4.2 Air Quality

This section describes the existing conditions on the project site and in its vicinity related to air quality, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the San Diego State University (SDSU) Mission Valley Master Plan Project (proposed project).

Methods for Analysis

This section summarizes the air quality analysis for the proposed project that was prepared by Ramboll US Corporation (Ramboll) in May 2019. The complete technical report prepared on this subject is included as Appendix 4.2-1 of the environmental impact report (EIR).

Summary of Notice of Preparation Comments

A Notice of Preparation (NOP) was circulated from January 19, 2019, to February 19, 2019. A total of 150 letters were received during this comment period. Comments on the NOP related to air quality focused on fugitive dust emissions from construction and demolition activities, and potential criteria air pollutant emissions from combustion of gas in household appliances and traffic. Please see Appendix 1-1, NOP Scoping Comments, for a complete compilation of comments received on the NOP.

4.2.1 Existing Conditions

Site Conditions

The property comprising the project site includes four existing uses: (1) a multipurpose stadium (San Diego County Credit Union Stadium [SDCCU] Stadium, formerly “Qualcomm Stadium”) with an existing capacity of approximately 71,500 seats for football and other events; (2) an associated surface parking lot with approximately 18,870 parking spaces; (3) the Metropolitan Transit System (MTS) existing Green Line transit station, which provides trolley service running toward downtown San Diego to the west and Santee to the east; and (4) Murphy Canyon Creek. The SDSU main campus is three trolley stops from the existing on-site trolley station.

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 (WRCC 2016).

The topography in the San Diego region varies greatly, from beaches on the west to mountains and desert on the east; along with local meteorology, it influences the dispersal and movement of pollutants in the San Diego Air Basin (SDAB). The mountains to the east prohibit 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.

San Diego Air Basin Climatology

The project area is located within the SDAB. The SDAB is one of 15 air basins that geographically divide the State of California. 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. 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 ozone (O_3), which contributes to the formation of smog. Smog is a combination of smoke and other particulates, O_3, hydrocarbons, oxides of nitrogen (NO_X) and other chemically reactive compounds which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects (CARB 2014).

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 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.

Local Air Quality Monitoring Data

The San Diego Air Pollution Control District (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 California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS). The air quality conditions in San Diego County are monitored at 12 locations throughout the County. The Kearny Villa Road monitoring station represents the closest monitoring station to the project site for air pollutant concentration data. In the absence of data at this station, data available for the next closest monitoring station were included. Ambient concentrations of pollutants from 2015 through 2017 are presented in Table 4.2-1.

Table 4.2-1. Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year		
					2015	*2016*	*2017*
Ozone (O_3)							
Kearny Villa Road Station	ppm	Maximum 1-hour concentration	State	0.09	0.077	0.087	0.097
	ppm	Maximum 8-hour concentration	State	0.070	0.070	0.075	0.083
			Federal	0.070	0.070	0.075	0.083
Nitrogen Dioxide (NO_2)							
Kearny Villa Road Station	ppm	Maximum 1-hour concentration	State	0.18	0.051	0.053	0.054
			Federal	0.100	0.051	0.053	0.054
	ppm	Annual concentration	State	0.030	0.009	0.008	0.009
			Federal	0.053	0.009	0.008	0.009
Carbon Monoxide (CO)							
Beardsley Street Station (2015–2016); El Cajon – First Street Station (2017)	ppm	Maximum 1-hour concentration	State	20	0.0026	0.0022	0.0015
			Federal	35	0.0026	0.0022	0.0015
	ppm	Maximum 8-hour concentration	State	9.0	0.0019	0.0017	0.0014
			Federal	9	0.0019	0.0017	0.0014
Sulfur Dioxide (SO_2)							
El Cajon – Floyd Smith Drive (2015–2016); El Cajon – First Street Station (2017)	ppm	Maximum 1-hour concentration	Federal	0.075	0.0012	0.0018	0.0011
	ppm	Maximum 24-hour concentration	Federal	0.14	0.0004	0.0005	0.0004
Coarse Particulate Matter (PM_{10})							
Kearny Villa Road Station	μg/m³	Maximum 24-hour concentration	State	50	37.0	35.0	47.0
			Federal	150	37.0	35.0	47.0
	μg/m³	Annual concentration	State	20	17.0	17.1	17.6
Fine Particulate Matter ($PM_{2.5}$)							
Kearny Villa Road Station	μg/m³	Maximum 24-hour concentration	Federal	35	25.7	19.4	27.5
	μg/m³	Annual concentration	State	12	7.2	7.5	7.9
			Federal	12.0	7.2	7.5	7.9

Sources: CARB 2019a; EPA 2019a.
Notes: ppm = parts per million; μg/m3 = micrograms per cubic meter.
1 Ozone, PM_{10}, $PM_{2.5}$ data obtained from CARB iADAM: Air Quality Data Statistics. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily.
2 SO_2, NO_2, and CO data obtained from EPA AirData.

The number of days exceeding the O_3 ambient air quality standards (AAQS) is shown in Table 4.2-2; no AAQS exceedances for other pollutants were reported during the monitoring period. The state 1-hour O_3 standard was exceeded in 2017, and the state and federal 8-hour O_3 standards were exceeded in 2016 and 2017.

Table 4.2-2. Frequency of Ambient Air Quality Standard Violations

Monitoring Site	Year	Number of Days Exceeding Standard					
		National 24-Hour PM_{10}	*State 24-Hour PM_{10}*	*National 24-Hour $PM_{2.5}$*	*State 1-Hour O_3*	*State 8-Hour O_3*	*National 8-Hour O_3*
Kearny Villa Road	2015	0	0	0	0	0	0
	2016	0	ND	0	0	3	3
	2017	0	0	0	2	6	6

Source: CARB 2019a.
Notes: PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; O_3 = ozone; ND = insufficient data available to determine the value.

Air quality within the project region was in compliance with both CAAQS and NAAQS for NO_2, CO, particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and sulfur dioxide (SO_2) during this monitoring period. The SDAB is currently classified as a federal nonattainment area for O_3 and a state nonattainment area for PM_{10}, $PM_{2.5}$, and O_3 (SDAPCD n.d.).

Sensitive Receptors

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. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, athletic fields, hospitals, and residential communities; these are referred to as sensitive sites or sensitive land uses (CalEPA and CARB 2005).

The proposed project would be located within approximately 125 feet of Mission Hospice Services of San Diego, Inc., which would be the closest sensitive receptor.

Criteria Air Pollutants

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 people from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. These pollutants are discussed in the following paragraphs (EPA 2018; CARB 2019b; CARB 2009).

Ozone

Ozone is a colorless gas that is formed in the atmosphere when volatile organic compounds (VOCs), sometimes referred to as reactive organic gases, 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. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to O_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. The primary sources of NO, the precursor to NO_2, include automobile exhaust and industrial sources. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere, causing reduced visibility. 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 meteorological conditions, primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest levels of CO typically occur during the colder months of the year when inversion conditions, where a layer of warm air sits atop cool air, are more frequent and can trap pollutants close to the ground. 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. The 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 placed 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 (PM) 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 one-seventh 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 bloodstream, 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 produce haze and reduce regional visibility.

Lead

Lead (Pb) in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline, the manufacturing of batteries, paint, ink, ceramics, 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, and manufacturing facilities are becoming lead-emission sources of greater concern.

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

Sulfates

Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride

Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide

Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles

Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reduced airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$ described above.

Non-Criteria Air Pollutants

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 toxic air contaminant (TAC). Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and 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.

Diesel Particulate Matter

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. The California Air Resources Board (CARB) classified "particulate emissions from diesel-fueled engines" (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). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000).

4.2.2 Relevant Plans, Policies, and Ordinances

Federal

Federal and State Ambient Air Quality Standards for Criteria Air Pollutants

The Federal Clean Air Act requires the adoption of NAAQS, which are periodically updated, to protect the public health and welfare from the effects of air pollution. Current federal standards are set for SO_2, CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and Lead (Pb) (CARB 2019c).

The State of California also has established additional standards, known as the CAAQS, which are generally more restrictive than the NAAQS. The current NAAQS and CAAQS are shown in Table 4.2-3.

Table 4.2-3. 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 2016.

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/m³ 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° Celsius (°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 national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[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/m³ to 12.0 μg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m³ 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/m³ 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.

Specific geographic areas are classified as either “attainment” or “nonattainment” areas for each pollutant based upon the comparison of measured data with the NAAQS and CAAQS. Those areas designated as “nonattainment” for purposes of NAAQS compliance are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the standards. These regional air quality plans developed to meet federal requirements are included in an overall program referred to as the State Implementation Plan (SIP). If the SIP is deemed acceptable, the U.S. Environmental Protection Agency (EPA) will delegate responsibility for implementation pursuant to the SIP to the state and/or its air districts therein.

Whenever the EPA revises or establishes a new NAAQS, the state and the EPA have specific obligations to ensure that the NAAQS is met (EPA n.d.). These are listed below:

- The EPA must designate areas as meeting (attainment areas) or not meeting (nonattainment areas) the NAAQS within 2 years after its promulgation.
- States must submit “infrastructure SIPs” to show that they have the basic air quality management program components in place to implement the NAAQS within 3 years after its promulgation.
- States must submit nonattainment area SIPs that outline the strategies and emission control measures that will improve air quality and make the area meet the NAAQS within 18 to 36 months after designation.

The steps involved in the SIP process are described below (EPA n.d.).

- SIPs must be developed with public input and be formally adopted by the state and submitted to the EPA by the Governor's designee (CARB in California).
- The EPA reviews each SIP and proposes to approve or disapprove all or part it. The public is then provided with an opportunity to comment on the EPA's proposed action. The EPA considers public input before taking final action on a state's plan.
- If the EPA approves all or part of a SIP, those control measures are enforceable in federal court. In the event a state fails to submit an approvable SIP or if the EPA disapproves a SIP, the EPA is required to develop a Federal Implementation Plan.

