4.1 AIR QUALITY

This section of the EIR evaluates potential air quality impacts resulting from implementation of the proposed project. This analysis is based on the Air Quality Technical Report (AQTR; HELIX 2020a) prepared for the project, which is included as Appendix B of this EIR.

4.1.1 Existing Conditions

4.1.1.1 Climate and Meteorology

The project site is located within the San Diego Air Basin (SDAB) which coincides with the geographical boundary of San Diego County. The climate in the SDAB is controlled largely by the large-scale meteorological condition that dominates the west coast of the Undated States: a seasonally semi-permanent high-pressure cell centered over the northeastern Pacific Ocean, called the Pacific high, which keeps most storms from affecting the California coast. Areas within 30 miles of the coast in the San Diego region, including the project site, experience moderate temperatures and comfortable humidity.

Temperature inversion layers (inversions; layers of warmer air over colder air) affect air quality conditions significantly because they influence the mixing depth (i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground). The highest air pollutant concentrations in the SDAB generally occur during inversions. During the summer, air quality problems in the SDAB are created due to the interaction between the ocean surface and the lower layer of the atmosphere, creating a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons and nitrogen dioxide (NO_2) react under the strong, abundant sunlight in the San Diego region, creating smog. Light, daytime winds, predominantly from the west, further aggravate the condition by driving the air pollutants inland, toward the foothills. During the fall and winter, air quality problems are created due to CO and NO_2 emissions. High NO_2 levels usually occur during autumn or winter, on days with summer-like conditions.

The predominant wind direction in the vicinity of the project site is from the southwest and the average wind speed is approximately six miles per hour (mph; Iowa Environmental Mesonet [IEM] 2019). The annual average maximum temperature in the project area is approximately 75 degrees Fahrenheit (°F), and the annual average minimum temperature is approximately 52°F. Total precipitation in the project area averages approximately 13 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer (Western Regional Climate Center [WRCC] 2006).

4.1.1.2 Air Pollutant Descriptors and Terminology

Criteria Pollutants

Criteria pollutants are defined by state and federal law as a risk to the health and welfare of the general public. In general, air pollutants include the following compounds:

- Ozone (O_3)
- Reactive organic gases (ROGs) or volatile organic compounds (VOCs)
- CO
- NO_2

- Respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$)
- Sulfur dioxide (SO_2)
- Lead (Pb)

Criteria pollutants can be emitted directly from sources (primary pollutants; e.g., CO, SO_2, PM_{10}, $PM_{2.5}$, and lead), or they may be formed through chemical and photochemical reactions of precursor pollutants in the atmosphere (secondary pollutants; e.g., ozone, NO_2, PM_{10}, and $PM_{2.5}$). The principal precursor pollutants of concern are reactive organic gasses ([ROGs] also known as volatile organic compounds [VOCs])[1] and nitrogen oxides (NO_X).

The descriptions of sources and general health effects for each of the criteria air pollutants are shown in Table 4.1-1, *Summary of Health Effects of Criteria Air Pollutants*, based on information provided by the California Air Pollution Control Officers Association (CAPCOA; 2018). Specific adverse health effects to individuals or population groups induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables such as cumulative concentrations, local meteorology and atmospheric conditions, and the number and character of exposed individuals (e.g., age, gender). Criteria pollutant precursors (ROG and NO_X) affect air quality on a regional scale, typically after significant delay and distance from the pollutant source emissions. Health effects related to ozone and NO_2 are, therefore, the product of emissions generated by numerous sources throughout a region. Emissions of criteria pollutants from vehicles traveling to or from the project site (mobile emissions) are distributed nonuniformly in location and time throughout the region, wherever the vehicles may travel. As such, specific health effects from these criteria pollutant emissions cannot be directly correlated to the incremental contribution from the project.

Table 4.1-1
SUMMARY OF HEALTH EFFECTS OF CRITERIA AIR POLLUTANTS

Pollutant	Major Man-Made Sources	Human Health Effects
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrogen oxides (NO_X) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles and dyes.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.

[1] CARB defines and uses the term ROGs while the USEPA defines and uses the term VOCs. The compounds included in the lists of ROGs and VOCs and the methods of calculation are slightly different. However, for the purposes of estimating criteria pollutant precursor emissions, the two terms are often used interchangeably.

Table 4.1-1 (cont.)
SUMMARY OF HEALTH EFFECTS OF CRITERIA AIR POLLUTANTS

Pollutant	Major Man-Made Sources	Human Health Effects
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to climate change and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Produced by power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles, and other sources.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Sulfur Dioxide (SO_2)	A colorless, nonflammable gas formed when fuel containing sulfur is burned, when gasoline is extracted from oil, or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Lead	Metallic element emitted from metal refineries, smelters, battery manufacturers, iron and steel producers, use of leaded fuels by racing and aircraft industries.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ. Affects animals, plants, and aquatic ecosystems.

Source: CAPCOA 2018

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects such as eye watering, respiratory irritation (a cough), runny nose, throat pain, and headaches. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For carcinogenic TACs, there is no level of exposure that is considered safe and impacts are evaluated in terms of overall relative risk expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust is known as diesel particulate matter (DPM). Almost all DPM is 10 microns or less in diameter, and 90 percent of DPM is less than 2.5 microns in diameter (CARB 2018a). Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung. In 1998, CARB identified DPM as a TAC based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM has a significant impact on California's population—it is estimated that about 70 percent of total known cancer risk related to air toxics in California is attributable to DPM (CARB 2018a).

Asbestos is a mineral fiber that naturally occurs in some rock and soil. Long-term exposure to airborne asbestos fibers has been linked to major health effects including: lung cancer; mesothelioma, a rare form of cancer that is found in the thin lining of the lung, chest, abdomen, and heart; and asbestosis, a serious progressive, long-term, non-cancer disease of the lungs (USEPA 2019a). Because of its fiber strength and heat resistance, asbestos has been used in a variety of building construction materials for insulation and as a fire retardant, primarily in buildings constructed before 1979. Asbestos fibers may be released into the air by the disturbance of asbestos containing material (ACM) during renovation and demolition activities; or during earth disturbing activities in areas where naturally occurring asbestos (NOA) is present in the rock or soil. NOA is not likely to be present in the soil and rock of San Diego County (California Geologic Survey [CGS] 2000).

Lead is a naturally occurring metallic element that is found in small amounts in the earth's crust. In addition to its status as a criteria pollutant, lead is listed as a TAC because, depending on the level and duration of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system. There is also a probable link between lead exposure and kidney cancer, brain cancer (gliomas), and lung cancer (USEPA 2019b). Lead particulate matter can be emitted during demolition and renovation activities that disturb material that contains lead-based paint (LBP), most typically found in structures built before 1978.

