4.2 AIR QUALITY

This section describes the potential air quality impacts for the Cypress City Center project (proposed project) and specifically addresses short-term impacts during construction, including fugitive dust and equipment emissions, long-term emissions associated with operation of the proposed project (including vehicular travel and stationary equipment), and how potential impacts correlate to human health.

4.2.1 Methodology

The proposed project would result in criteria pollutant emissions from construction and operational sources. Construction activities would generate emissions at the site from off-road construction equipment, and on roadways as a result of construction-related truck hauling, vendor deliveries, and worker commuting. Operational activities would also generate emissions at the project site from miscellaneous onsite sources, such as natural gas combustion for cooking, heating, and landscaping equipment, and from operational-related traffic. This analysis utilized the California Emission Estimator Model version 2016.3.2 (CalEEMod) to quantify the criteria pollutant emissions for both construction and operation of the proposed project. The maximum daily emissions are calculated for the criteria pollutants. The CalEEMod output is contained in Appendix B of this Draft EIR.

Guidance from the United States Environmental Protection Agency (USEPA), the California Air Resources Board (CARB), and the South Coast Air Quality Management District (SCAQMD), the Traffic Impact Analysis prepared by LSA, and emissions modeling software (specifically, CalEEMod[1]) were used to calculate the criteria pollutant emissions from the proposed project. The letter from SCAQMD (December 17, 2019) recommended the use of the SCAQMD's *CEQA Air Quality Handbook* (1993, currently being revised), use of CalEEMod, SCAQMD's CEQA regional pollutants significance thresholds, a mobile source health risk assessment, and the use of CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (2005). Additionally, SCAQMD provided information about SCAQMD permits and data availability and suggested potential mitigation measures and consideration of potential alternatives to lessen impacts to air quality. This analysis takes into account the recommendations provided by SCAQMD. A mobile source health risk assessment technical guidance was developed by SCAQMD to address potential diesel particulate matter (DPM) impacts from the following activities: truck idling and movement, ship hoteling and train idling. SCAQMD's definition of the truck idling and movement activities would include development projects such as truck stops, warehouse/distribution centers, or transit centers, which are not a part of the proposed project. Therefore, a mobile source health risk assessment is not necessary for this project.

CalEEMod is a statewide program designed to calculate both criteria and greenhouse gas (GHG) emissions from development projects in California. This model was initially developed under the auspices of the SCAQMD and received input from other California air quality districts. It is currently supported statewide for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available.

[1] California Emissions Estimator Model. 2016. California Emissions Estimator Model. Version 2016.3.1. Website: http://www.caleemod.com/ (accessed: December 2019).

These models and default estimates use sources such as the USEPA AP-42 emission factors;[1] CARB's on-road and off-road equipment emission models, such as the EMission FACtor model (EMFAC) and the Off-road Emissions Inventory Program model (OFFROAD); and studies commissioned by California agencies, such as the California Energy Commission (CEC) and the California Department of Resources Recycling and Recovery (CalRecycle).

CalEEMod is based on CARB-approved off-road and on-road mobile-source emission factor models (OFFROAD2011 and EMFAC2014, respectively). It is designed to calculate construction and operational emissions for land development projects and allows for the input of project-specific information. OFFROAD2011[2] is an emissions factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment). EMFAC2014[3] is a USEPA approved emissions factor model used to calculate emissions rates from on-road vehicles (e.g., passenger vehicles, haul trucks).

CalEEMod provides a platform to calculate both construction emissions and operational emissions from a development project. It calculates both the daily maximum and annual average for criteria pollutants as well as total or annual GHG emissions. The model also provides default values for water and energy use. Specifically, the model performs the following calculations:

- Short-term construction emissions associated with demolition, site preparation, underground utility installation, grading, building, coating, and paving from off-road construction equipment; on-road mobile equipment associated with workers, vendors, delivery, and hauling; fugitive dust associated with grading, demolition, truck loading, and roads; and volatile emissions of reactive organic gases (ROGs) from architectural coating and paving.

- Operational emissions associated with the fully built-out development project, such as on-road mobile vehicle traffic generated by the land uses, fugitive dust associated with roads, volatile emissions of ROGs from architectural coatings, off-road emissions from landscaping equipment, volatile emissions of ROGs from consumer products and cleaning supplies, wood stoves and hearth usage, natural gas usage in the buildings, electricity usage in the buildings, water usage by the land uses, and solid waste disposal by the land uses.

In addition, CalEEMod contains default values and existing regulation methodologies to use in each specific local air quality district region. Appropriate statewide default values can be utilized if regional default values are not defined. This analysis utilized project-specific inputs and relevant

[1] The USEPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Website: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors (accessed: December 2019).

[2] California Air Resources Board (CARB). 2019. Off Road Mobile Source Emission factors. Website: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools (accessed: December 2019).

[3] CARB. 2019. EMFAC 2017 Web Database. Website: https://www.arb.ca.gov/emfac/2014 (accessed December 2019).

model default factors for the Orange County (County) area, which is within the SCAQMD jurisdiction for the emission inventory, consistent with SCAQMD requirements.

Additional details regarding the specific methodologies used by CalEEMod can be found in the CalEEMod User's Guide and associated appendices.[1] The CalEEMod output files for the proposed project are provided for reference in Appendix B.

4.2.2 Existing Environmental Setting

The City is part of the South Coast Air Basin (SCAB) and is under the jurisdiction of SCAQMD. Background information about air pollutants and health effects, climate, meteorological conditions, and regional air quality conditions in the SCAB and local air quality conditions in the vicinity of the project site is provided below.

4.2.2.1 Air Pollutants and Health Effects

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants:[2] carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and suspended particulate matter (PM). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Long-term exposure to elevated levels of criteria pollutants may result in adverse health effects. However, emission thresholds established by an air quality district are used to manage total regional emissions within an air basin based on the air basin's attainment status for criteria pollutants. These emission thresholds were established for individual projects that would contribute to regional emissions and pollutant concentrations and could adversely affect or delay the projected attainment target year for certain criteria pollutants.

Because of the conservative nature of the thresholds and the basin-wide context of individual project emissions, there is no known direct correlation between a single project and localized air quality-related health effects. One individual project that generates emissions exceeding a threshold does not necessarily result in adverse health effects for residents in the project vicinity. This condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as ozone precursors like nitrogen oxides (NO_x) and volatile organic compounds (VOC).

Occupants of certain types of facilities such as schools, daycare centers, parks and playgrounds, hospitals, and nursing and convalescent homes are considered to be more sensitive than the general public to air pollutants because these population groups have increased susceptibility to respiratory disease. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions, compared to commercial and industrial areas, because people generally spend longer periods of time at their

1 California Emissions Estimator. 2016. California Emissions Estimator Model User's Guide. Version 2016. 3.2. February. Website: http://www.caleemod.com/ (accessed: December 2019).