Table 4.2-4 summarizes the attainment status of San Diego County for the pollutants regulated by the NAAQS and CAAQS. As seen in Table 4.2-4, San Diego County is currently in attainment (or unclassified or maintenance) for the federal 1-hour O_3 standard, federal $PM_{2.5}$ standard, the federal and state CO standards, the federal and state NO_2 standards, the federal and state SO_2 standards, the federal and state lead standards, and the state visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride standards. However, as also shown in Table 4.2-4, San Diego County is currently designated as nonattainment for the state 1-hour O_3 standard, the federal and state 8-hour O_3 standards, the state PM_{10} standards, and the state $PM_{2.5}$ standard (EPA 2019b; CARB 2018; SDAPCD n.d.).

Table 4.2-4. SDAPCD NAAQS and CAAQS Attainment Status

Pollutant	Federal Designation	State Designation
O_3 (1 hour)	Attainment[a]	**Nonattainment**
O_3 (8 hours – 2008)	**Nonattainment**	**Nonattainment**
CO	Attainment[b]	Attainment
PM_{10}	Unclassifiable	**Nonattainment**
$PM_{2.5}$	Attainment	**Nonattainment**
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Pb	Attainment	Attainment
Sulfates	(no federal standard)	Attainment
Hydrogen sulfide	(no federal standard)	Unclassified
Visibility-reducing particles	(no federal standard)	Unclassified

Sources: EPA 2019b (federal); CARB 2018 (state).
Notes: CO = carbon monoxide; NO_2 = nitrogen dioxide; O_3 = ozone; Pb = lead; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; SO_2 = sulfur dioxide; Bold text = not in attainment; Attainment = meets the standards; Attainment/Maintenance = achieves 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 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 SIPs.

[b] The western and central portions of the SDAB are designated attainment, while the eastern portion is designated unclassifiable/attainment.

Federal Hazardous Air Pollutants Program

The 1977 Clean Air Act Amendments required the EPA to identify National Emissions Standards for Hazardous Air Pollutants to protect the public health and welfare. Hazardous air pollutants include certain VOCs, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 Clean Air Act Amendments, which expanded the control program for hazardous air pollutants, 189 substances and chemical families were identified as hazardous air pollutants.

Federal Heavy-Duty Engines and Vehicles Fuel Efficiency Standards

On August 9, 2011, the EPA and the National Highway Traffic Safety Administration announced fuel economy and greenhouse gas (GHG) standards for medium- and heavy-duty trucks. EPA and National Highway Traffic Safety Administration have adopted standards for carbon dioxide (CO_2) emissions and fuel consumption, respectively, tailored to each of three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles.

The implementation of this program was adopted in two phases. Phase 1 was adopted in 2011, which applied to vehicles from model year 2014–2018 (EPA 2011). This phase was intended to reduce fuel use and GHG emissions from medium and heavy-duty vehicles, semi-trucks, pickup trucks and vans, and all work trucks and buses. According to EPA, this program will reduce GHG emissions and fuel consumption for affected vehicles by 9% to 23% over the 2010 baselines. Phase 2 was adopted in 2016 for medium- and heavy-duty trucks for model years 2018 and beyond (EPA 2016). This phase was intended to include technology-advancing standards that substantially reduce GHG emissions and fuel consumption resulting in an ambitious, yet achievable, program that will allow manufacturers to meet the applicable standards over time, at reasonable cost, through a mix of different technologies. For semi-trucks, large pickup trucks, vans, and other trucks, phase 2 standards will be phased in beginning with model year 2021 and culminating with model year 2027. While this regulation focuses on the reduction of GHG emissions, it is anticipated that this regulation would also help reduce criteria air pollutants.

The emissions reductions for Phase 1 of this regulation were included in the project emissions inventory; however, the emission reductions from Phase 2 were not included due to difficulty in quantifying the reductions from Phase 2 consistent with other analysis assumptions. Excluding these reductions results in a more conservative (i.e., higher) project emissions inventory.

State

California's Air Toxics Program

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 non-carcinogenic 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) hazardous air pollutants.

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 reduce the quantity of air toxics emissions. Instead, under AB 2588, 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.

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 plan is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 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. There also are several Airborne Toxic Control Measures 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).

California Health and Safety Code Section 41700

This section 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.

California's Pavley Standards

AB 1493 ("the Pavley Standard" or AB 1493) required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial-passenger vehicles and light-duty trucks of model year 2009 through 2016.

CARB's approach to passenger vehicles (cars and light trucks), under AB 1493, combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. This new approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California. These standards will apply to all passenger and light-duty trucks used by customers, employees of, and deliveries to the proposed project. While AB 1493 focuses on the reduction of GHG emissions, it is anticipated that this regulation would also help reduce criteria air pollutants.

California's Advanced Clean Cars

In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model year 2017 through 2025 (CARB n.d.). The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34% fewer global warming gases and 75% fewer smog-forming emissions. While the Advanced Clean Cars program focuses on the reduction of GHG emissions, it is anticipated that this regulation would also help reduce criteria air pollutants.

California's Diesel Emissions Control Measures

CARB has adopted a number of Airborne Toxic Control Measures (ATCMs) to control diesel particulate emissions and emissions from in-use on- and off-road diesel-fueled vehicles. With the assistance of the Advisory Committee and its subcommittees, CARB developed and approved the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (CARB 2000) and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines (CARB 2008). Various control measures adopted by CARB to reduce diesel emissions are summarized below.

Airborne Toxic Control Measure: School Bus Idling

This ATCM limits school bus idling and idling at or near schools. School bus, transit bus, and commercial motor vehicle drivers are required to turn off the engine upon arriving at a school, and restart it no more than 30 seconds before departing. School bus drivers also are prohibited from idling more than 5 minutes at locations beyond schools, such as at school bus stops or school activity destinations 13 CCR 2480). While this ATCM focuses on the reduction of diesel particulate emissions as a toxic, this regulation would also help reduce criteria air pollutants.

Airborne Toxic Control Measure: Diesel-Fueled Commercial Motor Vehicle Idling

This ATCM applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. The measure limits idling of trucks to a maximum of 5 minutes, except when the vehicle is queuing (13 CCR 2485). While this ATCM focuses on the reduction of diesel particulate emissions as a toxic, this regulation would also help reduce criteria air pollutants.

Airborne Toxic Control Measure: Stationary Compression Ignition Engines

This ATCM establishes emission standards and fuel use requirements for new and in-use stationary engines used in prime and emergency back-up applications (non-agricultural) and for new stationary engines used in agricultural applications (17 CCR 93115). While this ATCM focuses on the reduction of diesel particulate emissions as a toxic, this regulation would also help reduce criteria air pollutants.

In-Use Off-Road Diesel-Fueled Fleets

These regulations reduce DPM and NO_X emissions from in-use, off-road heavy-duty diesel vehicles in California. Such vehicles typically are used in construction, mining, and industrial operations. The regulations, among other requirements, impose limits on idling; require all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; restrict the adding of older vehicles into fleets; and, require fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits).

The requirements and compliance dates of the regulations vary by fleet size. Large fleets have compliance deadlines each year from 2014 through 2023, medium fleets each year from 2017 through 2023, and small fleets each year from 2019 through 2028 (13 CCR 2449).

In-Use On-Road Diesel-Fueled Fleets

These regulations require diesel trucks and buses to be upgraded to reduce emissions; newer heavier trucks and buses must meet PM filter requirements; lighter and older heavier trucks must be replaced; and, by January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel-fueled trucks and buses, and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. The regulation provides a variety of flexibility options tailored to fleets operating low use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks.

Local

Air pollution often does not conform to city and/or county jurisdictional boundaries, and the state has been divided into air basins based on geographical and meteorological conditions. Air pollution within each air basin is regulated by the regional air pollution control districts/air quality management districts, in a manner that is consistent with and in furtherance of standards adopted by the EPA and CARB. The project site is located within the SDAB and the jurisdictional boundaries of the SDAPCD, and is subject to the guidelines and regulations of the SDAPCD, as explained below.

San Diego Air Pollution Control District

While 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.

In San Diego County, O_3 and PM are the pollutants of main concern, as exceedances of AAQS for those pollutants are experienced here in most years. For this reason, the SDAB has been designated as a nonattainment area for the federal 8-hour O_3 standard, and the state 1-hour and 8-hour O_3, PM_{10}, and $PM_{2.5}$ standards.

The SDAPCD is responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The Regional Air Quality Strategy (RAQS) was initially adopted in 1991 and is updated on a triennial basis, most recently in 2016 (SDAPCD 2016a). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards (i.e., CAAQS) for O_3. The RAQS relies on information from CARB and the San Diego Association of Governments (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 San Diego County as part of the development of their general plans.

The Eight-Hour Ozone Attainment Plan for San Diego County identifies local controls and state projects designed to bring the region into attainment with the federal 1997 8-hour O_3 standard (i.e., NAAQS) (SDAPCD 2007). 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 projects for reduction of emissions from heavy-duty diesel vehicles, off-road equipment, and school buses are also established in the RAQS. According to the Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County, the SDAB was classified as a nonattainment area in 2012 for the 1997 8-hour standard based on data from 2001–2003 (CARB 2012). This plan 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 earlier, 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.

Regulation II: Permits

Regulation II (Rules 10-27.1) contains a series of rules covering permitting requirements within the SDAB.

Rule 50: Visible Emissions

Prohibits the discharge, from any single source of emissions, any air contaminant that aggregates for more than three minutes in any period of 60 consecutive minutes, which is darker in shade than that designated as Number 1 on the Ringelmann Chart, 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).

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, and annoyance to people and/or the public, or damage to any business or property (SDAPCD 1976).

Rule 55: Fugitive Dust Control

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 2009).

Rule 67.0.1: Architectural Coating

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 2016b).

Rule 67.7: Cutback and Emulsified Asphalts

Applies to the application and sale of cutback and emulsified asphalt for paving, construction, or maintenance of parking lots, driveways, streets and highways.