4.1.1.3 Existing Air Quality

Attainment Designations

Areas that do not meet state or federal standards (California Ambient Air Quality Standards [CAAQS] and National Ambient Air Quality Standards [NAAQS]) for a particular pollutant are considered to be "nonattainment areas" for that pollutant. The SDAB is classified as a moderate nonattainment area for the 8-hour NAAQS for ozone. The SDAB is an attainment area or unclassified for the NAAQS for all other criteria pollutants. The SDAB is currently classified as a nonattainment area under the CAAQS for ozone (one-hour and eight-hour), PM_{10}, and $PM_{2.5}$. The SDAB is an attainment area or unclassified for the CAAQS for all other criteria pollutants. The current federal and state attainment status for the SDAB is provided in Table 4.1-2, *Federal and State Air Quality Designations in the San Diego Air Basin.*

Table 4.1-2
FEDERAL AND STATE AIR QUALITY DESIGNATIONS IN THE SAN DIEGO AIR BASIN

Criteria Pollutant	Federal Designation	State Designation
Ozone (O_3) (1-hour)	(No federal standard)	Nonattainment
Ozone (O_3) (8-hour)	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Respirable Particulate Matter (PM_{10})	Unclassifiable[1]	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Attainment	Nonattainment
nitrogen dioxide (NO_2)	Attainment	Attainment
sulfur dioxide (SO_2)	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen Sulfide	(No federal standard)	Unclassified
Visibility	(No federal standard)	Unclassified

Source: CARB 2018b; SDAPCD 2018

[1] At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Monitored Air Quality

The San Diego Air Pollution Control District (SDAPCD) operates a network of ambient air monitoring stations throughout the San Diego region. The purpose of the monitoring stations is to measure ambient concentrations of criteria air pollutants and determine whether the ambient air quality meets state and federal standards, pursuant to the CAAQS and the NAAQS. The nearest ambient monitoring station to the project site is the El Cajon-Lexington Elementary School monitoring station located approximately five miles east of the project site at 533 First Street in El Cajon. This station monitors the following criteria air pollutants: O_3, NO_2, PM_{10}, and $PM_{2.5}$. Air quality data collected at the El Cajon-Lexington Elementary School monitoring station for the years 2016 through 2018 (the most recent available data) are shown in Table 4.1-3, *Air Quality Monitoring Data*.

Table 4.1-3
AIR QUALITY MONITORING DATA

Pollutant Standards	2016	2017	2018
Ozone (O_3)			
Maximum concentration 1-hour period (ppm)	0.087	0.096	0.087
Maximum concentration 8-hour period (ppm)	0.074	0.081	0.079
Days above 1-hour state standard (>0.09 ppm)	0	1	0
Days above 8-hour state/federal standard (>0.070 ppm)	1	9	2
Nitrogen Dioxide (NO_2)			
Maximum 1-hour concentration (ppm)	0.048	0.045	0.045
Days above state 1-hour standard (0.18 ppm)	0	0	0
Days above federal 1-hour standard (0.100 ppm)	0	0	0
Annual average (ppm)	*	0.010	0.008
Exceed annual federal standard (0.053 ppm)	*	No	No
Exceed annual state standard (0.030 ppm)	*	No	No

Table 4.1-3 (cont.)
AIR QUALITY MONITORING DATA

Pollutant Standards	2016	2017	2018
Suspended Particulates (PM_{10})			
Maximum 24-hour concentration (μg/m^3)	43.0	50.0	43.0
Measured Days above 24-hr state standard (>50 μg/m^3)	0	0	0
Measured Days above 24-hr federal standard (>150 μg/m^3)	0	0	0
Annual average (μg/m^3)	*	23.0	23.0
Exceed state annual standard (20 μg/m^3)	*	Yes	Yes
Suspended Particulates ($PM_{2.5}$)			
Maximum 24-hour concentration (μg/m^3)	23.9	31.8	36.2
Days above 24-hour federal standard (>35 μg/m^3)	0	0	1
Annual average (μg/m^3)	*	9.6	10.5
Exceed state and federal annual standard (12 μg/m^3)	*	No	No

Source: CARB 2020. Data collected at the El Cajon-Lexington Elementary School air quality monitoring station.
ppm = parts per million; μg/m^3 = micrograms per cubic meter; * = insufficient data

Monitoring data at the El Cajon-Lexington Elementary School station reported one exceedance of the one-hour state ozone standard in 2017 and several days above the eight-hour state/federal ozone standard throughout 2016 to 2018. No exceedances of the state or federal standards for NO_2 occurred during 2016 to 2018. There were no exceedances of the state or federal standards for PM_{10} during 2016 to 2018. The annual average for PM_{10} exceeded the state and federal standard in 2017 and 2018; however, insufficient data was available for 2016. The maximum 24-hour concentrations of $PM_{2.5}$ indicate levels above the federal standard occurred for one day in 2018, but no exceedances of the state or federal annual average during 2016 to 2018.

4.1.1.4 Existing On-site Air Emissions

The criteria pollutant and precursor emissions associated with operation of the existing on-site land use were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2, described in Section 4.1.3. The estimated emissions for the Phase 1 area (Parcels 1-3) and Phase 2 area (Parcel 4) are shown in Table 4.1-4, *Existing On-site Land Use Emissions*.

Table 4.1-4
EXISTING ON-SITE LAND USE EMISSIONS

Source Category	Pollutant Emissions (pounds per day) VOC	Pollutant Emissions (pounds per day) NO_X	Pollutant Emissions (pounds per day) CO	Pollutant Emissions (pounds per day) SO_X	Pollutant Emissions (pounds per day) PM_{10}	Pollutant Emissions (pounds per day) $PM_{2.5}$
Existing Land Use Parcels 1-3						
Area	2.6	<0.1	7.7	<0.1	<0.1	<0.1
Energy	<0.1	0.5	0.2	<0.1	<0.1	<0.1
Mobile	0.7	2.7	7.0	<0.1	1.8	0.5
Parcels 1-3 Total[1]	**3.4**	**3.4**	**14.9**	**<0.1**	**1.9**	**0.6**
Existing Land Use Parcel 4						
Area	1.0	<0.1	3.0	<0.1	<0.1	<0.1
Energy	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Mobile	0.2	0.9	2.4	<0.1	0.7	0.2
Parcel 4 Total[1]	**1.3**	**1.1**	**5.4**	**<0.1**	**0.7**	**0.2**

Source: HELIX 2020a

[1] Total may not sum due to rounding. Parcels 1-3 correspond to Phase 1 of the project and Parcel 4 corresponds to Phase 2 of the project.

VOC = volatile organic compound; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

4.1.1.5 Sensitive Receptors

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005, OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptors. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers.

The closest existing sensitive receptors to the project site are single- and multi-family residences across the MTS Green Line trolley corridor to the south, approximately 80 feet from the southern boundary of the project site; and single- and multi-family residences across I-8 to the north, approximately 260 feet from the northern boundary of the project site. The closest school is the Maryland Avenue Elementary School, approximately 1,100 feet (0.2 mile) across I-8 to the north. The closest daycare center is the Taproot Montessori, approximately 1,500 feet (0.3 mile) to the east. There are no hospitals within 0.5 mile of the project site.

4.1.2 Regulatory Setting

4.1.2.1 Federal

Clean Air Act

Air quality is defined by ambient air concentrations of specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the general public. The USEPA is responsible for enforcing the CAA of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish NAAQS, which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several criteria pollutants, which are discussed in Section 4.1.1.2. Table 4.1-5, *Ambient Air Quality Standards*, shows the federal and state ambient air quality standards for these pollutants.