2 United States Environmental Protection Agency (USEPA). 2014. Criteria pollutants are defined as those pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

residences, with greater associated exposure to ambient air quality conditions. Recreational uses are also considered sensitive compared to commercial and industrial uses due to greater exposure to ambient air quality conditions associated with exercise.

4.2.2.2 Ozone

Rather than being directly emitted, ozone (smog) is formed by photochemical reactions between NO_x and VOC. Ozone is a pungent, colorless gas. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, elderly, and young children. Ozone levels peak during the summer and early fall months.

4.2.2.3 Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles are those that are 10 microns or less in diameter, or PM_{10}. Fine, suspended particulate matter with an aerodynamic diameter of 2.5 microns or less, or $PM_{2.5}$, is not readily filtered out by the lungs. Nitrates, sulfates, dust, and combustion particulates are major components of PM_{10} and $PM_{2.5}$. These small particles can be directly emitted into the atmosphere as byproducts of fuel combustion; through abrasion, such as tire or brake lining wear; or through fugitive dust (wind or mechanical erosion of soil). They can also be formed in the atmosphere through chemical reactions. Particulates may transport carcinogens and other toxic compounds that adhere to the particle surfaces and can enter the human body through the lungs.

4.2.2.4 Carbon Monoxide

CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. CO passes through the lungs into the bloodstream, where it interferes with the transfer of oxygen to body tissues.

4.2.2.5 Nitrogen Dioxide

NO_2 is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2 may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. NO_2 decreases lung function and may reduce resistance to infection.

4.2.2.6 Sulfur Dioxide

SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels in the region. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

4.2.2.7 Lead

Leaded gasoline (phased out in the United States beginning in 1973), paint (on older houses and cars), smelters (metal refineries), and the manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has multiple adverse neurotoxic health effects, and children are at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline was eliminated. Ambient lead concentrations are only monitored on an as-warranted, site-specific basis in California. On October 15, 2008, the USEPA strengthened the national ambient air quality standard for lead by lowering it from 1.5 to 0.15 micrograms per cubic meter ($\mu g/m^3$). The USEPA revised the monitoring requirements for lead in December 2010. These requirements focus on airports and large urban areas, resulting in an increase in 76 monitors nationally.

4.2.2.8 Volatile Organic Compounds

VOCs (also known as reactive organic gases [ROGs] and reactive organic compounds [ROCs]) are formed from the combustion of fuels and the evaporation of organic solvents. VOCs are not defined as criteria pollutants, however, because VOCs accumulate in the atmosphere more quickly during the winter, when sunlight is limited and photochemical reactions are slower, they are a prime component of the photochemical smog reaction. There are no attainment designations for VOCs.

4.2.2.9 Vinyl Chloride

Vinyl Chloride (VC) is a chemical building block, or monomer, used in the production of polyvinyl chloride (PVC). PVC is used to make materials, including pipes, used in the construction, packaging, electrical, and transportation industries. Major sources of VC include PVC production and fabrication facilities and, at the other end of PVC's lifecycle, as PVC deteriorates, landfills and publicly owned treatment works. VC is carcinogenic. VC is primarily of concern as a carcinogenic toxic air contaminant (TAC) at hot spots. It is regulated as a TAC to allow implementation of health-protective control measures at levels below the ambient standard.

4.2.2.10 Hydrogen Sulfide

Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. In addition, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the State standard could result in exposure to a very disagreeable odor.

For the proposed project, six criteria pollutants were evaluated—NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and O_3—using VOCs[1] and NO_X as surrogates. These pollutants were analyzed because they are considered to be pollutants of concern based on the type of emission sources associated with construction and operation of the proposed project, and are thus included in this assessment. Because the ambient concentrations of lead, VC, H_2S, and visibility-reducing particles are very low and the proposed project would not include industrial production facilities or generate substantial

[1] The emissions of VOCs and ROGs are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOCs.

amounts of exhaust, lead, VC, H_2S, and visibility-reducing particles are not considered to be pollutants of concern for the proposed project and are not analyzed below.

4.2.2.11 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated by the USEPA and the CARB. Some examples of TACs include benzene, butadiene, formaldehyde, and hydrogen sulfide. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants.

TACs do not have ambient air quality standards, but are regulated by the USEPA, CARB, and the SCAQMD. In 1998, the CARB identified particulate matter from diesel-fueled engines as a TAC. The CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.[1] High-volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (e.g., distribution centers and truck stops) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high-volume transit centers, and schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

Unlike TACs emitted from industrial and other stationary sources noted above, most diesel particulate matter is emitted from mobile sources—primarily "off-road" sources such as construction and mining equipment, agricultural equipment, and truck-mounted refrigeration units, as well as "on-road" sources such as trucks and buses traveling on freeways and local roadways.

Although not specifically monitored, recent studies indicate that exposure to diesel particulate matter may contribute significantly to a cancer risk (a risk of approximately 500 to 700 in 1,000,000) that is greater than all other measured TACs combined.[2] The technology for reducing diesel particulate matter emissions from heavy-duty trucks is well established, and both State and federal agencies are moving aggressively to regulate engines and emission control systems to reduce and remediate diesel emissions. The CARB anticipates that by 2020, average statewide diesel particulate matter concentrations will decrease by 85 percent from levels in 2000 with full implementation of the CARB's Diesel Risk Reduction Plan,[3] meaning that the statewide health risk from diesel particulate matter is expected to decrease from 540 cancer cases in 1,000,000 to 21.5 cancer cases in 1,000,000.

Table 4.2.A summarizes the sources and health effects of air pollutants discussed in this section. Table 4.2.B presents a summary of State and Federal Ambient Air Quality Standards (AAQS).

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1 CARB. 2000. Stationary Source Division and Mobile Source Control Division. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.* October.

2 CARB, 2000. Stationary Source Division and Mobile Source Control Division. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.* October.

3 Ibid.

Table 4.2.A: Sources and Health Effects of Air Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust • Natural events, such as decomposition of organic matter	• Reduced tolerance for exercise • Impairment of mental function • Impairment of fetal development • Death at high levels of exposure • Aggravation of some heart diseases (angina)
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust • High temperature stationary combustion • Atmospheric reactions	• Aggravation of respiratory illness • Reduced visibility • Reduced plant growth • Formation of acid rain
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight	• Aggravation of respiratory and cardiovascular diseases • Irritation of eyes • Impairment of cardiopulmonary function • Plant leaf injury
Lead (Pb)	• Contaminated soil	• Impairment of blood functions and nerve construction • Behavioral and hearing problems in children
Suspended Particulate Matter ($PM_{2.5}$ and PM_{10})	• Stationary combustion of solid fuels • Construction activities • Industrial processes • Atmospheric chemical reactions	• Reduced lung function • Aggravation of the effects of gaseous pollutants • Aggravation of respiratory and cardiorespiratory diseases • Increased cough and chest discomfort • Soiling • Reduced visibility
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels • Smelting of sulfur-bearing metal ores Industrial processes	• Aggravation of respiratory diseases (asthma, emphysema) • Reduced lung function • Irritation of eyes • Reduced visibility • Plant injury • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board (2015).