Stationary Source Permitting

The SDAPCD has New Source Review Rules, which include non-major and major stationary sources as well as portable emission units.

Health Risk Assessment Guidelines

The Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments (OEHHA Guidance Manual; OEHHA 2015) is considered the most current and comprehensive set of methodological guidelines in California for conducting HRAs. SDAPCD's Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessment (SDAPCD 2019) add to the OEHHA Guidance Manual by addressing the specific modeling and user default options for the risk evaluation incorporated into the Hot Spots Analysis and Reporting Program (HARP) developed by CARB, OEHHA, and the California Air Pollution Control Officers Association. Further, SDAPCD's Rule 1210 (Toxic Air Contaminant Public Health Risks – Public Notification and Risk Reduction), which applies to stationary sources, establishes public notification thresholds for incremental cancer and non-cancer health impacts. As stated in the SDAPCD's Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (SDAPCD 2019), the SDAPCD has established public health risk notification requirements under Rule 1210, which include a maximum incremental cancer risk of 10 in a million or greater, cancer burden of equal to or greater than 1.0, and incremental chronic/acute hazards indices of 1.0 or greater (SDAPCD 2018a). This guidance establishes procedures for evaluating health risks.

City of San Diego Municipal Code

As a state agency, California State University (CSU)/ SDSU is not subject to local land use regulatory/planning documents, ordinances, regulations, policies, rules, fees, or exactions. However, CSU is willing to purchase the project site pursuant to the framework set forth in San Diego Municipal Code Section 22.0908 to implement the overriding purpose of the proposed project. In addition, CSU will evaluate the proposed project's consistency with adopted, applicable state and federal regulatory/planning documents; and, though not required by law, CSU also will consider the proposed project's consistency with adopted, applicable local regulatory/planning documents.

With that introduction, the San Diego Municipal Code addresses air quality and odor impacts at Chapter 14, Article 2, Division 7 paragraph 142.0710, "Air Contaminant Regulations," which states: "Air contaminants including smoke, charred paper, dust, soot, grime, carbon, noxious acids, toxic fumes, gases, odors, and particulate matter, or any emissions that endanger human health, cause damage to vegetation or property, or cause soiling shall not be permitted to emanate beyond the boundaries of the premises upon which the use emitting the contaminants is located."

City of San Diego General Plan

Table CE-1, Issues Related to Climate Change Addressed in the General Plan, which is located in the Conservation Element of the City of San Diego's (City's) General Plan (City of San Diego 2008), identifies multiple City policies that seek to improve local air quality. Concepts identified in Table CE-1 of the City's General Plan include, but are not limited to, its overall City of Villages Strategy; creating walkable communities that utilize transit, bicycling, and transportation demand management; the use of sustainable energy resources; and water resource and waste management.

Mission Valley Community Plan

The Mission Valley Community Plan is intended to be a blueprint for future development in Mission Valley, where the proposed project is located. The Draft Final Mission Valley Community Plan Update was released on May 31, 2019 (City of San Diego 2019a). The Mission Valley Community Plan Update contains Design Guidelines and Policies for Development to implement the City's Climate Action Plan, maximize transit ridership, and increase mobility options, among others.

4.2.3 Significance Criteria

California Environmental Quality Act Guidelines

The significance criteria used to evaluate the project impacts related to criteria air pollutant emissions are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to criteria air pollutant emissions would occur if the 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 nonattainment 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.

An evaluation of the proposed project based on the significance thresholds discussed below is provided in subsequent sections.

San Diego County Air Pollution Control District Thresholds

As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 requiring the preparation of Air Quality Impact Assessments for permitted stationary sources (SDAPCD 2018b). The SDAPCD sets forth quantitative emission thresholds below which a stationary source would not have a significant impact on ambient air quality (Table 4.2-5). While Rule 20.2 is specifically related to New Source Review for Non-Major Stationary Sources as part of the SDAPCD permitting process, and this project does not require such permits, the SDAPCD has not provided specific criteria for determining significance of mixed-use developments, such as the proposed project.

Table 4.2-5. SDAPCD Air Quality Significance Thresholds

Pollutant	Total Emissions (Pounds per Day)
Volatile Organic Compounds (VOC)	137[a]
Oxides of Nitrogen (NO_x)	250
Carbon Monoxide (CO)	550
Oxides of Sulfur (SO_x)	250
Respirable Particulate Matter (PM_{10})	100
Fine Particulate Matter ($PM_{2.5}$)	67

Sources: City of San Diego 2016; SDAPCD 2018b.
Note:
a VOC threshold based on the significance thresholds recommended by the Monterey Bay Unified Air Pollution Control District for the North Central Coast Air Basin, which has similar federal and state attainment status as the SDAB for O_3.

In the absence of criteria specific to mixed-use developments, the SDAPCD thresholds represent screening-level thresholds that can be used to evaluate whether project-related emissions would cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact.

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 (SDAPCD 1976). A project that involves 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.

City of San Diego Significance Determination Thresholds

The City has adopted Significance Determination Thresholds to assist in determining whether, based on substantial evidence, a project may have a significant effect on the environment under CEQA (City of San Diego 2016). The

City's thresholds were adopted in 2016 and were consistent with the thresholds contained in Appendix G of CEQA Guidelines at that time, with the addition of the following threshold:

- Release substantial quantities of air contaminants beyond the boundaries of the premises upon which the stationary source emitting the contaminants is located.[1]

These thresholds will be addressed through evaluation of the Appendix G criteria summarized above. It is noted that, as a state agency, CSU/SDSU is not subject to local land use regulatory/planning documents, ordinances, regulations, policies, rules, fees, or exactions. However, CSU is willing to purchase the project site pursuant to the framework set forth in Section 22.0908 to implement the overriding purpose of the proposed project. In addition, CSU will evaluate the proposed project's consistency with adopted, applicable state and federal regulatory/planning documents; and though not required by law, CSU also will consider the proposed project's consistency with adopted, applicable local regulatory/planning documents.

Project Approach to Significance

Relative to threshold 1, this analysis evaluates the proposed project for consistency with applicable plans related to emissions, including the RAQS. Relative to threshold 2, this analysis quantifies the project emissions during construction and operations and compares those results to the applicable SDAPCD thresholds. Relative to threshold 3, this analysis assesses the potential health risk impacts to sensitive receptors, including a construction-related HRA and CO hotspots analysis. The construction HRA evaluates the health risk impacts of construction-related activities as compared to the applicable public health risk notification requirements under Rule 1210 (SDAPCD 2018a). The CO hotspots analysis evaluated ambient air quality concentrations at receptors in the vicinity of impacted traffic intersections to the applicable state and federal AAQS. In addition, relative to threshold 3, this analysis evaluates potential siting concerns for the proposed project's residential buildings due to the proximity of the Kinder Morgan Mission Valley Terminal (MV Terminal) and proximity to nearby freeways (i.e., Interstate [I] 15 and I-8) and associated vehicle-generated DPM emissions. Lastly, relative to threshold 4, this analysis evaluates the potential for odor-generating activities from the proposed project, as well as the potential exposure to valley fever for sensitive receptors.

4.2.4 Impacts Analysis

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

As discussed in Section 4.2.2, the SDAPCD's air quality plans rely on information from CARB and SANDAG 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 San Diego County as part of the development of their general plans. As such, projects that involve development that is consistent with the growth anticipated by the general plan(s) would be consistent with the growth projections of the SIP because associated emissions of criteria pollutants in a designated nonattainment area would be accounted for in these air quality plans. If a project involves development

1 See San Diego Municipal Code, Chapter 14, Article 2, Division 7, — Off-Site Development Impact Regulations paragraph 142.0710 — Air Contaminant Regulations, which states: "Air contaminants including smoke, charred paper, dust, soot, grime, carbon, noxious acids, toxic fumes, gases, odors, and particulate matter, or any emissions that endanger human health, cause damage to vegetation or property, or cause soiling shall not be permitted to emanate beyond the boundaries of the premises upon which the use emitting the contaminants is located" (Added December 9, 1997 by O-18451 N.S.; effective January 1, 2000).

that is greater than anticipated in SANDAG's growth projections, the proposed project would be in conflict with the RAQS and SIP, and could potentially result in a significant air quality impact.

At the individual level, the proposed project is within the growth projections developed by SANDAG for the Mission Valley area. However, at the cumulative level, the proposed project, in conjunction with other proposed residential and mixed-use projects, would exceed the growth anticipated in the Mission Valley area by SANDAG projections. (For additional information on this point, please see Section 4.13, Population and Housing, of this EIR.) Therefore, the proposed project—in combination with other projects considered in the cumulative setting—could result in a significant and unavoidable impact associated with implementation of the SDAPCD's regional air quality plans.

Recognizing this same discrepancy between anticipated Mission Valley development trends and SANDAG's growth projections for the area, the City's Final Program EIR (SCH No. 2017014066) for the Mission Valley Community Plan Update includes a mitigation measure, MM-AQ-1, which requires that, "Within six months of the certification of the Final Program EIR, the City shall provide a revised land use map for the CPU [Community Plan Update] area to SANDAG to ensure that any revisions to the population and employment projections used by the SDAPCD in updating the RAQS and the SIP will accurately reflect anticipated growth due to the proposed CPU" (City of San Diego 2019b). While this mitigation measure is not within the discretion of CSU, should the City implement MM-AQ-1, impacts as a result of the proposed project would be reduced to less than significant because the type and mix of land uses identified for the proposed project that is the subject of this technical report are within the development parameters of the City's Final Program EIR. (See, e.g., Section 4.14, Population and Housing, specifically Table 4.14-8, of this EIR.)

Therefore, the proposed project's EIR also should be accompanied by a similar mitigation commitment, as set forth in Section 4.2.6 below. Because CSU/SDSU cannot require SANDAG to update its growth projections and does not have jurisdictional control over the regional air quality plans prepared by SDAPCD, this impact is considered **potentially significant** (**Impact AQ-1**).