Table 4.1-5
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards	Federal Standards Primary[1]	Federal Standards Secondary[2]
O_3	1 Hour	0.09 ppm (180 µg/m^3)	–	–
	8 Hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	Same as Primary
PM_{10}	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary
	AAM	20 µg/m^3	–	Same as Primary
$PM_{2.5}$	24 Hour	–	35 µg/m^3	Same as Primary
	AAM	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
CO	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	–
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	–	–
NO_2	1 Hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)	–
	AAM	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary
SO_2	1 Hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m^3)
	24 Hour	0.04 ppm (105 µg/m^3)	–	–
Pb	30-day Avg.	1.5 µg/m^3	–	–
	Calendar Quarter	–	1.5 µg/m^3	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m^3	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	No Federal Standards
Sulfates	24 Hour	25 µg/m^3	No Federal Standards	No Federal Standards
H_2S	1 Hour	0.03 ppm (42 µg/m^3)	No Federal Standards	No Federal Standards
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)	No Federal Standards	No Federal Standards

Source: CARB 2016

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

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

Note: More detailed information of the data presented in this table can be found at the CARB website (www.arb.ca.gov).

O_3 = ozone; ppm = parts per million; µg/m^3 = micrograms per cubic meter; PM_{10} = large particulate matter; AAM = Annual Arithmetic Mean; $PM_{2.5}$ = fine particulate matter; CO = carbon monoxide; mg/m^3 = milligrams per cubic meter; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; km = kilometer; – = No Standard.

As discussed in Section 4.1.1.3, areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be “nonattainment areas” for that pollutant. The SDAB was classified as a moderate nonattainment area for the 8-hour NAAQS for ozone and is an attainment area or unclassified for the NAAQS for all other criteria pollutants.

4.1.2.2 State

California Clean Air Act

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. As such, CARB has established the more stringent CAAQS for the criteria air pollutants regulated by the NAAQS through the California Clean Air Act of 1988 (CCAA), and has also established CAAQS for additional pollutants, including sulfates, hydrogen sulfide (H_2S), vinyl chloride and visibility-reducing particles (see Table 4.1.4). As discussed in Section 4.1.1.3, the SDAB is currently classified as a nonattainment area under the CAAQS for ozone (1-hour and 8-hour), PM_{10}, and $PM_{2.5}$. The SDAB is an attainment area or unclassified for the CAAQS for all other criteria pollutants.

CARB is the state regulatory agency with the authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The SDAPCD is responsible for developing and implementing the rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, developing of air quality management plans, and adopting and enforcing air pollution regulations for San Diego County (County).

State Implementation Plan

The CAA requires areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain the NAAQS. The 1990 amendments to the CAA set deadlines for attainment based on the severity of an area's air pollution problem.

SIPs are not single documents—they are a compilation of new and previously submitted plans, programs (e.g., monitoring, modeling, permitting), district rules, state regulations and federal controls. Many of California's SIPs rely on a core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations and limits on emissions from consumer products. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards the SIP revisions to the USEPA for approval and publication in the Federal Register. The Code of Federal Regulations (CFR) Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items which are included in the California SIP. At any one time, several California submittals are pending USEPA approval.

California Energy Code

California Code of Regulations (CCR) Title 24 Part 6, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in greenhouse gas (GHG) emissions.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Title 24 standards went into effect on January 1, 2020. The 2019 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential standards is a requirement for onsite photovoltaic electricity generation (e.g., solar panels) for most new or modified residential building up to three stories high. The project proposes five story residential buildings and the solar panel requirement would not apply.

The standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards – the energy budgets – that vary by climate zone (of which there are 16 in California) and building type; thus, the standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach. Future development per the proposed project would be required to be designed to meet the current Title 24 energy efficiency standards.

4.1.2.3 Local

Regional Air Quality Strategy

The SDAPCD and San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for the attainment and maintenance of the AAQS in the SDAB. The SDAPCD prepared the San Diego County Regional Air Quality Strategy (RAQS), which was initially adopted in 1991, and is updated on an approximate triennial basis. The most recent version of the RAQS was adopted by the SDAPCD in December 2016 (SDAPCD 2016). As part of, and attached to, the RAQS are the Transportation Control Measures for the air quality plan prepared by SANDAG. Together, the RAQS and Transportation Control Measures provide the framework for achieving attainment of the CAAQS. The local RAQS, in combination with the plans from all other California nonattainment areas with serious (or worse) air quality problems, is submitted to the CARB, which develops the SIP.

The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in San Diego County, to estimate future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County of San Diego as part of the development of the County's General Plan. While SANDAG collaborates with the SDAPCD on the development of the portion of the SIP applicable to the SDAB, the SDAPCD is the lead agency. As such, the SDAPCD is responsible for projecting all future mobile source emissions (using CARB's mobile source emissions inventory EMFAC).

San Diego Air Pollution Control District Rules and Regulations

Future development pursuant to the project would be required to comply with SDAPCD Rules and Regulations which require the incorporation of best management practices (BMPs) during construction to reduce emissions of fugitive dust.

Rule 50 (Visible Emissions)

Particulate matter pollution impacts the environment by decreasing visibility (haze). These particles vary greatly in shape, size and chemical composition, and come from a variety of natural and manmade sources. Some haze-causing particles are directly emitted to the air such as windblown dust and soot.

Others are formed in the air from the chemical transformation of gaseous pollutants (e.g., sulfates, nitrates, organic carbon particles) which are the major constituents of $PM_{2.5}$. These fine particles, caused largely by combustion of fuel, can travel hundreds of miles causing visibility impairment.

Visibility reduction is probably the most apparent symptom of air pollution. Visibility degradation is caused by the absorption and scattering of light by particles and gases in the atmosphere before it reaches the observer. As the number of fine particles increases, more light is absorbed and scattered, resulting in less clarity, color, and visual range. Light absorption by gases and particles is sometimes the cause of discolorations in the atmosphere but usually does not contribute very significantly to visibility degradation. Scattering by particulates impairs visibility much more readily. SDAPCD Rule 50 (Visible Emissions) sets emission limits based on the apparent density or opacity of the emissions using the Ringelmann scale.

Rule 51 (Nuisance)

SDAPCD Rule 51 (Nuisance) states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property. The provisions of the rule do not apply to odors emanating from agricultural operations in the growing of crops or raising of fowls or animals.

Rule 55 (Fugitive Dust Control)

SDAPCD Rule 55 (Fugitive Dust Control) requires action be taken to limit dust from construction and demolition activities from leaving the property line. Similar to Rule 50 (Visible Emissions), Rule 55 (Fugitive Dust Control) places limits on the amount of visible dust emissions in the atmosphere beyond the property line. It further stipulates that visible dust on roadways as a result of track-out/carry-out shall be minimized through implementation of control measures and removed at the conclusion of each workday using street sweepers.

Rule 67.0.1 (Architectural Coatings)

Construction of development within the Specific Plan is required to comply with SDAPCD Rule 67.0.1 (Architectural Coatings) which requires residential interior/exterior flat coatings to be less than or equal to 50 grams per liter VOC content and interior/exterior non-flat coatings to be less than or equal to 100 grams per liter VOC content.

