **potentially significant impact (Impact AQ-1).**

Operational

CARB encourages consideration of the health impacts associated with TAC emissions from freeways and high-traffic roadways on sensitive receptors sited within 500 feet (CARB 2005). The project is located approximately 750 feet from I-5 and 430 feet from SR-76 (measuring from the edge of the freeway to the center of the project site). At its closest, the northeast corner of the site is 415 feet from I-5. This analysis discloses the impacts of the existing environment on the project. The HRA predicts the potential exposure to future residents of the project from TAC emissions related to vehicles traveling on I-5 and SR-76. The cancer risk calculations were performed by multiplying the AERMOD-predicted TAC concentrations in $\mu g/m^3$ per unit g/s due to TAC emissions from vehicles traveling on I-5 and SR-76 by the appropriate risk values. The mandatory potential exposure through pathways (e.g., inhalation) are selected for the operation-generated TAC emissions.

The project would not result in significant adverse impacts associated with locomotives.[2] CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* recommends avoiding siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. CARB also recommends possible siting limitations and mitigation approaches for proposals to site new sensitive uses within 1 mile of rail yards. The relevant guidance regarding the evaluation of health risks associated with locomotives has been focused on rail yard operations as opposed to train tracks. The closest major service and maintenance rail yard to the project is on Camp Pendleton, approximately 3 miles away. Although the train tracks are located 600 feet west of the western edge of the project site, those train tracks do not constitute a rail yard as that term is used by CARB. The CARB guidance does not identify the need for a siting distance buffer between sensitive receptors and train tracks. Unlike railyard operations, sensitive receptors are only exposed to pollutants from moving locomotives for a very short duration.

Table 4.7-8 summarizes the HRA results from I-5 and SR-76. The HRA is based on the HRA methodology described above and contained in Appendix I.

Table 4.7-8
Summary of Maximum Roadway Cancer and Chronic Health Risks - Unmitigated

Impact Analysis	Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Roadway HRA	Maximum Roadway Cancer Risk (I-5 & SR-76)	Per Million	12.02	10	**Potentially Significant**
Roadway HRA	Chronic Hazard Index	Index Value	0.003	1.0	Less than Significant

Source: See Appendix I for complete results.
Notes: CEQA = California Environmental Quality Act; HRA = Health Risk Assessment

As shown in Table 4.7-8, the HRA finds that exposure from I-5 and SR-76 would result in a potential cancer risk at the maximally exposed residential receptor of 12.02 in a million, exceeding the 10 in 1 million threshold and thus a potentially significant impact at the maximally exposed individual residential receptors. The potential chronic health risk of 0.003 would not exceed the SDAPCD significance threshold of 1.0. Therefore, impacts related to a chronic hazard index would be less than significant. Project operational impacts related to calculated cancer risk would result in a **potentially significant impact (Impact AQ-2).**

[2] While not required per CARB's guidance (CARB 2015), the HRA includes an analysis of cancer risk and chronic hazard index risks including the nearby train tracks. This information is included in the HRA (Appendix I) for disclosure purposes only.

Valley Fever

Valley fever is not highly endemic to San Diego County. The project would be consistent with SDAPCD Rule 55 which limits the amount of dust generated during construction and would also control the release of the fungus from construction activities by watering three times per day and limiting speed on unpaved roads. The closest sensitive receptors (mobile homes) are located adjacent to the west and south boundary of the project site. Based on the low incidence rate of valley fever in the project area and in greater San Diego County, and the project's implementation of dust control strategies, the earth-moving activities during project construction would have a **less-than-significant impact** with respect to valley fever exposure to sensitive receptors.

Health Impacts of Carbon Monoxide

Mobile source impacts occur on two scales of motion: regionally and locally. Locally, project-generated traffic would be added to the City's roadway system near the project area. If such traffic (1) occurs during periods of poor atmospheric ventilation, (2) is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and (3) is operating on roadways already congested with non-proposed-project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic.

The project's Traffic Impact Analysis evaluated 12 intersections as shown in Appendix H. Although the Harbor Drive–North Coast Highway and I-5 Southbound Ramp intersection was shown to operate at LOS F under both Buildout Year (2035) with and without the project, the 4,060 PM peak hour trips would exceed the 3,000 peak hour trip threshold for preparation of a CO hotspot assessment. Therefore, a CO hotspot assessment was prepared. As the remaining intersections operate at an acceptable LOS during the AM and PM peak hours in the scenarios evaluated, a CO hotspot assessment was not warranted or prepared for those locations.