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

As discussed above, the project region is a designated nonattainment area for O_3 and particulate matter (PM_{10} and $PM_{2.5}$).

The project design includes a number of project design features (PDFs) that are intended to move the proposed project "beyond code." Many of these PDFs are consistent with the City of San Diego Climate Action Plan and its implementing Climate Action Plan Consistency Checklist, as well as the City's Draft Final Mission Valley Community Plan Update.

Project Design Features with Quantified Reductions

A subset of the PDFs has been quantitatively accounted for in this analysis. The two PDFs that have been quantified for purposes of this analysis are the Transportation Demand Management (TDM) Program and residential hearths.

Transportation Demand Management Program

The proposed project's TDM Program incentivizes alternative transportation besides single-occupant commuter trips. Strategies contained in the TDM Program for the campus office, residential, and retail uses relate to:

- Land Use Diversity
- Neighborhood Site Enhancement

- Parking Policy and Pricing
- Commute Trip Reduction Services

The TDM Program's strategies for non-stadium land uses are expected to reduce vehicle miles traveled by 14.41%. Details of the reductions are included in Fehr & Peer's Transportation Impact Analysis (2019) for the proposed project, provided in Appendix 4.15-1 of this EIR.

Residential Hearths

The proposed project is incorporating a limited number of natural gas fireplaces, and no wood-burning fireplaces, within project residences. Of all residential units in the proposed project, up to 5% of the units may include a natural gas fireplace.

Project Design Features with Unquantified Reductions but Expected Benefits

Solar Photovoltaic Panels

The proposed project is incorporating solar photovoltaic (PV) panels on available roof space; these panels as estimated to have a total generation capacity equivalent to 10,819,478 kilowatt-hour (kWh) of electricity, or 14.9% of the proposed project's total project electricity demand.

Electric Vehicle-Ready Parking and Electric Vehicle Chargers

The proposed project is equipping 3% of total residential parking spaces and 6% of total nonresidential parking spaces with appropriate electric supply equipment to allow for the future installation of electric vehicle (EV) chargers (i.e., "EV ready"). Of these EV ready spaces, 50% will be equipped with EV charging stations. Based on these parameters, in total, approximately 500 parking spaces on the project site will be designated as "EV ready," and 252 of the "EV ready" spaces will be equipped with operable EV charging stations.

Other PDFs with air quality reduction co-benefits that have not been quantified and only are considered qualitatively include the following:

- The layout of the proposed project's development areas has been designed to maximize the unique infill opportunity presented at this Mission Valley location. This includes benefits from the existing MTS Green Line transit station that runs through the proposed project, as well as the planned Purple Line transit station.
- The development locates buildings in close proximity one another, which would facilitate the use of common heating/cooling sources, where feasible, as project-level development proceeds. (The use of common heating/cooling sources will be evaluated as the building plans for individual development parcels are developed; relevant factors that will influence the use of such sources include the temporal proximity of development, type of use, and market forces.)
- Project development areas would maximize natural ventilation.
- The proposed project would include adaptive lighting controls, where appropriate and feasible, in order to maximize energy efficiency and minimize light pollution.
- The proposed project would achieve Leadership in Energy and Environmental Design (LEED) Version 4 at a Silver or better certification level, as well as a Neighborhood Development designation for sitewide design.

LEED certification is based on standards that encourage the development of energy-efficient and sustainable buildings.

- Events at the proposed project's multipurpose Stadium would benefit from the implementation of TDM Program strategies specifically developed for application to Stadium-related events. These strategies focus on the use of alternative modes of transportation, including transit, to reduce single-occupancy vehicle usage and parking demand on event days.

It also is noted that, in 2014, the CSU Board of Trustees adopted its Sustainability Policy (CSU 2014). To the extent applicable, project-related development will comply with the principles and goals set forth in the CSU Sustainability Policy.

Emissions Inventory

Construction

The emission calculations associated with construction activities are from off-road equipment engine use based on the equipment list and phase length, and on-road vehicle trips and phase length. Watering exposed areas two times per day is assumed to be consistent with SDAPCD Rule 55, which is discussed above in Section 4.2.2. Accordingly, a 55% reduction is applied to PM_{10} and $PM_{2.5}$ fugitive dust emissions. Construction also generates on-road vehicle criteria air pollutant emissions from personal vehicles for worker and vendor commuting, and trucks for soil and material hauling. The total amount of material that will not be used on site (i.e., the demolition material that will either be diverted to re-use facilities or to waste disposal facilities) requires hauling trips. Construction of the project is expected to generate 114,680 total hauling one-way trips during the grading and demolition phases.

Although not anticipated at this time, if required, implosion would be conducted through the detonation of explosive materials to implode the Stadium. This would be a one-time event that would occur on a single day, likely during the first month of demolition (January 2022). Exhaust emissions (NO_x, CO, and SO_x) from explosive material were calculated using AP-42 emission factors and the quantity of explosives required. Fugitive PM_{10} and $PM_{2.5}$ emissions were calculated using the building volume-based emission factors derived by Wheeler de Never (Wheeler 2007). Stadium building volume was estimated using Stadium geometry. The building dimensions were determined using Google Earth and additional online sources. The Stadium volume was calculated as the difference between total Stadium volume and the inner volume of open air.

The major construction phases included in this analysis are:

- Demolition: involves tearing down of buildings or structures.
- Grading: involves the cut and fill of land to ensure the proper base and slope for the construction foundation.
- Paving: involves the laying of concrete or asphalt such as in parking lots or roads.
- Building Construction: involves the construction of structures and buildings.
- Architectural Coating: involves the application of coatings to both the interior and exterior of buildings or structures.
- Off-site Improvements: involves the construction of off-site improvements.

Construction emissions were quantified using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. The construction schedule, off-road equipment list, and equipment specifications are based on project-specific estimates.

The unmitigated maximum daily criteria air pollutant emissions from construction activities for the proposed project are shown in Table 4.2-6.

Table 4.2-6. Unmitigated Maximum Daily Construction Emissions Compared to Threshold [1]

Year	VOC	NO_x	CO	SO_x	PM_{10}[2]	$PM_{2.5}$[2]
	Pounds per day					
2020	25	264	162	0.5	30	17
2021	34	364	245	0.6	38	22
2022	153	832	695	3.6	163	51
2023	6	57	40	0.1	18	10
2024	6	55	53	0.1	20	11
2025	8	70	71	0.2	13	8
2026	8	70	71	0.2	13	8
2027	5	44	52	0.1	4	2
2028	32	64	79	0.2	4	3
2029	32	60	72	0.1	4	3
2030	6	34	63	0.1	2	1
2031	6	34	63	0.1	2	1
2032	20	25	49	0.1	2	1
2033	20	16	29	0.1	2	1
2034	2	13	22	0.1	1	1
2035	2	11	22	0.1	1	0
2036	17	5	16	0.0	0	0
2037	17	3	7	0.0	0	0
Maximum	*153*	*832*	*695*	*3.6*	*163*	*51*
SDAPCD Threshold[3,4]	*137*	*250*	*550*	*250*	*100*	*67*
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	No	**Yes**	No

Notes:

1 Emissions shown here are based on project-specific construction schedule, equipment list, construction equipment horsepower and load factors, amount of hauling material, and on-road vehicle trips. Emissions were estimated using CalEEMod.

2 PM emissions are estimated as a sum of exhaust, tire wear, brake wear, and fugitive emissions. Watering of the site is assumed to take place twice daily per Rule 55. Fugitive PM is quantified from the mitigated CalEEMod fugitive PM emissions.

3 City of San Diego CEQA Thresholds, Table A-2 San Diego Air Pollution Control District Pollutant Thresholds for Stationary Sources. The VOC threshold is based on SCAQMD levels and the MBAPCD which has similar federal and state attainment status as San Diego.

4 SDAPCD 2018b. Rule 20.2. New Source Review Non-Major Stationary Sources. $PM_{2.5}$ threshold based on SDAPCD Pollutant Thresholds for Stationary Sources Table 20.2-1, which is referenced in the City of San Diego CEQA Thresholds.

This analysis currently assumes that implosion would be used for SDCCU Stadium demolition. If implosion is not used to demolish the SDCCU Stadium, the maximum daily unmitigated and mitigated construction emissions are expected to be lower than those presented in Table 4.2-6. However, the significance findings would be similar to that presented above for construction with implosion.

As shown, the project emissions exceed the SDACPD's significance thresholds for VOC, NO_x, CO, and PM_{10}. Thus, impacts would be **potentially significant (Impact AQ-2).**

Operation

The proposed project operational emissions were modeled in CalEEMod for the operational buildout year (2037). Due to model limitations, the buildout year of 2037 was represented using the year 2035 in CalEEMod.

The area source emissions included in this analysis result from landscaping-related fuel combustion sources, such as lawn mowers, consumer products, hearths, and architectural coatings. Emissions from fireplaces are calculated assuming that 5% of dwelling units have natural gas fireplaces and that there are no wood-burning fireplaces or woodstoves, consistent with the project design. Emissions due to natural gas combustion in buildings for other sources are excluded from this section since they are included in the emissions associated with building energy use. Area coatings include a maximum VOC content of 150 grams per liter per SDAPCD Rule 67.0.1.

The proposed project (without PDFs) analysis assumes that the proposed project's residential and nonresidential land uses accord to the 2016 Title 24 Standards, as that code cycle became effective on January 1, 2017. Total residential and nonresidential building energy input for the proposed project (i.e., electricity and natural gas use) were obtained from the default values provided in CalEEMod.[2,3] The energy usage for the Stadium was based on energy data from the existing Qualcomm Stadium. More specifically, the Qualcomm Stadium energy rates were normalized by attendance at the Stadium to develop the existing SDCCU Stadium and project Stadium energy use rates.