Table 4.2.B: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]		Federal Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]
Ozone (O_3)[h]	1-Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM_{10})[i]	24-Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		–		
Fine Particulate Matter ($PM_{2.5}$)[i]	24-Hour	-		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	–	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	
Nitrogen Dioxide (NO_2)[j]	Annual Arithmetic Mean	0.03 ppm (57 µg/m³)	Gas Phase Chemi-luminescence	53 ppb (100 µg/m³)	Same as Primary Standard	Gas Phase Chemi-luminescence
	1-Hour	0.18 ppm (339 µg/m³)		100 ppb (188 µg/m³)	-	
Lead (Pb)[l,m]	30-Day Average	1.5 µg/m³	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m³ (for certain areas)[l]	Same as Primary Standard	
	Rolling 3-Month Average[i]	–		0.15 µg/m³		
Sulfur Dioxide (SO_2)[k]	24-Hour	0.04 ppm (105 µg/m³)	Ultraviolet Fluorescence	0.14 ppm (for certain areas)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1300 µg/m³)	
	1-Hour	0.25 ppm (655 µg/m³)		75 ppb (196 µg/m³)[k]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[k]	–	
Visibility-Reducing Particles[l]	8-Hour	See footnote n	Beta Attenuation and Transmittance through Filter Tape.	No Federal Standards		
Sulfates	24-Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[j]	24-Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Table notes are provided on the following page.

[a] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and 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. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact USEPA for further clarification and current national policies.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

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

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

[g] Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.

[h] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[i] On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24- hour PM2.5 standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[j] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (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.

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

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

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

[m] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one 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.

[n] In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius
CARB = California Air Resources Board
USEPA = United States Environmental Protection Agency
ppb = parts per billion
ppm = parts per million
mg/m^3 = milligrams per cubic meter
µg/m^3 = micrograms per cubic meter

Source: California Air Resources Board, 2016. (Website: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf).

4.2.2.12 Climate/Meteorology

Air quality in the SCAB is affected not only by various emission sources (mobile and industry, etc.), but also by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall, etc. The combination of topography, low mixing height, abundant sunshine, and emissions from the second-largest urban area in the United States gives the SCAB the worst air pollution problem in the nation.

The SCAB is a coastal plain characterized by connecting broad valleys and low hills, delineated by the Pacific Ocean as its southwestern border, and fringed by high mountains that form the inland portion of its border. The region lies in the semi-permanent high-pressure zone of the eastern Pacific Ocean. The resulting climate is mild and tempered by cool ocean breezes. It maintains moderate temperatures and comfortable humidity, and precipitation is typically limited to a few storms during the winter wet season. This weather pattern is fairly predictable. However, periods of extremely hot weather, winter storms, or Santa Ana winds do exist.

Although the SCAB has a semi-arid climate, air near the earth's surface is generally moist due to the presence of a shallow marine layer. With very low average wind speeds, there is a limited ability to disperse air contaminants horizontally. The typical wind flow pattern fluctuates only with occasional winter storms or strong northeasterly Santa Ana winds from the mountains and deserts northeast of the SCAB. Summer wind flow patterns represent worst-case conditions for air pollution, as this is a period of higher temperatures and more sunlight, which results in ozone (O_3) formation.

Air pollutant emissions within the SCAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawnmowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

4.2.2.13 Attainment Status

The CARB is required to designate areas of the state as attainment, nonattainment, or unclassified for all State standards. An *attainment* designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A *nonattainment* designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An *unclassified* designation signifies that data do not support either an attainment or nonattainment status. The California Clean Air Act (CCAA) divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The USEPA designates areas for O_3, CO, and NO_2 as either does not meet the primary standards, or cannot be classified, or better than national standards. For SO_2, areas are designated as does not meet the primary standards, does not meet the secondary standards, cannot be classified, or better than national standards.

Table 4.2.C provides a summary of the attainment status for the SCAB with respect to National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS).

Table 4.2.C: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O_3 1 hour	Nonattainment	Extreme Nonattainment
O_3 8 hour	Nonattainment	Extreme Nonattainment
PM_{10}	Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Serious Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance
SO_2	N/A	Attainment/Unclassified
Lead	Attainment	Attainment[1]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: South Coast Air Quality Management District (2018).
[1] Except in Los Angeles County.
CARB = California Air Resources Board
CO = carbon monoxide
N/A = not applicable
NO_2 = nitrogen dioxide
O_3 = ozone
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SO_2 = sulfur dioxide

4.2.2.14 Regional Air Quality

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climate is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. Meteorological conditions and topography affect the dispersion of pollutants and make the SCAB susceptible to air pollution. The extent and severity of the air pollution problem in the SCAB is also affected by manmade influences, such as development patterns and lifestyle.

The greatest air pollution impacts throughout the SCAB occur from June through September. This condition is generally attributed to the high emissions, as well as light winds and shallow vertical atmospheric mixing, which reduce dispersion. Pollutant concentrations in the SCAB vary with location, season, and time of day. O_3 concentrations, for example, tend to be higher in the inland valleys than either along the coast or in the far inland areas of the SCAB and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in Southern California. However, the SCAB still fails to meet federal standards for O_3 and $PM_{2.5}$.

In 2008, SCAQMD released a SCAB-wide air toxics study, Multiple Air Toxics Exposure Study (MATES-III).[1] The MATES-III study represents one of the most comprehensive air toxics studies ever conducted in an urban environment. The study set out to estimate the cancer risk from toxic air emissions throughout the SCAB by conducting a comprehensive monitoring program, updating the emissions inventory of TACs, and modeling emissions to characterize health risks for residents throughout the region. The study calculated an average carcinogenic risk from air pollution in the SCAB of approximately 1,200 in 1 million over a 70-year duration. Mobile sources (e.g., cars, trucks, trains, ships, and aircraft) represent the greatest contributors. Approximately 85 percent of the risk was attributed to DPM emissions and approximately 10 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde). Approximately 5 percent of all carcinogenic risk was attributed to stationary sources (which include industries and certain other businesses, such as dry cleaners and chrome plating operations).