4.1.3 Methodology and Assumptions

4.1.3.1 Air Emissions Modeling

Air emissions from mobile, area, and energy sources were calculated using the CalEEMod, Version 2016.3.2. CalEEMod is a computer model used to estimate air emissions resulting from land development projects throughout the state of California. CalEEMod was developed by the South Coast Air Management District (SCAQMD) with the input of several air quality management and pollution control districts. CalEEMod is a computer model that estimates criteria air pollutant and greenhouse gas emissions from mobile (i.e., vehicular) sources, area sources (fireplaces, woodstoves, and landscape maintenance equipment), energy use (electricity and natural gas used in space heating, ventilation, and cooling; lighting; and plug-in appliances), water use and wastewater generation, and solid waste disposal. Emissions are estimated based on land use information input to the model by the user.

In the first module, the user defines the specific land uses that will occur at the project site. The user also selects the appropriate land use setting (urban or rural), operational year, location, climate zone, and utility provider. The input land uses, size features, and population are used throughout CalEEMod in determining default variables and calculations in each of the subsequent modules. The input land use information consists of land use subtypes (such as the residential subtypes of single-family residential and multi-family medium-rise residential) and their unit or square footage quantities. For the project, the residential buildings were modeled as high-rise apartments with 950 dwelling units (DUs). The ground-level, resident-serving commercial space allowed in the Specific Plan was included in the modeling, assuming a maximum of 15,000 square feet.

Subsequent modules include construction (including off-road vehicle emissions), mobile (on-road vehicle emissions), area sources (woodstoves, fireplaces, consumer products [cleansers, aerosols, solvents], landscape maintenance equipment, architectural coatings), water and wastewater, and solid waste. Each module comprises multiple components including an associated mitigation module to account for further reductions in the reported baseline calculations. Other inputs include trip generation rates, trip lengths, vehicle fleet mix (percentage autos, medium truck, etc.), trip distribution (i.e., percent work to home, etc.), duration of construction phases, construction equipment usage, grading areas, season, and ambient temperature, as well as other parameters.

In various places the user can input additional information and/or override the default assumptions to account for project- or location-specific parameters. For this assessment, the default parameters were not changed unless otherwise noted. The CalEEMod output files are included in Appendix B to this EIR.

4.1.3.2 Construction Emissions

Based on a conservative estimate (earliest and highest intensity of construction activities) of the project construction timeline, Phase 1 construction is assumed to begin July 2021 and be completed by September 2023, for a total construction period of 26 months. Phase 2 construction is assumed to begin September 2023 and be completed by May 2025, for a total construction period of 20 months. The actual construction period may differ based on market conditions. The quantity, duration, and intensity of construction activity influence the amount of construction emissions and related pollutant concentrations that occur at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction activity is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix than assumed in CalEEMod, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

Construction activities would include demolition, site preparation, grading and installation of underground utilities, paving, construction of structures, and architectural coating (e.g., painting). Improvement to the Alvarado Creek channel and Alvarado Road are assumed to occurring during the grading and utilities phase. During Phase 1 site preparation, an export of approximately 6,500 cubic yards of vegetation/soil and old concrete/asphalt is anticipated. During Phase 1 grading/utilities, an export of approximately 2,000 cubic yards of soil is anticipated for underground utilities and creek channel improvements. During Phase 2 site preparation, an export of approximately 3,060 cubic yards of vegetation/soil and old concrete/asphalt is anticipated. During Phase 2 grading/utilities, an export of approximately 1,000 cubic yards of soil for underground utilities is anticipated. All other Phase 1 and Phase 2 grading and excavation cut and fill activities are assumed to be balanced on site (e.g., no import or export of soil).

Construction would require heavy equipment during demolition, site preparation, grading/utilities, building construction, and paving. Construction equipment estimates are based on default values in CalEEMod, Version 2016.3.2 with additional equipment added for excavation for underground utilities and creek channel improvements, based on assumptions used for similar projects. Table 4.1-6, *Construction Equipment Assumptions*, presents a summary of the assumed equipment that would be involved in each stage of construction.

Table 4.1-6
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Phase	Equipment	Number
Phase 1		
Demolition	Concrete/Industrial Saws	1
	Excavators	2
	Rubber Tired Dozers	1
Site Preparation	Excavators	1
	Rubber Tired Dozers	2
	Rubber Tired Loaders	1
	Tractors/Loaders/Backhoes	2
Grading/Utilities	Excavators	2
	Graders	1
	Rubber Tired Dozers	1
	Scrapers	2
	Tractors/Loaders/Backhoes	2
Paving	Pavers	2
	Paving Equipment	2
	Rollers	2
Building Construction	Cranes	1
	Forklifts	3
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Architectural Coating	Air Compressors	1

Table 4.1-6 (cont.)
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Phase	Equipment	Number
Phase 2		
Demolition	Concrete/Industrial Saws	1
	Excavators	1
	Rubber Tired Dozers	1
Site Preparation	Excavators	1
	Rubber Tired Dozers	1
	Rubber Tired Loaders	1
	Tractors/Loaders/Backhoes	1
Grading/Utilities	Excavators	1
	Graders	1
	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	3
Paving	Cement and Mortar Mixers	2
	Pavers	1
	Paving Equipment	2
	Rollers	2
	Tractors/Loaders/Backhoes	1
Building Construction	Cranes	1
	Forklifts	3
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Architectural Coating	Air Compressors	1

Source: HELIX 2020a

Construction activities would implement the standard construction BMPs for the control of fugitive dust in conformance with SDAPCD Rule 55. The emissions modeling accounts for watering all exposed surfaces a minimum of twice per day and enforcing a 15-mile per hour (mph) speed limit for all vehicles traveling on unpaved surfaces. The modeling also assumes conformance with SDAPCD Rule 67, limiting the VOC content of architectural coatings to 50 g/L for flat coating and 100 g/L for non-flat coatings.

4.1.3.3 Operational Emissions

Area Source Emissions

Area sources include emissions from landscaping equipment, the use of consumer products, the reapplication of architectural coatings for maintenance, and hearths. With the exception of the number and mix of fireplaces, emissions associated with area sources were estimated using the CalEEMod default values. It was assumed the project would not permit wood-burning stoves or wood-burning fireplaces, and the CalEEMod default value for the number of residential units with natural gas fireplaces was maintained.

Energy Emissions

Development within the project would use electricity for lighting, heating, and cooling. Natural gas and electricity would be supplied by San Diego Gas and Electric. Direct emissions from the burning of natural gas may result from furnaces, hot water heaters, and kitchen appliances. Electricity generation typically entails the combustion of fossil fuels, including natural gas and coal, which is then transmitted to end users. A building's electricity use is thus associated with the off-site or indirect emission of GHGs at the source of electricity generation (power plant) and is not included in this analysis.

Vehicular (Mobile) Sources

Operational emissions from mobile source emissions are associated with vehicle trip generation and trip length. Based on the trip generation rate from the Transportation Impact Analysis (TIA), the project would generate 5,415 average daily trips and the existing land use generates 668 average daily trips for a net increase of 4,747 average daily trips. The TIA also analyzed vehicle miles traveled (VMT) and determined that each trip would have an average distance of 4.83 miles (Kimley Horn 2020).