The criteria air pollutant emissions associated with on-road mobile sources are generated from residents, workers, customers, and delivery vehicles visiting the land use types in the proposed project. The mobile source emissions were calculated using trip rates and trip length information based on analyses conducted by Fehr & Peers' Transportation Impact Analysis in Appendix 4.15-1.

Emissions from the emergency generator are calculated assuming the generator is diesel powered and is operated 1 hour per week for maintenance and/or required emergency power.

The proposed project's operational emissions with PDFs are shown in Table 4.2-7.

Table 4.2-7. Operational Emissions Compared to Thresholds with Project Design Features Maximum Daily Unmitigated Emission Estimates

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per day					
Area[1,2]	210	8.19	381	0.04	2.42	2.42
Energy[1]	3.0	26.8	19.0	0.16	2.08	2.08
Mobile[1,3]	86.1	382	1,168	5.35	639	172
Stationary	0.5	2.1	1.2	0.0	0.1	0.1
Total Daily Emissions	*299*	*417*	*1,568*	*5.56*	*643*	*177*
SDAPCD Threshold[3,4,5]	*137*	*250*	*550*	*250*	*100*	*67*
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

1 Emissions estimated using CalEEMod.

2 Includes limitation on number of natural gas residential hearths and provision of no wood-burning hearths.

3 Includes TDM-related mobile emissions reductions.

2 A detailed explanation how the RASS data was processed for use in CalEEMod is available in CalEEMod User's Guide Appendix E.

3 A detailed explanation how the CEUS data was processed for use in CalEEMod is available in CalEEMod User's Guide Appendix E.

4 City of San Diego CEQA Thresholds, Table A-2 San Diego Air Pollution Control District Pollutant Thresholds for Stationary Sources. The VOC threshold is based on SCAQMD levels and the MBAPCD which has similar federal and state attainment status as San Diego.
5 SDAPCD 2018b. Rule 20.2. New Source Review Non-Major Stationary Sources. $PM_{2.5}$ threshold based on SDAPCD Pollutant Thresholds for Stationary Sources Table 20.2-1, which is referenced in the City of San Diego CEQA Thresholds.

As shown, the project emissions for VOC, NO_X, CO, $PM_{2.5}$, and PM_{10} are above the SDAPCD thresholds, and are below for SO_X. Thus, impacts would be **potentially significant** (**Impact AQ-3**).

Would the project expose sensitive receptors to substantial pollutant concentrations?

Construction-Related Health Risk Assessment

The construction-related HRA results were used to assess if the proposed project would expose sensitive receptors to substantial pollutant concentrations. The American Meteorological Society/EPA Regulatory Model Improvement Committee Model (AERMOD) (Version 18081) was used to calculate concentrations of ambient air pollutants. AERMOD has been approved for use in various regulatory applications by EPA, CARB, and SDAPCD. AERMOD uses mathematical equations to simulate the movement and dispersion of air contaminants in the atmosphere. Dispersion model averaging times are specified based on the averaging times of ambient air quality standards and the air quality significance thresholds established by the appropriate regulatory agencies. For the HRA, the annual averaging time was used to evaluate chronic (long-term) health effects. Construction emissions from diesel combustion were assumed to occur 12 hours per day, 5 days per week, and 260 days per year.

The project-specific HRA evaluates the off-road equipment associated with construction of the project. Sources that can be reasonably represented as emitting at a uniform rate over a two-dimensional surface are modeled as area sources. Areapoly sources, an area source type consisting of an irregularly shaped polygon, were used to represent off-road equipment. In addition to identifying the maximally exposed individual resident/worker, SDAPCD requires inclusion of the following nonresidential sensitive receptors in a health risk analysis: schools (grades Kindergarten through 12), day care centers, nursing homes, retirement homes, health clinics, and hospitals (SDAPCD 2019). Therefore, off-site sensitive receptor locations were also identified within a 2,000-meter radius of the modeled construction area. The exposure pathways evaluated in this HRA were selected in accordance with the OEHHA Guidance. The total exposure duration analyzed for residents and other sensitive receptors is 30 years, in accordance with OEHHA guidance default assumptions, and begins in the third trimester to accommodate the increased susceptibility of exposures in early life. These exposure assumptions, designed to be protective of children younger than age 16, are assumed to be adequately protective of residents older than 30 years of age, including the elderly. The unmitigated maximum cancer risk estimate associated with construction emissions was 53.1 in a million, which exceeds the SDAPCD notification requirement of 10 in a million. Refer to Appendix 4.2-1, Air Quality Technical Report for further details. Thus, impacts would be **potentially significant** for this issue (**Impact AQ-4**).

The unmitigated maximum chronic hazard index (HI) at the modeled receptors resulting from construction emissions was calculated to be 0.084, which is below the SDAPCD notification requirement of 1.0.

This analysis assumes that implosion would be used for SDCCU Stadium demolition. If implosion were not used during demolition, construction related health impacts are expected to be similar to those presented above and there would be no change to the significance findings stated above. Thus, impacts would be ***less than significant*** for this issue.

Carbon Monoxide Hotspots

Mobile-source impacts occur on two basic scales of motion. Regionally, project-related travel will add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SDAB. Locally, proposed project traffic will be added to the City's roadway system. There is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic. Because of continued improvement in mobile 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.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the proposed project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The proposed project's Transportation Impact Analysis evaluated the level of service (LOS) (i.e., increased congestion) impacts at intersections affected by the proposed project (see Appendix 4.15-1). The potential for CO hotspots was evaluated based on the results of the traffic report.

The City of San Diego's Significance Determination Thresholds was reviewed for guidance on CO hotspot screening, and was used to determine if the proposed project would require a site-specific hotspot analysis. The City recommends that a quantitative analysis of CO hotspots be performed if a proposed development causes a six- or four-lane roadway to deteriorate to LOS E or worse, causes a six-lane roadway to drop to LOS F, or if a proposed development is within 400 feet of a sensitive receptor and the LOS is D or worse (City of San Diego 2016).

The proposed project is located within 400 feet of a sensitive receptor, indicating any intersection operating at LOS D or worse should be considered in a screening analysis. Traffic scenarios for Future with Proposed Project (2037) and Existing with Proposed Project (2018) were analyzed for CO hotspots. Based on the Transportation Impact Analysis prepared for the proposed project, several intersections were determined to operate at LOS D or worse in either the existing or future year scenarios (see Appendix 4.15-1).

The three worst-case intersections for existing and future scenarios were chosen based on their LOS, traffic volumes, and delay as provided in the traffic report. These intersections include 11. Stadium Way and Friars Road; 14. Mission Village Drive/Street D and Promenade 1/Street 2; and 17. I-15 southbound ramps and Friars Road.

The simplified CALINE4 analysis was conducted for the three worst intersections in each the existing and future year. The maximum CO concentration predicted for the 1-hour averaging period at the evaluated intersections is 4.5 ppm, which is below the 1-hour CO CAAQS of 20 ppm and CO NAAQS of 35 ppm. The maximum predicted 8-hour CO concentration at the evaluated intersections is 3.2 ppm, which is below the 8-hour CO CAAQS and NAAQS of 9.0 ppm (City of San Diego 2016).

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. The results are shown in Table 4.2-8 and Table 4.2-9 for the existing and future project scenarios, respectively.

Table 4.2-8. Summary of CO Concentrations – Existing Plus Project Scenario

Total Roadway CO Concentrations – Existing	CO Concentration (ppm)											
	AM Peak Hour				*PM Peak Hour*				*8-Hour*			
Intersections	*Roadway Edge*	*25 Feet from Roadway Edge*	*50 Feet from Roadway Edge*	*100 Feet from Roadway Edge*	*Roadway Edge*	*25 Feet from Roadway Edge*	*50 Feet from Roadway Edge*	*100 Feet from Roadway Edge*	*Roadway Edge*	*25 Feet from Roadway Edge*	*50 Feet from Roadway Edge*	*100 Feet from Roadway Edge*
11. Stadium Way & Friars Rd.	3.7	3.3	3.2	3.0	4.3	3.7	3.5	3.2	3.1	2.7	2.5	2.4
14. Mission Village Dr./ Street D & Promenade 1/ Street 2	3.6	3.2	3.1	2.9	4.0	3.4	3.2	3.1	2.9	2.5	2.4	2.2
17 I-15 SB Ramps & Friars Rd.	4.0	3.5	3.3	3.1	4.5	3.9	3.6	3.3	3.2	2.8	2.6	2.4
Maximum CO Concentration	*4.0*	*3.5*	*3.3*	*3.1*	*4.5*	*3.9*	*3.6*	*3.3*	*3.2*	*2.8*	*2.6*	*2.4*
Threshold[1]	20.0								9.0			
Above Threshold?	No	No	No	No	No	No	No	No	No	No	No	No

Notes: CO = carbon monoxide; ppm = parts per million; SB = southbound; NB = northbound.

1 CEQA Significance Determination Thresholds, CAAQS (City of San Diego 2016).

Table 4.2-9. Summary of CO Concentrations – Future Year Plus Project Scenario

Total Roadway CO Concentrations – Future	CO Concentration (ppm)											
	AM Peak Hour				*PM Peak Hour*				*8-Hour*			
Intersections	*Roadway Edge*	*25 Feet from Roadway Edge*	*50 Feet from Roadway Edge*	*100 Feet from Roadway Edge*	*Roadway Edge*	*25 Feet from Roadway Edge*	*50 Feet from Roadway Edge*	*100 Feet from Roadway Edge*	*Roadway Edge*	*25 Feet from Roadway Edge*	*50 Feet from Roadway Edge*	*100 Feet from Roadway Edge*
11. Stadium Way & Friars Rd.	3.2	3.0	2.9	2.8	3.5	3.2	3.1	2.9	2.5	2.3	2.2	2.1
14. Mission Village Dr./ Street D & Promenade 1/ Street 2	3.1	2.9	2.8	2.8	3.3	3.0	2.9	2.8	2.4	2.2	2.1	2.1
17 I-15 SB Ramps & Friars Rd.	3.4	3.1	3.0	2.9	3.6	3.3	3.1	3.0	2.6	2.4	2.3	2.2
Maximum CO Concentration	*3.4*	*3.1*	*3.0*	*2.9*	*3.6*	*3.3*	*3.1*	*3.0*	*2.6*	*2.4*	*2.3*	*2.2*
Threshold[1]	20.0								9.0			
Above Threshold?	No	No	No	No	No	No	No	No	No	No	No	No

Notes: CO = carbon monoxide; ppm = parts per million; SB = southbound; NB = northbound.
1 CEQA Significance Determination Thresholds, CAAQS (City of San Diego 2016).