On May 1, 2015, the SCAQMD released a MATES IV Final Report.[2] This study showed a dramatic reduction (70 percent on average) in the level of DPM measured at the 10 monitoring sites compared to MATES III. The study also concluded that the average carcinogenic risk from air pollution in the SCAB is approximately 418 in 1 million (a 65 percent overall reduction from MATES III) based on monitoring. Mobile sources (e.g., cars, trucks, trains, ships, and aircraft) account for 90 percent of the air toxics risk, and DPM accounts for 68 percent of the air toxics risk.[3]

4.2.2.15 Local Air Quality

Air quality monitoring stations are located throughout the nation and are maintained by the local air pollution control district and State air quality regulating agencies. The SCAQMD, together with the CARB, maintains ambient air quality monitoring stations in the SCAB. The air quality monitoring station closest to the project site is the 1630 W. Pampas Lane ambient air quality monitoring station in Anaheim. The air quality trends from this station are used to represent the ambient air quality in the vicinity of the project site. Ambient air quality in the vicinity of the project site from 2016 to 2018 is shown in Table 4.2.D. SO_2 is not monitored at the Anaheim station; therefore, the next closest available SO_2 data at the 2850 Mesa Verde Drive East ambient air quality monitoring station in Costa Mesa is included in Table 4.2.D.

Pollutant monitoring results for the years 2016 to 2018 at the 1630 W. Pampas Lane, Anaheim ambient air quality monitoring station indicate that air quality in the project vicinity has generally been good. As indicated in the monitoring results, no violations of the federal PM_{10} standard occurred during the 3-year period. The State PM_{10} standard was exceeded three times in 2016, five times in 2017, and an unknown number of times in 2018. $PM_{2.5}$ levels exceeded the federal standard once in 2016, seven times in 2017, and an unknown number of times in 2018.

1 SCAQMD. 2008. MATES III. Website: https://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iii (accessed December 16, 2019).

2 SCAQMD. 2015b. MATES IV. Website: https://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iv (accessed: December 16, 2019).

3 SCAQMD. 2015a. Final Report – Multiple Air Toxics Exposure Study in the South Coast Air Basin. Website: http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf?sfvrsn=4 (accessed December 16, 2019).

Table 4.2.D: Ambient Air Quality at the 1630 W. Pampas Lane, Anaheim Monitoring Station

Pollutant	Standard	2016	2017	2018
Carbon Monoxide (CO)				
Maximum 1-hour concentration (ppm)		2.6	2.5	2.3
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		2.1	2.1	1.9
Number of days exceeded:	State: > 9 ppm	0	0	0
	Federal: > 9 ppm	0	0	0
Ozone (O_3)				
Maximum 1-hour concentration (ppm)		0.103	0.090	0.112
Number of days exceeded:	State: > 0.09 ppm	2	0	ND
Maximum 8-hour concentration (ppm)		0.075	0.076	0.071
Number of days exceeded:	State: > 0.07 ppm	4	4	ND
	Federal: > 0.08 ppm	4	4	1
Coarse Particulates (PM_{10})				
Maximum 24-hour concentration (µg/m³)		74.0	95.7	129.0
Number of days exceeded:	State: > 50 µg/m³	3	5	ND
	Federal: > 150 µg/m³	0	0	0
Annual arithmetic average concentration (µg/m³)		28.0	26.9	ND
Exceeded for the year:	State: > 20 µg/m³	Yes	Yes	ND
	Federal: > 50 µg/m³	No	No	ND
Fine Particulates ($PM_{2.5}$)				
Maximum 24-hour concentration (µg/m³)		45.5	56.2	65.1
Number of days exceeded:	Federal: > 35 µg/m³	1	7	ND
Annual arithmetic average concentration (µg/m³)		9.4	11.7	11.4
Exceeded for the year:	State: > 12 µg/m³	No	No	No
	Federal: > 12 µg/m³	No	No	No
Nitrogen Dioxide (NO_2)				
Maximum 1-hour concentration (ppm)		0.064	0.081	0.066
Number of days exceeded:	State: > 0.250 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.015	0.014	0.014
Exceeded for the year:	Federal: > 0.053 ppm	No	No	No
Sulfur Dioxide (SO_2)[1]				
Maximum 1-hour concentration (ppm)		0.0033	0.0017	ND
Number of days exceeded:	State: > 0.25 ppm	0	0	ND
Maximum 3-hour concentration (ppm)		ND	ND	ND
Number of days exceeded:	Federal: > 0.50 ppm	ND	ND	ND
Maximum 24-hour concentration (ppm)		0.0007	0.0005	ND
Number of days exceeded:	State: > 0.04 ppm	0	0	ND
	Federal: > 0.14 ppm	0	0	ND
Annual arithmetic average concentration (ppm)		0.0001	0.0001	ND
Exceeded for the year:	Federal: > 0.030 ppm	No	No	ND

Source: CARB (2019); USEPA (2019).

[1] Data taken at the 2850 Mesa Verde Drive East, Costa Mesa ambient air quality monitoring station.

µg/m³ = micrograms per cubic meter
CARB = California Air Resources Board
ND = No data. There was insufficient (or no) data to determine the value.
ppm = parts per million
USEPA = United States Environmental Protection Agency

The State 1-hour ozone standard was exceeded twice in 2016 and an unknown number of times in 2018. In addition, the State 8-hour ozone standard was exceeded four times in 2016, four times in 2017, and an unknown number of times in 2018 and the federal 8-hour ozone standard was exceeded four times in 2016, four times in 2017, and once in 2018. The CO, SO_2, and NO_2 standards were also not exceeded in this area during the 3-year period.

As part of the MATES-III Study, the SCAQMD prepared a series of maps that show regional trends in estimated outdoor inhalation cancer risk from toxic emissions as part of an ongoing effort to provide insight into relative risks. The maps' estimates represent the number of potential cancers per million people associated with a lifetime of breathing air toxics (24 hours per day outdoors for 70 years) in parts of the area. The MATES-III map is the most recently available map to represent existing conditions near the project site. Based on the interactive map, the average cancer risk around the project site was approximately 1,280 in 1 million. As discussed earlier, the SCAQMD released MATES IV Draft Final Report on April 1, 2015.

4.2.2.16 Surrounding Uses

To the north of the project site is a surface parking area for the Los Alamitos Race Course and the Los Alamitos Race Course. To the east of the project site across Winners Circle is a commercial center containing a Costco and other retail/restaurant uses. The area west of the project site across Siboney Street is a retail center, including a 24 Hour fitness, and a two-story church. To the south, on the far side of Katella Avenue, are commercial and multi-family uses, behind which are single-family residences.

The Air Quality Element of the City's General Plan states that sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (i.e., sensitive receptors) who are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes.

The closest sensitive receptors include the multi-family and single-family residences as close as 350 feet (ft) south of the project site. Other surrounding land uses (such as commercial uses) are not considered sensitive receptors.

4.2.3 Regulatory Setting

The USEPA and the CARB regulate direct emissions from motor vehicles. The SCAQMD is the regional agency primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as monitoring ambient pollutant concentrations.