4.1.3.4 Sensitive Receptors

Because the project would site new sensitive receptors near a high-volume roadway (I-8), a health risk assessment (HRA) was completed to estimate to potential risks to future residents for exposure to DPM from I-8. The HRA was completed following OEHHA's *Air Toxics Hot Spots Program – Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments* (2015).

Estimation of Emissions

Almost all DPM is 10 microns or less in diameter. Therefore, it was conservatively assumed that all PM_{10} emissions from diesel-powered vehicle exhaust emissions are DPM. Emissions factors from diesel vehicles and the fleet mix typical of traffic on San Diego County roadways was estimated using the CARB EMFAC2017 online database. Emissions were estimated for the earliest anticipated first full year of Phase 1 operation, 2024. The peak-hour traffic volume on I-8 near the project site (from 70th Street to Fletcher Parkway) was estimated from Caltrans 2018 traffic counts (Caltrans 2018). Anticipated increases in traffic between 2018 and 2024 were extrapolated from data in the SANDAG Traffic Forecast Information Center (SANDAG 2020). All traffic was assumed to be traveling at the posted speed limit for I-8 (55 mph for medium- and heavy-duty trucks and 65 mph for all other vehicles). This speed scenario is conservative (higher emissions)–an examination of truck emissions from data in EMFAC2017 indicated that, between 5 mph and 55 mph, the highest emissions per mile traveled occur at 55 mph. The complete calculation sheets are included in Appendix B to this EIR.

Dispersion Modeling

Localized concentrations of pollutants were modeled using the Lakes AERMOD View, Version 9.8.3. The Lakes program utilizes the USEPA's AERMOD gaussian air dispersion model. Emissions from vehicles traveling on I-8 (diesel exhaust only) were modeled as four volume line sources from 70th Street to Fletcher Parkway, using the USEPA haul road modeling parameter recommendations. Each volume source included two travel-lanes of the 8-lane section of I-8. All heavy- and medium duty-duty trucks were assumed to be traveling exclusively in the outer two (right-hand) lanes in each travel direction. All other diesel vehicle traffic was assumed to be distributed equally across all travel lanes.

CARB provides pre-processed meteorological data suitable for use with AERMOD. The available data set most representative of conditions in the project vicinity was from the Montgomery-Gibbs Executive Airport station, approximately seven miles northwest of the project site. The Montgomery-Gibbs Executive Airport data set includes five years of data collected from 2009 to 2013. Urban dispersion coefficients were selected in the model to reflect the developed nature of the project site and the region downwind (east).

United States Geological Survey (USGS) National Elevation Dataset (NED) files with a 10-meter resolution covering an area approximately one mile around the project site were used in the model to cover the analysis area. Terrain data was imported to the model using AERMAP (a terrain preprocessing program for AERMOD).

The DPM emissions were modeled as variable emissions by hour-of-day with each hour set as a fraction of the peak hour emissions based on studies of hourly traffic volume distribution typical of San Diego freeways. The Lakes AERMOD View output reports (which include all modeling parameters selected) are included in Appendix B to this EIR.

Risk Determination

Discrete receptors were placed in the model at estimated representative locations of residential unit balconies facing the freeway for each occupied floor of the buildings within the project (starting at the second floor for Building 1, and at the fourth floor four Buildings 2, 3, and 4). The height of the receptors was set to the estimated floor elevations for each building plus four feet, representing the average breathing height for a standing individual.

Health risks resulting from localized concentration of DPM were estimated using the CARB Hotspots Analysis and Reporting Program (HARP), Air Dispersion Modeling and Risk Tool (ADMRT), Version 19121. The plot files of localized concentrations from AERMOD were imported into the ADMRT model to determine health risks. The model conservatively assumes that residents would be standing and breathing on the apartment balconies every day between 17 and 21 hours per day (depending on the age group, starting with fetuses in utero in the third trimester of pregnancy) for 30 years. The OEHHA derived intake rate percentile method was selected. The output of the dispersion modeling provides unitized ground level concentrations of the modeled constituent in micrograms per cubic meter for the maximum one-hour and the average over the five-year period of the meteorological data. An inventory of maximum hourly and average annual emissions for each source of TACs was entered in the ADMRT program. The ADMRT combines the emissions inventory, the ground level concentration plots from AERMOD, and pollutant-specific risk factors to determine the health risks at each receptor point identified in the model. The ADMRT output files are included in Appendix B to this EIR.

4.1.4 Significance Thresholds

According to Appendix G of the CEQA Guidelines, a significant air quality impact would occur if implementation of the proposed project would result in any of the following:

1. Would the project conflict with or obstruct implementation of the applicable air quality plan?
2. 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?
3. Would the project expose sensitive receptors to substantial pollutant concentrations?

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

4.1.5 Impact Analysis

4.1.5.1 Air Quality Plans

Threshold 1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for ozone. In addition, the SDAPCD relies on the SIP, which includes the SDAPCD's plans and control measures for attaining the ozone NAAQS. These plans accommodate emissions from all sources, including natural sources, through implementation of control measures, where feasible, on stationary sources to attain the standards. Mobile sources are regulated by the CalEPA and CARB, and the emissions and reduction strategies related to mobile sources are considered in the RAQS and SIP.

The RAQS relies on information from CARB and SANDAG, including projected growth in the County, and mobile, area, and all other source emissions in order to project future emissions and determine from that the strategies necessary for the reduction of stationary source emissions through regulatory controls. The CARB's mobile source emission projections and SANDAG's growth projections are based on population, employment and transportation trends, and land use plans developed by the local governments. Accordingly, projects that propose development that is consistent with the population and employment growth anticipated by these land use plans would be consistent with the RAQS. If a project proposes development that results in growth greater than that anticipated in the adopted land use plans and SANDAG's growth projections upon which the RAQS is based, the project may conflict with the RAQS and SIP and could have a potentially significant impact on air quality. This situation would warrant further analysis to determine if the project and the surrounding projects would exceed the growth projections used in the RAQS for the specific subregional area.

Implementation of the project would result in a change in the City's General Plan land use designation for the project site from "Light Industrial" and "Regional Serving Commercial" to a specific plan overlay that would allow higher density mixed use multi-family housing and commercial land uses within the design form guidelines of the Specific Plan. Relative to the current General Plan, the proposed project would result in an overall increase in the capacity for multi-family residential units in the City. Based on the CalEEMod default values provided in the AQTR, the default population density for high-rise multi-family apartments for San Diego County would be 2.86 persons per dwelling unit (DU) and the project could increase the City's population by approximately 2,717 residents. Therefore, implementation of the project would potentially result in an increase of emissions of ozone precursors (i.e., ROG and NO_X) and PM greater than what is accounted for in the RAQS as a result. Even though the project would result in a potential increase in the City's population, the project would be consistent with General Plan policy LU-3.1.7 (City 2012a): "Encourage mixed-use transit-oriented development near public transportation facilities; new construction should be compact in form to take advantage of these transit-rich locations." and General Plan objective CS-3.1: "Facilitate a reduction of automobile dependency in favor of affordable alternative, sustainable modes of travel."