Consistent with the California Department of Transportation (Caltrans) and the U.C. Davis Institute of Transportation Studies *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) (Appendix I), four receptor locations at each intersection were modeled on the sidewalk to assess the maximum potential CO hotspot impacts. The results of the model are shown in Table 4.7-9.

Table 4.7-9
CALINE4 Predicted Carbon Monoxide Concentrations

Intersection	Maximum Modeled Impact for Buildout Year 2035 Plus Project Conditions (ppm)	
	1-hour	*8-hour*[a]
Harbor Drive–North Coast Highway and I-5 Southbound Ramp (PM peak hour)	2.0	1.6

Source: Appendix I
Notes:
CO = carbon monoxide; ppm = parts per million.
[a] 8-hour concentrations were obtained by multiplying the 1-hour concentration by a persistence factor of 0.7

As shown in Table 4.7-9 above, the maximum CO concentration predicted for the 1-hour averaging period at the studied intersections would be 2.0 parts per million (ppm), which is below the 1-hour CO CAAQS of 20 ppm (Appendix I). The maximum predicted 8-hour CO concentration of 1.6 ppm at the studied intersections would be below the 8-hour CO CAAQS of 9 ppm (Appendix I). Neither the 1-hour nor 8-hour CAAQS would be equaled or exceeded at the intersection studied. Impacts would be **less than significant** to sensitive receptors with regard to potential CO hotspots.

Health Effects of Other Criteria Air Pollutants

Exceeding the SDAPCD thresholds for criteria pollutants has been shown to produce health effects such as headaches, cancer, and damage to lungs, brain, liver, and kidneys. Refer to Appendix I for more detail on each criteria pollutant and the associated health effects. Project construction and operation would not exceed SDAPCD thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Construction and operational activities would not generate emissions in excess of SDAPCD's mass daily thresholds; therefore, construction and operational impacts related to other Criteria Air Pollutants during construction and operations of the project would be **less than significant**.

Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The State of California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700 SDAPCD Rule 51, and City's Municipal Code Section 13.16, commonly referred to as public nuisance law, prohibits emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. SDAPCD also regulates project odor via SDAPCD Rule 51.

Construction

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application, which would disperse rapidly from the project site and generally occur at magnitudes that

would not affect substantial numbers of people. The project would be required to comply with the City's public nuisance law and the State of California Health and Safety Code mentioned above. As such, impacts associated with odors during construction would be **less than significant**.

Operations

The project entails a mixed-use residential and commercial development and an associated parking structure, and would not result in the creation of a land use that is commonly associated with odors. In addition, the project would be required to comply with the City's public nuisance law and the State of California Health and Safety Code mentioned above. Therefore, project operations would result in **less-than-significant** impacts to other emissions (such as those leading to odors).

4.7.5 Mitigation Measures

To reduce Impact AQ-1, the following shall be implemented:

MM-AQ-1: Prior to the issuance of a grading permit, the City shall verify that the grading plan notes identify the following:

A. Prior to the start of construction activities, the project applicant, or its designee, shall ensure that all 75 horsepower or greater diesel-powered equipment are powered with CARB certified Tier 4 Interim engines or better, except where the project applicant establishes to the satisfaction of the City that Tier 4 Interim equipment is not available.

B. All other diesel-powered construction equipment will be classified as Tier 3 or higher, at a minimum, except where the project applicant establishes to the satisfaction of the City that Tier 3 equipment is not available.

In the case where the applicant is unable to secure a piece of equipment that meets the Tier 4 Interim requirement, the applicant may upgrade another piece of equipment to compensate (e.g. from Tier 4 Interim to Tier 4 Final) or take such other actions as would reduce the contemplated emissions from 75 horsepower or greater diesel-powered equipment to a level that would have been achieved had Tier 4 Interim engines been used. Engine Tier requirements in accordance with this measure shall be incorporated on all construction plans.