4.2.3.1 Federal Regulations

The 1970 Federal Clean Air Act authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 changed deadlines for attaining national standards as well as the remedial actions required of

areas of the nation that exceed the standards. Under the Federal Clean Air Act (CAA), State, and local agencies in areas that exceed the national standards are required to develop State Implementation Plans to demonstrate how they will achieve the national standards by specified dates.

4.2.3.2 State Regulations

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

California Air Resources Board. The CARB is the State's "clean air agency." The CARB's goals are to attain and maintain healthy air quality, protect the public from exposure to toxic air contaminants, and oversee compliance with air pollution rules and regulations.

Assembly Bill 2588 Air Toxics "Hot Spots" Information and Assessment Act. Under Assembly Bill (AB) 2588, stationary sources of air pollutants are required to report the types and quantities of certain substances that their facilities routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, identify facilities having localized impacts, determine health risks, and notify nearby residents of significant risks.

The California Air Resources Board Handbook. CARB has developed an Air Quality and Land Use Handbook[1] (the CARB Handbook, 2005), which is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. According to the CARB Handbook, recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. The CARB Handbook recommends that county and city planning agencies strongly consider proximity to these sources when finding new locations for "sensitive" land uses such as homes, medical facilities, daycare centers, schools, and playgrounds.

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

[1] CARB. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB Handbook). April.

- Within 500 ft of a freeway, urban roads with 100,000 vehicles/day or rural roads with 50,000 vehicles/day;
- Within 1,000 ft of a major service and maintenance rail yard;
- Immediately downwind of ports (in the most heavily impacted zones) and petroleum refineries;
- Within 300 ft of any dry cleaning operation (for operations with two or more machines, provide 500 ft); and
- Within 300 ft of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater).

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

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

4.2.3.3 Local and Regional Policies and Regulations

South Coast Air Quality Management District. The SCAQMD has jurisdiction over most air quality matters in the SCAB. This area includes all of Orange County, Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. Los Angeles County is a subregion of the SCAQMD jurisdiction. The SCAQMD is the agency principally responsible for comprehensive air pollution control in the SCAB in and is tasked with implementing certain programs and regulations required by the CAA and the CCAA. The SCAQMD prepares plans to attain NAAQS. SCAQMD is directly responsible for reducing emissions from stationary (area and point) sources. The SCAQMD develops rules and regulations, establishes permitting requirements, inspects emissions sources, and enforces such measures though educational programs or fines, when necessary.

The proposed project could be subject to the following SCAQMD rules and regulations:

- **Regulation IV - Prohibitions:** This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air pollutant emissions, fuel contaminants, start-up/shutdown exemptions, and breakdown events. These prohibitions will apply to future development facilitated by approval of the proposed project.
    - **Rule 402 - Nuisance:** This rule restricts the discharge of any contaminant in quantities that cause or have a natural ability to cause injury, damage, nuisance, or annoyance to businesses, property, or the public.

- **Rule 403 - Fugitive Dust:** This rule requires the prevention, reduction, or mitigation fugitive dust emissions from a project site. Rule 403 restricts visible fugitive dust to a project property line, restricts the net PM_{10} emissions to less than 50 $\mu g/m^3$ and restricts the tracking out of bulk materials onto public roads. Additionally, Rule 403 requires an applicant to utilize one or more of the best available control measures (identified in the tables within the rule). Control measures may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers, and/or ceasing all activities. Finally, Rule 403 requires that a contingency plan be prepared if so determined by the USEPA. In addition, SCAQMD Rule 403(e), Additional Requirements for Large Operations, includes requirements to provide Large Operation Notification Form 403 N, appropriate signage, additional dust control measures, and employment of a dust control supervisor that has successfully completed the Dust Control training class in the South Coast Air Basin.

- **Regulation XI - Source Specific Standards:** Regulation XI sets emissions standards for different sources.

  - **Rule 1113 - Architectural Coatings:** This rule limits the amount of volatile organic compounds (VOCs) from architectural coatings and solvents, which lowers the emissions of odorous compounds. Future development facilitated by approval of the project will comply with Rule 1113.

The SCAQMD is responsible for demonstrating regional compliance with ambient air quality standards but has limited indirect involvement in reducing emissions from fugitive, mobile, and natural sources. To that end, the SCAQMD works cooperatively with CARB, the Southern California Association of Governments (SCAG), county transportation commissions, local governments, and other federal and State government agencies. It has responded to this requirement by preparing a series of AQMPs to meet the CAAQS and NAAQS. SCAQMD and SCAG are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the SCAB. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. Every 3 years, SCAQMD prepares a new AQMP, updating the previous plan and 20-year horizon.[1]

SCAQMD approved the 2016 AQMP on March 3, 2017, and submitted the plan to CARB on March 10, 2017. Key elements of the 2016 AQMP include the following:

- Calculating and taking credit for co-benefits from other planning efforts (e.g., climate, energy, and transportation)

- A strategy with fair-share emission reductions at the federal, State, and local levels

- Investment in strategies and technologies meeting multiple air quality objectives

- Seeking new partnerships and significant funding for incentives to accelerate deployment of zero-emission and near-zero emission technologies

[1] South Coast Air Quality Management District (SCAQMD). 2017. *Final 2016 Air Quality Management Plan*. March.

- Enhanced socioeconomic assessment, including an expanded environmental justice analysis
- Attainment of the 24-hour $PM_{2.5}$ standard in 2019 with no additional measures
- Attainment of the annual $PM_{2.5}$ standard by 2025 with implementation of a portion of the O_3 strategy
- Attainment of the 1-hour O_3 standard by 2022 with no reliance on "black box" future technology (FCAA Section 182(e)(5) measures)

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

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

On April 7, 2016, SCAG adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Using growth forecasts and economic trends, the RTP provides a vision for transportation throughout the region for the next 20 years. It considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address mobility needs. The SCS is a newly required element of the RTP, which integrates land use and transportation strategies to achieve CARB emissions reduction targets. The inclusion of the SCS is required by Senate Bill (SB) 375, which was enacted to reduce greenhouse gas (GHG) emissions from automobiles and light trucks through integrated transportation, land use, housing, and environmental planning. The RTP/SCS would successfully achieve and exceed the GHG emission-reduction targets set by CARB by achieving an 8 percent reduction by 2020, an 18 percent reduction by 2035, and a 21 percent reduction by 2040 compared to the 2005 level on a per capita basis. This RTP/SCS also meets criteria pollutant emission budgets set by the USEPA.