The project is within 0.5 mile of the 70^{th} Street Trolley Station, which serves the MTS Green Line Trolley. Due the project's proposed higher density multi-family housing and proximity to a major transit stop, the project would be considered TOD. TOD is a key component of SANDAG's Regional Plan to mitigate the adverse effects of traffic congestion and reduce GHG emissions (SANDAG 2015). Residents would be able to access other areas of the City and region via trolley and bus service at the adjacent 70th Street Trolley Station. This would help to reduce the average VMT for the average commuter, which would have the effect of reducing pollutant emissions from personal vehicle trips for project employees and visitors.

Another measurement tool used to determine consistency with the RAQS is to determine how a project would accommodate the expected increase in population or employment. Generally, if a project is planned in a way that results in the minimization of VMT compared to regional averages, and consequently the minimization of air pollutant emissions, that aspect of the project would be consistent with the RAQS. The TIA analyzed the project's VMT per capita and compared it to the San Diego region. The regional VMT per capita is 15.3 miles and the project VMT per capita would be 13.5 miles, based primarily on proximity to the transit station (Kimley Horn 2020). Therefore, without consideration of other measures, the project would have a VMT estimate that is 88 percent of the regional average. The TIA also includes estimated VMT reductions that would further reduce the project's VMT, including an employer transit pass subsidy, transit-oriented development, parking pricing, pedestrian facility improvements, and bike facility improvements. Implementation of TOD alone would further reduce VMT by 5.2 percent, bringing the project's VMT below 85 percent of the regional average. Although the project would increase population density over what was considered in the RAQS, it would result in VMT per capita that would be below the region-wide average, which would overall reduce vehicular air pollutant emissions consistent with regional goals such as SANDAG's Regional Plan, SB 743, and the City's General Plan. Therefore, the project would not conflict with or obstruct implementation of the RAQS. Impacts would be less than significant.

4.1.5.2 Air Quality Standards

Threshold *2:* *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?*

The project would generate criteria pollutants in the short-term during construction and the long-term during operation. To determine whether a project would result in a cumulatively considerable net increase in criteria pollutant emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation, a project's emissions are evaluated based on the quantitative emission thresholds established by the SDAPCD as presented in Table 4.1-7, *Screening-Level Thresholds for Air Quality Impact Analysis.*

Table 4.1-7
SCREENING-LEVEL THRESHOLDS FOR AIR QUALITY IMPACT ANALYSIS

Pollutant	Total Emissions		
Construction Emissions (Pounds/Day)			
Respirable Particulate Matter (PM_{10})	100		
Fine Particulate Matter ($PM_{2.5}$)	55		
Oxides of Nitrogen (NO_X)	250		
Oxides of Sulfur (SO_X)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOCs)	137		
Operational Emissions	**Pounds per Hour**	**Pounds per Day**	**Tons per Year**
Respirable Particulate Matter (PM_{10})	---	100	15
Fine Particulate Matter ($PM_{2.5}$)	---	55	10
Oxides of Nitrogen (NO_X)	25	250	40
Oxides of Sulfur (SO_X)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	---	3.2	0.6
Volatile Organic Compounds (VOC)	---	137	15
Toxic Air Contaminant Emissions			
Excess Cancer Risk	1 in 1 million 10 in 1 million with T-BACT		
Non-Cancer Hazard	1.0		

Source: SDAPCD 2016; SCAQMD 2015
T-BACT = Toxics-Best Available Control Technology

Construction Emissions

As discussed in Section 4.1.3.2, the project's construction emissions were estimated using CalEEMod Version 2016.3.2. The results of the modeling of the project's construction emissions of criteria pollutants and precursors for Phases 1 and 2 are shown in Table 4.1-8, *Maximum Daily Construction Emissions*. The data are presented as the maximum anticipated daily emissions for comparison with the SDAPCD thresholds.

Table 4.1-8
MAXIMUM DAILY CONSTRUCTION EMISSIONS

Construction Phase	Pollutant Emissions (pounds per day) VOC	Pollutant Emissions (pounds per day) NO_X	Pollutant Emissions (pounds per day) CO	Pollutant Emissions (pounds per day) SO_X	Pollutant Emissions (pounds per day) PM_{10}	Pollutant Emissions (pounds per day) $PM_{2.5}$
Phase 1						
Demolition	1.9	19.0	14.7	<0.1	1.3	1.9
Site Preparation	3.2	36.0	18.9	<0.1	7.4	4.5
Grading/Utilities	4.3	46.5	31.4	0.1	6.1	3.5
Paving	1.3	11.2	14.9	<0.1	0.7	0.6
Building Construction	4.8	33.0	37.2	0.1	7.8	2.7
Architectural Coatings	23.4	1.5	2.7	<0.1	0.4	0.2
Phase 1 Maximum Daily Emissions[1, 2]	**28.2**	**46.5**	**39.9**	**0.1**	**8.2**	**4.5**
Phase 2						
Demolition	1.1	10.0	8.2	<0.1	0.6	0.5
Site Preparation	1.1	12.0	8.4	<0.1	3.4	2.0
Grading/Utilities	1.8	18.2	15.2	<0.1	3.8	2.3
Paving	0.9	8.3	12.6	<0.1	0.6	0.4
Building Construction	2.7	19.0	24.0	0.1	3.6	1.4
Architectural Coatings	15.9	1.3	2.6	<0.1	0.4	0.2
Phase 2 Maximum Daily Emissions[1, 2]	**18.6**	**20.3**	**26.6**	**<0.1**	**4.0**	**2.3**
SDAPCD Screening-Level Thresholds	*137*	*250*	*550*	*250*	*100*	*55*
Exceed Screening-Level Thresholds?	***No***	***No***	***No***	***No***	***No***	***No***

Source: HELIX 2020a
[1] Totals may not sum due to rounding.
[2] The maximum daily emissions of some pollutants would be the sum of Building Construction and Architectural Coatings which would occur concurrently for both Phases.
VOC = volatile organic compound; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
SDAPCD = San Diego Air Pollution Control District

As shown in Table 4.1-8, the project's temporary Phase 1 and Phase 2 construction-related criteria pollutant and precursor emissions would be below the SDAPCD's screening-level thresholds. Therefore, the project's construction activities would not result in a cumulatively considerable net increase of criteria pollutants that would violate any air quality standard or contribute substantially to an existing or projected air quality violation. The project's construction activities would not, therefore, conflict with the NAAQS or CAAQS, or result in adverse human health effects. Construction-related air quality impacts would be less than significant.

Operational Emissions

The project's operational emissions were estimated using the CalEEMod model, as described in Section 4.1.3. Since the long-term operation of the Phase 1 would occur concurrently with the temporary construction activities for the Phase 2, the maximum daily emissions during construction of the project would be the aggregate of the Phase 1 operational emissions plus the Phase 2 construction emissions, and minus the existing land use emissions. The net total emissions from Phase 1 operation and Phase 2 construction, minus the existing land use emissions, are shown in Table 4.1-9, *Phase 1 Operational and Phase 2 Construction Concurrent Emissions*.