The three worst intersections were selected based on a criteria of LOS, traffic volume, and delay for both the existing and future year project scenarios. Neither the 1-hour nor 8-hour CAAQS would be exceeded at any of the worst-case evaluated intersections. Accordingly, the proposed project would not cause or contribute to violations of the CAAQS, and would not result in exposure of sensitive receptors to localized high concentrations of CO. As such, CO hotspots impacts resulting from the proposed project contribution to cumulative traffic-related air quality impacts would be **less than significant**, and no mitigation is required.

Kinder Morgan Valley Terminal Siting Assessment

This section evaluates potential siting concerns for the proposed project's residential buildings due to the proximity of the MV Terminal, which is a 66-acre facility located to the northeast of the project site (Kinder Morgan 2015). The MV Terminal has a storage capacity of approximately 680,000 barrels of refined petroleum products, denatured ethanol, gasoline additives, and red dye, with storage tanks ranging from in capacity from 8,000 to 100,000 barrels. The MV Terminal also has two inbound pipelines and one outbound pipeline, handles refined petroleum products, and blends and injects additives and other materials (Kinder Morgan 2015). Currently, the closest receptor to the MV Terminal is approximately 540 feet to the nearest tank and approximately 305 feet to the facility boundary. The proposed project includes potential new residential buildings located approximately 290 feet from the nearest tank and 225 feet from the facility boundary.

Although the proposed project is locating sensitive receptors (i.e., residences) in proximity to the MV Terminal, there is no guidance in the SDAPCD regulations or City of San Diego Municipal Code prohibiting the location of sensitive receptors near such facilities. Additionally, CARB has published a guidance document that provides information on siting sensitive receptors near certain land uses (CalEPA and CARB 2005). That document provides siting guidance for petroleum refineries, gasoline dispensing facilities, and rail yards, among others. However, the MV Terminal is not covered by any of the land uses in the guidance document, and thus there are no specific setback distances recommended in CARB's guidance.

A review of SDAPCD records also shows that the MV Terminal has had minimal compliance issues, with the only notice of violations generally related to minor fugitive leaks or permit renewal timing. Based on this review, there is no information to suggest that the MV Terminal would pose specific air quality issues to the proposed project's residents.

Additionally, local meteorological patterns show that the project site is generally located upwind from the MV Terminal. A wind rose for a recent 3-year period of meteorological data from a nearby station shows that prevailing winds typically blow to the east. Since the facility is located towards the northeast corner of the project site, emissions from the facility would typically be carried away from the proposed project. As such, impacts would be **less than significant** relative to the proximity of the MV Terminal.

Health Effects of Criteria Air Pollutants

The project's construction-related NO_x and PM_{10} emissions, and operation-related VOC, NO_x, CO, $PM_{2.5}$, and PM_{10} emissions are above SDACPD's significance thresholds. Significant project criteria air pollutant emissions could potentially lead to increased concentrations of pollutants in the atmosphere and could result in health effects due to the increased emissions. The following section describes the mechanism by which project-related emissions could increase the concentrations of criteria air pollutants in the atmosphere and qualitatively describes the potential health effects.

The ambient concentration of criteria pollutants is a result of complex atmospheric chemistry and emissions of pollutant precursors and direct emissions. NO_x and VOC are precursors to ozone, and NO_x, VOC, and SO_x are precursors to secondarily formed $PM_{2.5}$. Chemical and physical processes transform some of these precursors to the criteria pollutant concentrations in the atmosphere. The calculation of ozone and secondary $PM_{2.5}$ concentrations resulting from precursors is dependent on the spatial location of the criteria air pollutant emissions and how the emissions are dispersed in the atmosphere. Source apportionment, or the practice of deriving information about pollution sources and the amount they contribute to ambient air pollution levels, is also influenced by the meteorological conditions of the project location.

There are several variables that determine whether emissions of air pollutants from the project move and disperse in the atmosphere in a manner in which concentrations of criteria pollutants would become elevated and result in health impacts. A specific mass of precursor emissions does not equate to an equivalent concentration of the resultant ozone or secondary particulate matter in that area. The resulting concentration of criteria pollutants is influenced by sunlight, other pollutants in the air, complex reactions, and transport. The dispersion is based on the meteorological conditions of the source (the project), local terrain (elevation profile), and the height and size of the source. The surrounding land use, wind direction and wind speed will influence the location where the project emissions disperse. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or particulate matter formed by emissions of precursors.

The resulting health effects are further based on a complex relationship of multiple variables and factors. The calculated health effects are dependent upon the concentrations of pollutants to which the receptors are exposed, the number and type of exposure pathways for a receptor, and the intake parameters for a receptor, which vary based upon age and sensitivity (i.e., presence of pre-existing conditions). Health effects would be more likely for individuals with greater susceptibility to exposures, and also dependent on the location of receptors relative to the project site impacts whether receptors are exposed to project-related pollutants.

The following is a summary of the health effects from ozone, $PM_{2.5}$ and PM_{10}. Meteorology and terrain play major roles in ozone formation, and ideal conditions occur on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to ozone at levels typically observed in Southern California can result in health effects. When inhaled, $PM_{2.5}$ and PM_{10} 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 and cause or aggravate bronchitis and other lung diseases. 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. Health effects of $PM_{2.5}$ include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal). For ozone, the endpoints are mortality, emergency room visits (respiratory) and hospital admissions (respiratory).

For this project, mass emissions for both construction (for NO_X, CO, and PM_{10}) and operation (for VOC, NO_X, CO, $PM_{2.5}$, and PM_{10}) exceed significance levels. Though the project's emissions are significant for these criteria air pollutants, it is anticipated that the health effects from the project will generally be low due to the relatively low level of emissions from this project compared to the total emissions in the San Diego Air Basin.

Freeway Siting Assessment

This section evaluates potential siting concerns for the proposed project's residential buildings due to the proximity of the nearby freeways. A freeway HRA was conducted to evaluate health impacts of DPM emissions from project-related vehicles traveling on the I-15 and I-8 freeways on on-site and off-site receptors. The analysis also evaluated cancer and non-cancer health impacts of DPM emissions from all vehicles traveling on the I-15 and I-8 freeways on sensitive land uses located on the project site. Refer to the Freeway Health Risk Assessment Technical Report for further details in Ramboll's Air Quality Technical Report (see Appendix 4.2-1).

AERMOD (Version 18081) was used to calculate concentrations of ambient air pollutants. EPA, CARB, and SDAPCD have approved AERMOD for use in various regulatory applications. The HRA evaluates portions of the northbound and southbound I-15, and eastbound and westbound I-8 freeways adjacent to the project area, within 0.25 miles of the project boundary. Line (area) sources were used in the air dispersion model to represent emissions from truck and non-truck vehicles travelling on these freeways. These source parameters were developed based on EPA's Hotspot Conformity Guidance for Hotspot Analysis and the EPA AERMOD user guide. SDAPCD requires inclusion of sensitive receptors in a health risk analysis and identifies the following as sensitive receptors: residences, schools (grades kindergarten through 12), day care centers, nursing homes, retirement homes, health clinics, and hospitals. Therefore, off-site sensitive receptor locations were identified within a 0.25- mile radius of the modeled freeway segments. In order to evaluate health impacts to off-site sensitive receptors, and consistent with SDAPCD's Supplemental HRA Guidelines, receptors within a 0.25- mile radius of the modeled I-8 and I-15 freeway segments were covered in a grid with 25-meter by 25-meter spacing receptors, except in areas within the right-of-way, which would be inaccessible to the public.

The chemicals of potential concern are associated with diesel exhaust, a complex mixture that includes hundreds of individual constituents identified by the State of California as known carcinogens. Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. There is currently no acute non-cancer toxicity value available for DPM.

DPM is typically the main driver of cancer risk from freeways; furthermore, heavy-duty diesel trucks form the most significant source of DPM. As a result, DPM is the chemical of potential concern used in this analysis.

This HRA was performed to calculate cancer and non-cancer risks associated with the TAC (DPM) emissions from vehicles on freeways adjacent to the project site.

The exposure pathways evaluated in this HRA were selected in accordance with the OEHHA Guidance Manual. The inhalation pathway must be evaluated for all chemicals. The OEHHA Guidance Manual also requires the evaluation of non-inhalation exposure pathways, referred to as a multipathway analysis, for specific chemicals. However, the DPM exposure pathway is limited to inhalation.

The total exposure duration analyzed for residents and other sensitive receptors is 30 years, in accordance with the OEHHA Guidance Manual's default assumptions, and begins in the third trimester to accommodate the increased susceptibility of exposures in early life. These exposure assumptions, designed to be protective of children younger than age 16, are assumed to be adequately protective of residents older than 30 years of age, including the elderly.

The maximum cancer risk is 1.9 in a million from project-related vehicles traveling on sections of the I-15 and I-8 freeways; similarly, the maximum chronic HI is 0.0005. The cancer risk and chronic HI associated with DPM emissions from the modeled sections of the I-15 and I-8 freeways for the existing plus project scenario is 7.7 in a million and 0.004, respectively. The cancer and chronic HI associated with DPM emissions from the modeled sections of the I-15 and I-8 freeways for the future year plus project scenario is 9.3 in a million and 0.004, respectively. The maximum cancer risk and chronic HI locations are shown in Figures 4.2-1, 4.2-2, and 4.2-3, below.