The 2016–2040 RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with SB 375, improve public health, and meet the NAAQS as set forth by the CAA. Even with ongoing aggressive control strategies, ever more stringent national O_3 standards require further NO_X emission reductions in the SCAG region. In the SCAB, for example, it is estimated that NO_X emissions will need to be reduced by approximately 50 percent in 2023 and an additional 15 percent NO_X reduction beyond 2023 levels by 2031. Most sources of NO_X emissions, cars and factories, are already controlled by over 90 percent. The level of emission reduction required is so significant that 2030 emissions forecast from just three sources—ships, trains, and aircraft—would lead to O_3 levels near the Federal standard. To accomplish the reduction required to meet O_3 standards, the 2016–2040 RTP/SCS contains a regional commitment for the broad deployment of zero- and near-zero emission transportation technologies in the 2023–2040 time frame and clear steps to move toward this objective.

SCAG submits a list of transportation-related projects (in the RTP/SCS) for potential funding by the Federal Highway Administration (FHWA). The FHWA will review and approve either portions of or the entire list of transportation projects. This review will include a determination regarding whether the Federal agency's actions on these transportation projects would conform to the California State Implementation Plan (SIP). SCAQMD incorporates the SCAG RTP/SCS emission budget for mobile sources into the AQMP emissions inventory analysis for all sources of emissions (including stationary, area, and mobile). Conformity analysis and the USEPA review and approval actions are not subject to California Environmental Quality Act (CEQA) review.

4.2.3.4 Local Regulations

City of Cypress General Plan. The Air Quality Element of the City's General Plan is intended to protect public health and welfare by implementing measures that allow the SCAB to attain federal and State air quality standards. To achieve this goal, the Air Quality Element sets forth a number of programs to reduce current pollutant emissions and to require new development to include measures to comply with air quality standards. The Air Quality Element identifies goals and policies to reduce the generation of pollutants. It also recognizes that air quality is a regional issue affecting the entire SCAB. Thus, most of the goals and policies in the Air Quality Element apply generally to the City, but not necessarily to individual development projects.

4.2.4 Thresholds of Significance

The thresholds for air quality impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*. The proposed project may be deemed to have a significant impact with respect to air quality if it would:

Threshold 4.2.1: Conflict with or obstruct implementation of the applicable air quality plan?

Threshold 4.2.2: 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?

Threshold 4.2.3: Expose sensitive receptors to substantial pollutant concentrations?

Threshold 4.2.4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

As stated in Appendix G of the *State CEQA Guidelines*, where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make determinations about a project's impacts. This Draft EIR uses the adopted thresholds of the SCAQMD, the local air quality management district.

4.2.4.1 Regional Emissions Thresholds

SCAQMD has established daily emissions thresholds for construction and operation of a proposed project in the SCAB. The emissions thresholds were established based on the attainment status of the SCAB with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emissions thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Table 4.2.E lists the CEQA significance thresholds for construction and operational emissions established for the SCAB.

Table 4.2.E: Regional Thresholds for Construction and Operational Emissions

Emissions Source	Pollutant Emissions Threshold (lbs/day)					
	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_x
Construction	75	100	550	150	55	150
Operations	55	55	550	150	55	150

Source: SCAQMD. Air Quality Significance Thresholds. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf (accessed December 2019).

CO = carbon monoxide
lbs/day = pounds per day
NO_x = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOC = volatile organic compounds

Projects in the SCAB with construction- or operation-related emissions that exceed any of their respective emission thresholds would be considered significant under SCAQMD guidelines. These thresholds, which SCAQMD developed and that apply throughout the SCAB, apply as both project and cumulative thresholds. If a project exceeds these standards, it is considered to have a project-specific and cumulative impact.

4.2.4.2 Localized Impacts Analysis

The SCAQMD published its *Final Localized Significance Threshold Methodology* in July 2008, recommending that all air quality analyses include an assessment of air quality impacts to nearby sensitive receptors.[1] This guidance was used to analyze potential localized air quality impacts associated with construction of the proposed project. Localized significance thresholds (LSTs) are developed based on the size or total area of the emission source, the ambient air quality in the

[1] SCAQMD. 2008. *Final Localized Significance Threshold Methodology.* July.

source receptor area, and the distance to the project. Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality.

LSTs are based on the ambient concentrations of that pollutant within the project Source Receptor Area (SRA) and the distance to the nearest sensitive receptor. For the proposed project, the appropriate SRA for the LST is the nearby Central Orange County area (SRA 17). SCAQMD provides LST screening tables for 25, 50, 100, 200, and 500-meter source-receptor distances. As identified above, the closest sensitive receptors include the multi-family and single-family residences as close as 350 ft south of the project site. The SCAQMD has produced look-up tables for projects that disturb less than or equal to 5 acres daily. The SCAQMD has also issued guidance on applying the CalEEMod emissions software to LSTs for projects greater than 5 acres. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, based on the CalEEMod default list of equipment (i.e., four dozers, one grader, and one excavator) required for the proposed project, the maximum daily disturbed acreage is assumed to be approximately 1.5 acres per day. In order to determine the applicability of the SCAQMD's LST look-up tables for the minor amount of construction grading activities and the small amount of equipment utilized, it was assumed that the look-up table for the 2-acre LST threshold would be sufficient for the proposed residential and commercial mixed uses. Because a maximum of 1.5 acres of the project site may be subject to soil disturbance on the peak day of construction activity, the 1.5-acre thresholds would apply to the proposed project. Table 4.2.F lists the emissions thresholds that apply during project construction and operation.

Table 4.2.F: SCAQMD LST Thresholds (lbs/day)

Emissions Source	Pollutant Emissions Threshold (lbs/day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Construction (1.5-acre, 350-foot distance)	113.1	1,408.3	33.7	10.9
Operations (5-acre, 350-foot distance)	181.5	2,599.5	14.5	4.3

Source: SCAQMD. *Final Localized Significance Threshold Methodology* (July 2008).
CO = carbon monoxide
lbs/day = pounds per day
LST = localized significance threshold
NO_x = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District

4.2.4.3 Local Microscale Concentration Standards

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. Because ambient CO levels are below the standards throughout the SCAB, a project would be considered to have a significant CO impact if project emissions result in an exceedance of one or more of the 1-hour or 8-hour standards. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20 ppm
- California State 8-hour CO standard of 9 ppm

4.2.5 Project Impacts

Threshold 4.2.1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The SCAQMD's *CEQA Air Quality Handbook* (1993, currently being revised) indicates that consistency with the SCAG 2016 AQMP is affirmed when a project: (1) does not increase the frequency or severity of an air quality standards violation or cause a new violation; and (2) is consistent with the growth assumptions in the AQMP. As described further under Threshold 4.2.2 below, and shown in Tables 4.2.G through 4.2.J, the proposed project would result in short-term construction and long-term pollutant emissions that are less than the emissions thresholds established by the CEQA significant emissions thresholds established by SCAQMD; therefore, the proposed project would not increase the frequency or severity of any air quality standard violation or cause a new air quality standard violation.