Table 4.1-9
PHASE 1 OPERATIONAL AND PHASE 2 CONSTRUCTION CONCURRENT EMISSIONS

Source Category	Pollutant Emissions (pounds per day) VOC	Pollutant Emissions (pounds per day) NO_X	Pollutant Emissions (pounds per day) CO	Pollutant Emissions (pounds per day) SO_X	Pollutant Emissions (pounds per day) PM_{10}	Pollutant Emissions (pounds per day) $PM_{2.5}$
Phase 1						
Area	17.8	6.5	55.8	<0.1	0.8	0.8
Energy	0.1	1.2	0.5	<0.1	0.1	0.1
Mobile	4.3	16.3	43.7	0.1	13.8	3.8
Phase 1 Operational Subtotal[1]	22.3	24.0	100.1	0.2	14.7	4.6
Phase 2 Construction (from Table 4.1-8)	18.6	20.3	26.6	<0.1	4.0	2.3
Less Existing Phase 1 Land Use (from Table 4.1-4)	(3.4)	(3.4)	(14.9)	(<0.1)	(1.9)	(0.6)
Net Maximum Daily Emissions	**37.5**	**40.9**	**111.8**	**0.2**	**16.8**	**6.3**
SDAPCD Screening-Level Thresholds	*137*	*250*	*550*	*250*	*100*	*55*
Exceed Screening-Level Thresholds?	***No***	***No***	***No***	***No***	***No***	***No***

Source: HELIX 2020a
[1] Total may not sum due to rounding.
VOC = volatile organic compound; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
SDAPCD = San Diego Air Pollution Control District

The final total maximum daily operation emissions, after completion of construction for both Phase 1 and Phase 2, is shown in Table 4.1-10*, Net Total Operational Emissions*.

Table 4.1-10
NET TOTAL OPERATIONAL EMISSIONS

Source Category	Pollutant Emissions (pounds per day) VOC	Pollutant Emissions (pounds per day) NO_X	Pollutant Emissions (pounds per day) CO	Pollutant Emissions (pounds per day) SO_X	Pollutant Emissions (pounds per day) PM_{10}	Pollutant Emissions (pounds per day) $PM_{2.5}$
Phase 2						
Area	8.3	3.1	26.4	<0.1	0.4	0.4
Energy	<0.1	0.6	0.2	<0.1	<0.1	<0.1
Mobile	1.8	7.2	18.6	<0.1	6.5	1.8
Phase 2 Operational Subtotal[1]	10.2	10.9	45.2	<0.1	7.0	2.2
Phase 1 Operational Subtotal (from Table 4.1-9)	22.3	24.0	100.1	0.2	14.7	4.6
Less Existing Phase 1 Land Use (from Table 4.1-4)	(3.4)	(3.4)	(14.9)	(<0.1)	(1.9)	(0.6)
Less Existing Phase 2 Land Use (from Table 4.1-4)	(1.3)	(1.1)	(5.4)	(<0.1)	(0.7)	(0.2)
Net Maximum Daily Emissions	**27.8**	**30.3**	**125.0**	**0.2**	**19.1**	**6.0**
SDAPCD Screening-Level Thresholds	*137*	*250*	*550*	*250*	*100*	*55*
Exceed Screening-Level Thresholds?	***No***	***No***	***No***	***No***	***No***	***No***

Source: HELIX 2020a
[1] Total may not sum due to rounding.
VOC = volatile organic compound; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter;
SDAPCD = San Diego Air Pollution Control District

As shown in Tables 4.1-9 and 4.1-10, all the project's maximum daily emissions of criteria pollutants and precursors for concurrent Phase 1 operation and Phase 2 construction, and for the final total operation would be below the SDAPCD's screening-level thresholds. Therefore, the project's operational maximum daily emissions would not result in a cumulatively considerable net increase of criteria pollutants that would violate any air quality standard or contribute substantially to an existing or projected air quality violation. Long-term operation of the project would not, therefore, conflict with the NAAQS or CAAQS, or result in adverse human health effects. Operational air quality impacts would be less than significant.

4.1.5.3 Sensitive Receptors

Threshold 3: Would the project expose sensitive receptors to substantial pollutant concentrations?

Construction Diesel Particulate Matter Emissions

Implementation of the project would result in the use of heavy-duty construction equipment, haul trucks, on-site generators, and construction worker vehicles. These vehicles and equipment could generate the TAC DPM. Generation of DPM from construction projects typically occurs in a localized area (e.g., at the project site) for a short period of time. Because construction activities and subsequent emissions vary depending on the phase of construction (e.g., grading, building construction), the construction-related emissions to which nearby receptors are exposed to would also vary throughout the construction period. During some equipment-intensive phases such as grading, construction-related emissions would be higher than other less equipment-intensive phases such as hangar construction. Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at approximately 500 feet (CARB 2005).

The dose (of TAC) to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance in the environment and the extent of exposure a person has with the substance; a longer exposure period to a fixed amount of emissions would result in higher health risks. Current models and methodologies for conducting cancer health risk assessments are associated with longer-term exposure periods (typically 30 years for individual residents based on guidance from OEHHA) and are best suited for evaluation of long duration TAC emissions with predictable schedules and locations. These assessment models and methodologies do not correlate well with the temporary and highly variable nature of construction activities. Cancer potency factors are based on animal lifetime studies or worker studies where there is long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime (Office of Environmental Health Hazard Assessment [OEHHA] 2015). Considering this information, the highly dispersive nature of DPM, and the fact that construction activities would occur at various locations throughout the project site, it is not anticipated that construction of the project would expose sensitive receptors to substantial DPM concentrations. Therefore, air quality impacts related to exposure of sensitive receptors to DPM would be less than significant.

Construction Asbestos and Lead-Based Paint Emissions

Asbestos dust and lead are known carcinogens classified as TACs by CARB. Both may be found in buildings constructed prior to 1979 when lead was used in lead-based paints (LBP) and asbestos was used as a component of building materials such as walls, ceilings, insulation, or fireproofing. Demolition of existing structures erected prior to 1979 could result in the disturbance of asbestos-containing materials (ACM) and LBP.

The project site contains six existing buildings, all constructed between 1954 and 1959, that would be demolished. Due to the age of these buildings, the potential exists for them to contain ACM and/or LBP. As discussed in Section 4.6, *Hazards and Hazardous Materials*, of this EIR, a pre-construction ACM and LBP survey would be conducted to determine if these materials are present in the existing on-site buildings. If present, compliance with the existing regulations described below would avoid exposure of nearby sensitive receptors to these TACs.