The results of the analysis show that:

- The cancer and non-cancer health impacts of the DPM emissions from project-related vehicles traveling on the modeled sections of the I-15 and I-8 freeways are below the SDAPCD public health risk notification requirements, and
- The cancer and non-cancer health impacts of the DPM emissions from vehicles traveling on the modeled sections of the I-15 and I-8 freeways on residential and nonresidential receptors located on the project site, including those within 500 feet of the freeways, are below the SDAPCD public health risk notification requirements.

Thus, impacts to sensitive receptors are **less than significant.**

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

Odors

The proposed project would not substantially change the odors that occur from the existing conditions of the site and surrounding areas. Odors could be generated from vehicles and/or equipment exhaust emissions during construction or operation of the proposed project. Such odors could result from unburned hydrocarbons from tailpipes of construction equipment and architectural coatings. These types of odors are temporary and for the types of construction activities anticipated for PDFs, would generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors would be considered less than significant.

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, the impact of odors is difficult to quantify. Examples of land uses and industrial operations that are commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing facilities, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. In addition to the odor source, the distance between the sensitive receptor(s) and the odor source, as well as the local meteorological conditions, are considerations in the potential for a project to frequently expose the public to objectionable odors. The proposed project would not include any land use types that generate odors as described above; therefore, impacts related to odor caused by the proposed project would be **less than significant.**

Valley Fever

Valley fever (Coccidioidomycosis) is a fungal infection that is most prevalent in hot dry areas with alkaline soil, such as the southwestern United States. It is contracted via the inhalation of spores from a specific fungus known as *Coccidioides immitis*, which lie dormant in soil until disturbed. If the soil is stirred up by wind, vehicles, or earth-moving activities, the spores can become airborne along with the fugitive dust emitted. Thus, people who are commonly exposed to windblown dust and disturbed topsoil, such as construction workers and agricultural workers, have an increased risk of exposure to valley fever-causing spores. The majority of people who contract the infection exhibit mild cold-like symptoms or no symptoms at all. However, in some cases the infection can progress to flu-like symptoms and in rare cases, can cause severe disabling illness or death (CDC 2019).

According to the Centers for Disease Control, San Diego County is a suspected endemic area for valley fever, which is the lowest endemic level for the area (CDC 2019). Thus, valley fever is not considered to be common to San Diego. Per the San Diego County Health and Human Services Agency, the 10-year average (2008–2017) for Coccidioidomycosis cases in San Diego County is 4.5 cases per 100,000 people per year (Nelson 2018). For the 92108 zip code, where the project site is located, the incidence of Coccidioidomycosis is 3.9, which is less than the average County rate (Nelson 2018).[4] Unfortunately, there are no commercially available tests to detect Coccidioides in soil (CDC 2019).

Even if the fungus is present at the site, construction activities may not result in increased incidence of valley fever. Propagation of *C. immitis* is dependent on climatic conditions, with the potential for growth and surface exposure highest following early seasonal rains and long dry spells. *C. immitis* spores can be released when filaments are disturbed by earth-moving activities, although receptors must be exposed to and inhale the spores to be at increased risk of developing valley fever. Moreover, exposure to *C. immitis* does not guarantee that an individual will become ill—approximately 60% of people exposed to the fungal spores are asymptomatic and show no signs of an infection.[5]

While the risk of releasing *C. immitis* spores during the proposed project's construction phase is reasonably anticipated to be low based on the location of the project site, it also should be noted that the applicant would

[4] Per the County of San Diego Health & Human Services Agency, Coccidioidomycosis incidence counts for a single year and a single zip code are too small to work with; therefore, incidence counts reflect 10 years of aggregated data (2008–2017) (Nelson 2018).

[5] The average of 115 cases is based on the following annual incidences reported: 148 in 2011, 139 in 2012, 93 in 2013, 88 in 2014, 112 in 2015, and 123 in 2016 (CDPH 2017).

comply with SDAPCD Rule 55, which establishes fugitive dust abatement measures, including watering disturbed areas on the project site to minimize adverse air quality impacts.

In summary, the proposed project would not result in a significant impact attributable to valley fever exposure based on its geographic location and compliance with applicable regulatory standards, which will serve to minimize the release of and exposure to fungal spores. Thus, impacts are **less than significant.**

Would the project result in a cumulative impact to air quality?

Based on the proposed project analyses described above and the region's nonattainment status for O_3, $PM_{2.5}$, and PM_{10}, the proposed project's construction-related VOC, NO_x and PM_{10} emissions, and operation-related VOC, NO_X, CO, $PM_{2.5}$, and PM_{10} emissions would be considered **cumulatively considerable (Impact AQ-5).** (NO_X and VOC are precursors for O_3.) While the proposed project's construction and operational CO emissions exceed the SDAPCD's CO threshold, the region is in attainment for CO.

For informational disclosure purposes, a list of related projects is included in Chapter 3 of this EIR. These related projects are those that are existing and proposed projects that may result in cumulative impacts with the proposed project. Further analysis of these projects was not performed as the assumptions regarding their emissions are uncertain, and it would be speculative to otherwise quantify these project emissions.

4.2.5 Summary of Impacts Prior to Mitigation

Impact AQ-1 The proposed project would conflict with or obstruct implementation of the applicable air quality plan.

Impact AQ-2 Construction of the proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.

Impact AQ-3 Operation of the proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.

Impact AQ-4 Construction of the proposed project would result in a maximum cancer risk impact exceeding the SDAPCD notification requirement.

Impact AQ-5 The proposed project would result in a cumulative impact to air quality.

4.2.6 Mitigation Measures

The following mitigation measures would be implemented to reduce all impacts described in Section 4.2.4.

MM-AQ-1 **Construction Equipment Emissions Minimization:** The project shall comply with the following standards during the specified phases of construction activity:

Engine Requirements. At a minimum, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 3 emission standards for non-road diesel engines promulgated by the U.S. Environmental Protection Agency. During the site preparation and grading construction phases, off-road diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 3 with a diesel particulate filter emission standards. Where feasible, off-road diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 4 emission standards.

In addition, during the site preparation and grading construction phase, off-road diesel-powered construction equipment that are not Tier 4 shall be outfitted with diesel particulate filter Best Available Control Technology (BACT) devices certified by the California Air Resources Board (CARB), provided those devices are commercially available and: (1) achieve the standards of the California Division of Occupational Safety and Health (Cal/OSHA), (2) are consistent with the construction equipment warranty requirements, (3) are compatible with equipment specifications of the construction equipment manufacturer, and (4) do not otherwise interfere with the proper functioning of the construction equipment. Any BACT devices used shall achieve emissions reductions equal to or greater than a Level 3 diesel emissions control strategy for a similarly sized engine, as defined by CARB regulations, provided that the devices are commercially available and satisfy the four requirements enumerated above.

<u>Idling Requirements.</u> All diesel engines, whether for on-road or off-road equipment, shall not be left idling for more than 5 minutes, at any location, except as provided in exceptions to the applicable regulations adopted by CARB regarding idling for such equipment. The construction contractor(s) shall post legible and visible signs in English and Spanish, in designated queuing areas and at the construction site, to remind equipment operators of the 5-minute idling limit.

<u>Maintenance Instructions.</u> The construction contractor(s) shall instruct construction workers and equipment operators on the maintenance and tuning of construction equipment, and shall require that such workers and operators properly maintain and tune equipment in accordance with manufacturer specifications.

<u>Dust Control Plan.</u> Prior to the commencement of construction, a dust control plan shall be prepared to minimize dust from construction-related sources, such as windblown storage piles, off-site tracking of dust, debris loading, and truck hauling of debris. This plan shall include the following requirements:

- Watering of exposed construction areas shall occur three times per day;
- All haul trucks transporting soil, sand, or other loose material off site shall be covered;
- All vehicle speeds on unpaved roads shall be limited to 15 mph; and
- A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints. This person shall respond to such complaints and take corrective action, as needed, within 48 hours. The San Diego Air Pollution Control District's phone number shall also be visible to ensure compliance with applicable regulations.

<u>Implosion Execution Plan.</u> A blasting execution plan shall be prepared prior to any implosion event associated with the demolition of the existing Stadium. The plan shall evaluate the feasibility of staged implosion to minimize dust generation and exposure, and shall require that implosion be scheduled during periods of low/no wind speeds. Additionally, an ambient air quality monitoring program shall be implemented as part of the plan, and proximate to the Stadium, over the course of any implosion event to measure actual particulate matter concentrations. Finally, a public notification program shall be instituted, as part of the plan, prior to any implosion event. The public

notification program shall include recommendations as to how to minimize exposure to implosion-related airborne dust.

MM-AQ-2 **Regional Air Quality Plans:** Within 6 months of the certification of the Final Environmental Impact Report, California State University/San Diego State University shall provide the San Diego Association of Governments (SANDAG) with population and employment projections for the project site, which should be used by: (1) SANDAG to update its regional growth projections and (2) the San Diego Air Pollution Control District to update the emission estimates and forecasts presented in its regional air quality plans. Use of the approved site-specific population and employment projections would allow regional planning data to more accurately reflect anticipated growth in the Mission Valley area.

4.2.7 Level of Significance After Mitigation

At the cumulative level, the proposed project, in conjunction with other proposed residential and mixed-use projects, would exceed the growth anticipated in the Mission Valley area by SANDAG projections. Therefore, the proposed project—in combination with other projects considered in the cumulative setting—could result in a significant and unavoidable impact associated with implementation of the SDAPCD's regional air quality plans **(Impact AQ-1).** However, even with implementation of mitigation measure MM-AQ-2, which is included in Section 4.2.6, because CSU/SDSU cannot require SANDAG to update its growth projections and does not have jurisdictional control over the regional air quality plans prepared by SDAPCD, this impact is considered **significant and unavoidable**, even with implementation of the mitigation.