The proposed project would require the approval of a Specific Plan Amendment to allow residential uses on the project site. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for amended Specific Plans. The 2016 AQMP was prepared to accommodate growth and to reduce the high levels of pollutants within the areas under the jurisdiction of the SCAQMD. Projects that are considered to be consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the 2016 AQMP. According to SCAG's 2016–2040 Final RTP/SCS, Orange County's population, households, and employment are forecast to increase by approximately 190,000 residents, 77,000 households, and 169,000 jobs, respectively, between 2020 and 2040.[1]

The proposed project would result a net increase of 758 residents (0.4 percent of SCAG's projected population growth for the County from 2020 to 2040 of 190,400 residents) and 251 residential units (0.3 percent of SCAG's projected household growth for the County from 2020 to 2040 of 77,600 households). The proposed project would not conflict with the 2016 AQMP and, as such, would not jeopardize attainment of the CAAQS and NAAQS in the area under the jurisdiction of the SCAQMD. The proposed project's 251 residential units would provide housing for the population growth within the City anticipated in the AQMP. As the proposed project would contribute to local population and employment growth and associated VMT that is not anticipated for the project site in the existing Specific Plan, the proposed project would be incorporated into the growth projections prepared for the next AQMP. The actual population growth in the County is lower than what was projected in the current AQMP, and therefore, it is unlikely that the additional units from the proposed project would interfere with SCAQMD's goals for improving air quality in the region. The increases in population and housing resulting from the proposed project are not considered significant because they would not represent a substantial increase in population growth (less than a 2 percent increase in the City's total population and less than a 0.03 percent increase in the County's total population). Furthermore, as discussed above, emissions generated by the proposed

[1] Southern California Association of Governments (SCAG). 2016. 2*016–2040 Final Regional Transportation Plan/Sustainable Communities Strategy.* Website: http://scagrtpscs.net/Documents/2016/final/f2016 RTPSCS. pdf (accessed December 17, 2019).

project would be below emissions thresholds established in SCAQMD's *Air Quality Significance Thresholds* and would result in less than significant air quality impacts.

Furthermore, the proposed project is consistent with the Air Quality Element of the City's General Plan because it, among other things, allows easy access to the commercial/retail land uses through its mixed-use design and the proximity of the residential and commercial uses; reduces vehicle emissions by increasing internal capture between residential and retail segments; complies with energy efficiency measures that promote conservation through Title 24; and complies with the adopted attainment standards for the SCAB.

Therefore, construction and operation of the proposed project would not have a significant short- or long-term impact on the region's ability to meet State and federal air quality standards. The proposed project would be consistent with the SCAQMD's AQMP and would not conflict with or obstruct implementation of the applicable air quality plan. No mitigation is required.

Threshold 4.2.2: 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?

Less Than Significant Impact. The SCAB is currently designated nonattainment for the federal and State standards for O_3 and $PM_{2.5}$. In addition, the SCAB is in nonattainment for the PM_{10} standard. The SCAB's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the SCAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is not necessary. The following analysis assesses the potential project-level air quality impacts associated with construction and operation of the proposed project.

Construction. During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by demolition, grading, paving, building, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, VOC, directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs such as diesel exhaust particulate matter.

Project construction activities would include demolition, site preparation, grading, building construction, architectural coating, and paving activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The SCAQMD has established Rule 403 (Fugitive Dust), which would require the Applicant/Developer to implement measures that would reduce the amount of particulate matter generated during the construction period.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, VOCs and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. These emissions would be temporary in nature and limited to the immediate area surrounding the construction site.

The tentative project construction schedule for the proposed residential, commercial, and retail development is 20 months. The project site is mostly flat and ready for site grading and construction. The proposed project would be developed in one phase with three sub-phases. Sub-Phase 1 would include the 20,800 sf of retail space, Sub-Phase 2 would include the 251 residential units, and Sub-Phase 3 would include a 120-room hotel and a 10-screen movie theater.

As specified in Regulatory Compliance Measures AQ-1 through AQ-4, construction of the proposed project would comply with SCAQMD standard conditions, including Rule 403 (Fugitive Dust) to control fugitive dust and Rule 1113 (Architectural Coatings) to control VOC emissions from paint. Compliance with SCAQMD standard conditions are regulatory requirements and were considered in the analysis of construction emissions.

The maximum daily emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$ that would result from construction of the proposed project are summarized in Table 4.2.G and compared to the SCAQMD regional significance thresholds. As shown in Table 4.2.G, construction emissions associated with the proposed project would not exceed the significance thresholds established by the SCAQMD for any of the criteria pollutants.

Table 4.2.G: Short-Term Regional Construction Emissions

Construction Sub-Phase	Total Regional Pollutant Emissions (lbs/day)							
	VOC	NO_X	CO	SO_X	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Project								
Demolition	3.72	44.97	24.78	0.07	4.50	1.70	0.79	1.58
Site Preparation	4.17	42.48	22.25	0.04	7.25	2.20	3.93	2.02
Grading	4.55	50.26	32.78	0.06	3.61	2.18	1.46	2.00
Building Construction	5.22	39.25	42.07	0.12	5.73	1.50	1.54	1.40
Paving	1.77	11.17	15.10	0.02	0.17	0.57	0.04	0.52
Architectural Coatings	62.98	1.65	4.88	0.01	0.98	0.09	0.26	0.09
Project Peak Daily Emissions	**62.98**	**50.26**	**42.07**	**0.12**	**9.45**		**5.95**	
SCAQMD Thresholds	**75.0**	**100.0**	**550.0**	**150.0**	**150.0**		**55.0**	
Would the Project exceed SCAQMD Thresholds?	**No**	**No**	**No**	**No**	**No**		**No**	

Source: LSA (January 2020).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOC = volatile organic compounds

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, as well as cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. The proposed project would be required to comply with SCAQMD Rule 403 to control fugitive dust (see Regulatory Compliance Measure AQ-1, below). Architectural coatings contain volatile organic compounds (VOCs) that are an ozone (O_3) precursor. Application of architectural coatings for the proposed peak construction day is estimated to result in a peak of 63 pounds per day (lbs/day) of VOCs. However, the VOC emissions associated with the project would not exceed the SCAQMD VOC threshold of 75 lbs/day and would not contribute to significant construction-related air quality impacts.

As discussed above, according to SCAQMD guidance, projects that exceed the significance thresholds are considered by SCAQMD to result in cumulatively considerable air quality impacts. Conversely, projects that do not exceed the significance thresholds are generally not considered to result in cumulatively considerable air quality impacts. Therefore, based on the fact that emissions during construction of the proposed project would not exceed any of the air quality significance thresholds for any criteria pollutants, the proposed project would not have a cumulatively considerable air quality impact. Therefore, with compliance with regulatory requirements (as specified in Regulatory Compliance Measures AQ-1 through AQ-4), construction impacts related to the cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under applicable NAAQS or CAAQS would be less than significant, and no mitigation is required.