Airborne asbestos is regulated in accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) asbestos regulations. Federal and state regulations prohibit emissions of asbestos from demolition or construction activities. Following identification of friable ACM, federal and state Occupational and Safety Health Administration (OSHA) regulations require that asbestos trained, and certified abatement personnel perform asbestos abatement and that all ACM removed from on-site structures be hauled to a licensed receiving facility and disposed of under proper manifest by a transportation company certified to handle asbestos. In accordance with the SDAPCD Rule 1206, *Asbestos Removal, Renovation, and Demolition*, prior to commencement of demolition operations and prior to submitting the notifications required by Section (e) of Rule 1206, a facility survey shall be performed to determine the presence or absence of ACM, regardless of the age of the facility (SDAPCD 2017). USEPA's Lead Renovation, Repair and Painting Rule (RRP Rule) requires that firms performing renovation, repair, and painting projects that disturb LBP in structures built before 1978 have their firm certified by USEPA (or an authorized state), use certified renovators who are trained by USEPA-approved training providers, and follow lead-safe work practices. These regulations specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers or lead dust and require notice to federal and/or local government agencies prior to beginning demolition or renovation that could disturb ACM. Therefore, compliance with established regulations would ensure that potential air quality impacts associated with ACM and LBP during project demolition activities would be less than significant.

Carbon Monoxide Hotspots

A CO hotspot is an area of localized CO pollution in excess of the NAAQS concentration limit that is typically caused by severe vehicle congestion on major roadways. Transport of the criteria pollutant CO is extremely limited; CO disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or "hot spots," are typically associated with high volume intersections that are projected to operate at unacceptable levels of service during the peak commute hours.

Neither the City nor the SDAPCD have adopted screening methods for CO hotspots. Therefore, the screening methods of the Sacramento Metropolitan Air Quality Management District (SMAQMD) are used for this analysis because the SMAQMD jurisdiction is a metropolitan area in an interior valley with greater potential for inversion layers and increased CO concentrations than for the project area, resulting in a more conservative analysis. The SMAQMD states that a project would result in a less than significant impact to local CO concentrations if it meets all of the below criteria (SMAQMD 2016):

- The affected intersection carries less than 31,600 vehicles per hour;
- The project does not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, below-grade roadway, or other location where horizontal or vertical mixing of air would be substantially limited; and
- The affected intersection, which includes a mix of vehicle types, is not anticipated to be substantially different from the County average, as identified by EMFAC or CalEEMod models.

The project would not contribute traffic to a location where horizontal or vertical mixing of air would be substantially limited. All intersections affected by the project would include a mix of vehicle types that are not anticipated to be substantially different from the County average fleet mix, as identified in CalEEMod. According to the TIA, the busiest project-affected intersection would be the intersection of Fletcher Parkway and Baltimore Drive which would carry approximately 4,300 vehicles (including project trips) during the peak hour (Kimley Horn 2020). This would be far below the screening level of 31,600 vehicles per hour. Therefore, the project's contribution to future traffic would not result in CO hotspots. Air quality impacts related to exposure of sensitive receptors to CO hotspots would be less than significant.

On-site Sensitive Receptors

The incremental excess cancer risk is an estimate of the chance a person exposed to a specific source of a TAC may have of developing cancer from that exposure beyond the individual's risk of developing cancer from existing background levels of TACs in the ambient air. For context, the average cancer risk from TACs in the ambient air for an individual living in an urban area of California is 830 in 1 million (CARB 2015). Cancer risk estimates do not mean, and should not be interpreted to mean, that a person will develop cancer from estimated exposures to toxic air pollutants. The potential health risks to future project residents from exposure to DPM was modeled, as described in Section 4.1.3.4. The resulting highest predicted incremental increased cancer risk for each residential floor of the project buildings is shown in Table, 4.1-11, *Project Residential Increased Incremental Cancer Risk from DPM*.

Table 4.1-11
PROJECT RESIDENTIAL INCREMENTAL INCREASED CANCER RISK FROM DPM

Building	Risk by Residential Floor (chances per million) Floor 2	Risk by Residential Floor (chances per million) Floor 3	Risk by Residential Floor (chances per million) Floor 4	Risk by Residential Floor (chances per million) Floor 5	Risk by Residential Floor (chances per million) Floor 6	Risk by Residential Floor (chances per million) Floor 7	Risk by Residential Floor (chances per million) Floor 8
Building 1	6.2	3.5	1.9	1.1	0.7	*	*
Building 2	*	*	1.7	1.1	0.7	0.5	0.4
Building 3	*	*	1.8	1.1	0.8	0.6	0.4
Building 4	*	*	1.9	1.2	0.8	0.6	0.5

Source: HELIX 2020a
DPM = diesel particulate matter
* = no residences facing the freeway on the floor

The highest estimated incremental increase in cancer risk to future project residents from DPM emissions on I-8 would be 6.2 in 1 million, measured on the apartment balconies facing I-8 on the second floor of Building 1. This increase in risk would be below the SDAPCD threshold of 10 in 1 million. The estimated risk assumes an individual standing and breathing on the apartment balcony every day between 17 and 21 hours per day for 30 years. The risk estimate does not account for future reductions of DPM emissions as more stringent CARB and USEPA diesel engine emissions standards take effect and older vehicles are retired. Therefore, the proposed project would not result in the exposure of on-site sensitive receptors (i.e., future project residents) to substantial concentrations of DPM. Therefore, air quality impacts related to exposure of on-site sensitive receptors to DPM would be less than significant.

4.1.5.4 Odors

Threshold 4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The project may produce odors during proposed construction activities resulting from construction equipment exhaust, application of asphalt, and/or the application of architectural coatings. The odor of these emissions may be objectionable to some; however, emissions would be temporary, intermittent, and would disperse rapidly and therefore, would not affect a substantial number of people. Furthermore, odors emitted during construction would be temporary, short-term, and intermittent in nature, and would cease upon the completion of the respective phase of construction.

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting activities, refineries, landfills, dairies, and fiberglass molding operations (SCAQMD 1993). The project, involving a multi-family residential development, would not include any of these uses nor are there any of these land uses in the project vicinity. In addition, the project would be required to comply with SDAPCD Rule 51, which prohibits the discharge of odorous emissions that would create a public nuisance. Accordingly, the project would not create objectionable odors affecting a substantial number of people during construction or operation, and impacts would be less than significant.

4.1.6 Mitigation Measures

4.1.6.1 Air Quality Plans

No significant air quality impacts related to conflicts with applicable air quality plans would result from implementation of the proposed project. Therefore, no mitigation measures are required.

4.1.6.2 Air Quality Standards

No significant air quality impacts related to air quality standards would result from implementation of the proposed project. Therefore, no mitigation measures are required.

4.1.6.3 Sensitive Receptors

No significant air quality impacts related to exposure of sensitive receptors to substantial pollutant concentrations would result from implementation of the proposed project. Therefore, no mitigation measures are required.

4.1.6.4 Odors

No significant air quality impacts related to emissions of objectionable odors would result from implementation of the proposed project. Therefore, no mitigation measures are required.

4.1.7 Significance Determination

The significance of air quality impacts before and after mitigation is summarized in Table 4.1-12, *Significance Determination Summary of Air Quality Impacts*. Implementation of the proposed project would not result in any significant air quality impacts. Impacts related to air quality plans, air quality standards, sensitive receptors, and odors would be less than significant, and no mitigation is required.

Table 4.1-12
SIGNIFICANCE DETERMINATION SUMMARY OF AIR QUALITY IMPACTS

Issue	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Air Quality Plans	Less than significant	None required	Less than significant
Air Quality Standards	Less than significant	None required	Less than significant
Sensitive Receptors	Less than significant	None required	Less than significant
Odors	Less than significant	None required	Less than significant