To reduce Impact AQ-2, the following shall be implemented:

MM-AQ-2a Prior to the issuance of a construction permit, the City shall verify that the construction plan notes identify the following:

The applicant or its successor shall install high-efficiency return air filters on all heating, ventilation, and air conditioning (HVAC) systems serving the project. The air filtration system shall reduce at least 90% of particulate matter emissions, such as can be achieved with a Minimum Efficiency Reporting Value 13 (MERV 13) air filtration system installed on return vents in residential units.

MM-AQ-2b Prior to the issuance of a certificate of occupancy, the City shall verify the installation of the MERV 13 air filtration system on any HVAC system installed for the specified residential units in accordance with the manufacturer's recommendations for the life of the project. On-going maintenance of the installed filtration systems shall be the responsibility of the applicant or its successor.

4.7.6 Level of Significance After Mitigation

The HRA results from the unmitigated construction scenario show cancer risks exceeding the 10 in one million threshold, and thus a potentially significant Impact AQ-1 at the maximally exposed individual residential receptors. The project would implement MM-AQ-1 in order to reduce project construction-generated DPM emissions to below the significance threshold. The construction-related HRA results after incorporation of MM-AQ-1 are presented in Table 4.7-10. Although not required for the construction related, potential chronic health risk impacts as Table 4.7-7 demonstrates that those impacts are less than significant, with implementation of MM-AQ-1 (which is required for potential cancer risk impacts), the potential chronic health risk would be reduced even further below the SDAPCD significance threshold of 1.0 to 0.005. As shown in Table 4.7-10, Impact AQ-1 would be **less than significant** with incorporation of MM-AQ-1.

Table 4.7-10
Summary of Maximum Construction Cancer and Chronic Health Risks - Mitigated

Impact Analysis	Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Maximally Exposed Individual Resident					
Construction HRA	Cancer Risk (**Impact AQ-1**)	Per Million	8.45	10	Less than Significant
	Chronic Hazard Index	Index Value	0.005	1.0	Less than Significant

Source: Appendix I.
Notes: CEQA = California Environmental Quality Act; HRA = Health Risk Assessment

In order to reduce exposure to future project operational impacts to residential receptors from exposure to I-5 and SR-76 (Impact AQ-2), the project would implement MM-AQ-2a and MM-AQ-2b. As shown in Table 4.7-11, with implementation of MM-AQ-2a and MM-AQ-2b, the HRA finds that exposure from I-5 and SR-76 would result in a potential cancer risk at the maximally exposed residential receptor of 2.61 in a million. As the applicable CEQA

significance threshold is 10 in 1 million, Impact AQ-2 would be **less than significant** with incorporation of MM-AQ-2a and MM-AQ-2b.[3].

Although not required for the potential chronic health risk impacts related to project operations, as Table 4.7-8 demonstrates that those impacts are less than significant without mitigation, with implementation of MM-AQ-2a and MM-AQ-2b (which are required for potential cancer risk impacts), the potential chronic health risk would be reduced even further below the SDAPCD significance threshold of 1.0 to 0.0003.

Table 4.7-11
Summary of Maximum Roadway Cancer and Chronic Health Risks - Mitigated

Impact Analysis	Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Roadway HRA	Maximum Roadway Cancer Risk (I-5 & SR-76) (**Impact AQ-2)**	Per Million	2.61	10	Less than Significant
Roadway HRA	Chronic Hazard Index	Index Value	0.0003	1.0	Less than Significant

Source: Appendix I
Notes: CEQA = California Environmental Quality Act; HRA = Health Risk Assessment

[3] While not required per CARB's guidance (CARB 2015), the HRA includes an analysis of cancer risk including the nearby train tracks. This analysis discloses the impacts of the existing environment on the project. The HRA predicts the potential exposure to future residents of the project from TAC emissions related to vehicles traveling on I-5 and SR-76, in combination with TAC emissions related to locomotives. This information is included in the HRA (Appendix I) for disclosure purposes only. The HRA finds that the mitigation measures already required to mitigate potential impacts due to roadway emissions (MM-AQ-2a and MM-AQ-2b) would also provide mitigation of the combined exposure from. With implementation of MM-AQ-2a and MM-AQ-2b , the HRA results from the combined I-5, SR-76, and nearby train tracks mitigated scenario show a cancer risk impact of 8.92 in 1 million, which would not exceed the SDAPCD significance threshold.