The unmitigated maximum daily criteria air pollutant emissions from construction activities for the proposed project would exceed the SDACPD's significance thresholds for VOC, NO_x, CO, and PM_{10} **(Impact AQ-2).** In order to reduce the proposed project's VOC, NO_x, CO, and PM_{10} emissions, the construction equipment fleet requirements described in Section 4.2.6 would be implemented. With implementation of the mitigation, the maximum daily NO_x, CO, and PM_{10} emissions during construction would remain greater than the SDAPCD's significance thresholds; see Table 4.2-10.

Table 4.2-10. Mitigated Maximum Daily Construction Emissions Compared to Thresholds[1, 2, 3]

Year	VOC	NO_x	CO	SO_x	PM_{10}[4]	$PM_{2.5}$[4]
	Pounds per day					
2020	13	210	173	0.5	26	15
2021	16	256	276	0.6	34	20
2022	112	637	871	3.6	155	48
2023	2	40	49	0.1	16	8
2024	6	55	53	0.1	17	10
2025	8	70	71	0.2	12	7
2026	8	70	71	0.2	12	7
2027	5	44	52	0.1	4	2
2028	32	64	79	0.2	4	3
2029	32	60	72	0.1	4	3
2030	6	34	63	0.1	2	1
2031	6	34	63	0.1	2	1
2032	20	25	49	0.1	2	1

Table 4.2-10. Mitigated Maximum Daily Construction Emissions Compared to Thresholds[1, 2, 3]

Year	VOC	NO_x	CO	SO_x	PM_{10}[4]	$PM_{2.5}$[4]
	Pounds per day					
2033	20	16	29	.1	2	1
2034	2	13	22	0.1	1	1
2035	2	11	22	0.1	1	0
2036	17	5	16	0.0	0	0
2037	17	3	7	0.0	0	0
Maximum	*112*	*637*	*871*	*3.6*	*155*	*48*
SDAPCD Threshold[5,6]	*137*	*250*	*550*	*250*	*100*	*67*
Threshold Exceeded?	No	**Yes**	**Yes**	No	**Yes**	No

Notes:

1 Emissions shown here are based on project-specific construction schedule, equipment list, on-site construction equipment horsepower and load factors, amount of hauling material, and on-road vehicle trips. Emissions were estimated using CalEEMod.

2 The maximum daily PM_{10} and $PM_{2.5}$ emissions presented in this table are conservative as they do not include reductions due to the use of diesel particulate filters on grading and site preparation equipment.

3 The results in this table were adjusted to reflect MM-AQ-1 based on the results as calculated by CalEEMod. These adjustments reflect the anticipated improvement of MM-AQ-1 compared to default OFFROAD emission factors.

4 PM emissions are estimated as a sum of exhaust, tire wear, brake wear, and fugitive emissions. Watering of the site is assumed to take place twice daily per Rule 55. Fugitive PM is quantified from the mitigated CalEEMod fugitive PM emissions.

5 City of San Diego CEQA Thresholds, Table A-2 San Diego Air Pollution Control District Pollutant Thresholds for Stationary Sources. The VOC threshold is based on SCAQMD levels and the Monterey Bay Air Pollution Control District which has similar federal and state attainment status as San Diego.

6 SDAPCD 2018b. Rule 20.2. New Source Review Non-Major Stationary Sources. $PM_{2.5}$ threshold based on SDAPCD Pollutant Thresholds for Stationary Sources Table 20.2-1, which is referenced in the City of San Diego CEQA Thresholds.

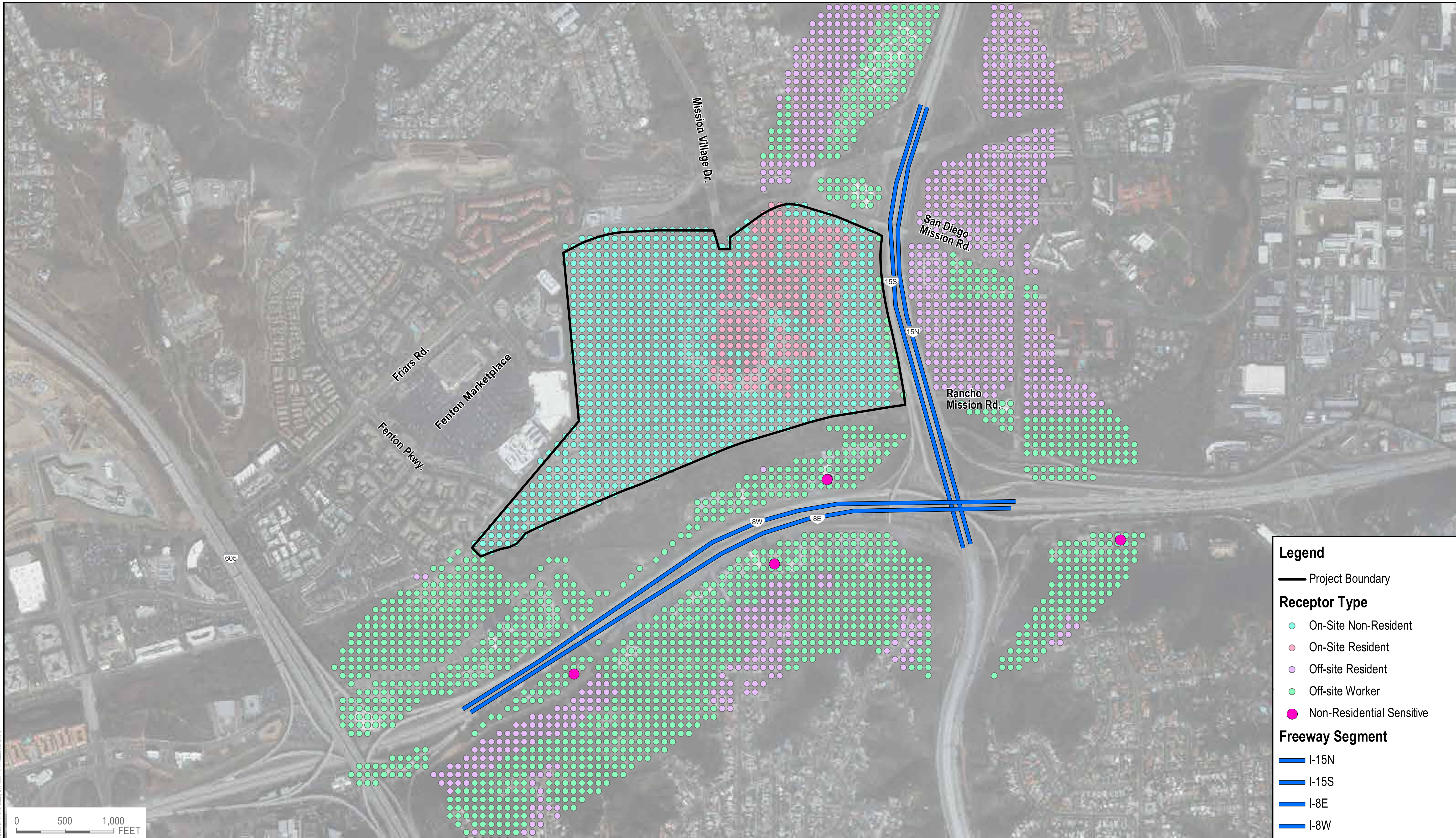
Implementation of mitigation measure MM-AQ-1 by reducing the proposed project's VOC emissions from construction activities for the proposed project would reduce VOC, NO_x, CO, and PM_{10} emissions; however, maximum daily NO_x, CO, and PM_{10} emissions during construction would remain greater than the SDAPCD's significance thresholds. Therefore, maximum daily criteria air pollutant emissions during construction would be **remain significant and unavoidable.**

The project's operational emissions for VOC, NO_X, CO, $PM_{2.5}$, and PM_{10} are above the SDAPCD thresholds, and are below for SO_X **(Impact AQ-3).** The proposed project has implemented PDFs as described above, and no additional feasible mitigation is available. (As illustrated by Table 4.2-7, project emissions are largely attributable to mobile sources. The project already has multiple attributes that serve to reduce emissions from mobile sources to the extent feasible, such as its general location in an infill setting with on-site transit opportunities, the development of a comprehensive TDM Program, and the provision of infrastructure to facilitate EV use.) Therefore, the proposed project's impact is considered **significant and unavoidable** based on comparison of project operational emissions to the SDAPCD thresholds.

In order to reduce the proposed project's construction cancer risk, the construction equipment fleet requirements described in Section 4.2.6 of this analysis would be implemented. With the implementation of mitigation measure MM-AQ-1, the maximum cancer risk estimate reduced to a value of 28.1 in a million, which is greater than the SDAPCD notification requirement of 10 in a million. Thus, impacts would be **significant and unavoidable** for this issue (**Impact AQ-4).**

With implementation of the construction mitigation measure, the mitigated maximum chronic HI is reduced further to 0.046. Based on these results, the proposed project's impact will remain **less than significant.**

Based on the proposed project analyses described above and the region's nonattainment status for O_3, $PM_{2.5}$, and PM_{10}, the proposed project's construction-related NO_X, CO, and PM_{10} emissions after implementation of mitigation measure MM-AQ-1, and operation-related VOC, NO_X, CO, $PM_{2.5}$, and PM_{10} emissions would be considered **cumulatively considerable (Impact AQ-5).** (NO_X and VOC are precursors for O_3.) While the proposed project's operational CO emissions exceed the SDAPCD's CO threshold, the region is in attainment for CO.



SOURCE: RAMBOL 6/4/19

SDSU Mission Valley Campus Master Plan EIR

SAN DIEGO STATE UNIVERSITY

Figure 4.2-1
Modeled Receptors

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SOURCE: RAMBOL 6/13/19

SDSU Mission Valley Campus Master Plan EIR

SAN DIEGO STATE UNIVERSITY

Figure 4.2-2

Existing Plus Project Risk

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SOURCE: RAMBOL 6/13/19

SDSU Mission Valley Campus Master Plan EIR

San Diego State University

Figure 4.2-3

Horizon Plus Project Risk

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