Operation. Long-term air pollutant emission impacts are those associated with the project's stationary sources and mobile sources. The proposed project would result in increases in both stationary and mobile-source emissions compared to existing conditions. Emission modeling conducted for the proposed project reflects compliance with SCAQMD Rule 445 and assumes there would be no woodstoves and any fireplaces would be gas powered. The modeling incorporates project design features such as photovoltaic energy for 30 percent of project power needs, use of energy efficient appliances, and water-efficient features. Project operations would result in VOC, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$ emissions from three primary sources: area source emissions, energy source emissions, and mobile source emissions, as described further below.

Area source emissions would be generated from the following sources:

- **Architectural Coating**: Over a period of time, the buildings that are part of the proposed project would generate emissions from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings used during maintenance activities.

- **Consumer Products**: Consumer products include but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. When released in the atmosphere, many of these products contain organic compounds that can react to form O_3 and other photochemically reactive pollutants.

- **Landscape Maintenance Equipment**: Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers used to maintain landscaping.

Energy source emissions include criteria pollutant emissions from the generation of electricity and consumption of natural gas. As specified in Regulatory Compliance Measure AQ-5, the project building components (e.g., windows, roof systems, electrical and lighting systems, and heating, ventilation, and air conditioning systems) would be designed in compliance with the 2019 Title 24 standards. Title 24 requires projects to implement energy efficiency measures that promote conservation. The 2019 Title 24 standards anticipate 30 percent less energy use for non-residential buildings and 53 percent less energy use for residential use due to lighting upgrades.

Project vehicle trips to and from the project site would generate mobile source emissions. Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust and tire wear particulates. Mobile source emissions are dependent on both overall daily vehicle trip generation and the effect of the project on peak-hour traffic volumes and traffic operations in the vicinity of the project site. The project-related operational air quality emissions are primarily due to vehicle trips. According to the *Cypress City Center Traffic Impact Analysis* (LSA 2019), the proposed project is anticipated to generate a total of 4,978 average daily trips (ADT), with 164 a.m. peak-hour trips and 147 p.m. peak-hour trips.

The long-term operational emissions associated with the proposed project are shown in Table 4.2.H.

Table 4.2.H: Opening Year Regional Operational Emissions

Source	Pollutant Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Project						
Area	11.18	0.24	20.85	<0.01	0.12	0.12
Energy	0.28	2.49	1.79	0.02	0.19	0.19
Mobile	7.69	38.34	89.48	0.33	26.80	7.34
Total Project Emissions	**19.15**	**41.07**	**112.12**	**0.35**	**27.10**	**7.65**
SCAQMD Thresholds	**55.00**	**55.00**	**550.00**	**150.00**	**150.00**	**55.00**
Would the Project exceed SCAQMD Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (January 2020).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOC = volatile organic compounds

As shown in Table 4.2.H, project-related increases of all criteria pollutants would not exceed the corresponding SCAQMD daily emission thresholds for any criteria pollutants under project operation. In addition, the project would not result in a cumulatively considerable increase in emissions due to operation-related emissions. Therefore, operation of the proposed project would not violate any air quality standard or substantially contribute to an existing or projected air quality violation.

CO Hot Spot. CO hot spots are caused by vehicular emissions, primarily when idling at congested intersections. Based on the analysis presented below, a CO "hot-spot" analysis is not needed to determine whether a change in the level of service (LOS) of an intersection in the vicinity of the project site would have the potential to result in exceedance of either the CAAQS or NAAQS.

Vehicle emissions standards have become increasingly stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment. In addition, CO concentrations in the vicinity of the project site have steadily declined.

The analysis prepared for CO attainment in the SCAB by SCAQMD can be used to assist in evaluating the potential for CO exceedances in the SCAB. To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot-spot" analysis was conducted by SCAQMD in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. This analysis did not predict any violation of CO standards. Based on the SCAQMD 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak CO concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. Even if the traffic volumes of the proposed project were double or triple that of the

traffic volumes generated at the four busy intersections in Los Angeles, coupled with the ongoing improvements in ambient air quality, the project would not be capable of resulting in a CO "hot spot" at any study area intersections. Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour (vph)—or 24,000 vph where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

According to the project's December 2019 *Traffic Impact Analysis*, the proposed project is anticipated to generate 4,978 ADT. Since the proposed project would not increase traffic volumes at any intersection to more than 100,000 vehicles per day (the volumes at the busiest intersection evaluated in SCAQMD's hot spot analysis), there is no likelihood of the project traffic exceeding CO values. Because the proposed project would not produce the volume of traffic required to generate a CO "hot spot," and due to the lack of traffic impacts and extremely low level of CO at surrounding intersections, CO emissions from operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. Impacts related to CO hot spots would be less than significant, and no mitigation is required.

Threshold 4.2.3: Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Project construction and operation emissions were compared to the LST screening tables in SRA 17, based on a 350 ft source-receptor distance and a 1.5-acre size for construction emissions and 5-acre project size for operational emissions. The results of the LST analysis, summarized in Table 4.2.I and Table 4.2.J, indicate that the project would not result in an exceedance of SCAQMD LST during project construction or operation.

Table 4.2.I: Construction Localized Impacts Analysis

Emissions Sources	Pollutant Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site Emissions	50.2	32.0	9.2	5.9
LST Thresholds	**113.1**	**1,408.3**	**33.7**	**10.9**
Exceeds LSTs?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (January 2020).
Note: Source Receptor Area – Central Orange County, 1.5 acres, receptors at 25 meters
CO = carbon monoxide
lbs/day = pounds per day
LST = local significance threshold
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Table 4.2.J: Long-Term Operational Localized Impacts Analysis

Emissions Sources	Pollutant Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site Emissions	2.2	25.3	1.5	0.5
LST Thresholds	**181.5**	**2,599.5**	**14.5**	**4.3**
Exceeds LSTs?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (January 2020).
Note: Source Receptor Area – Central Orange County, 5 acres, receptors at 350 ft, on-site traffic 5 percent of total.
CO = carbon monoxide
ft = foot/feet
lbs/day = pounds per day
LST = localized significance thresholds
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Construction. Construction activities would result in localized exhaust emissions that have the potential to affect nearby sensitive receptors. In order to identify impacts to sensitive receptors, the SCAQMD recommends analyzing LSTs for construction. As discussed previously, sensitive receptors near the project site include existing single- and multi-family residential homes located approximately 350 ft south of the project site. Table 4.2.I shows that the localized construction emissions would not exceed the LSTs that apply to the project site. As shown in Table 4.2.I, construction emissions associated with the proposed project would not exceed the LSTs established by SCAQMD. Further, as specified in Regulatory Compliance Measure AQ-2 construction of the proposed project would comply with SCAQMD standard conditions, including Rule 403 (Fugitive Dust) to control fugitive dust. Compliance with SCAQMD standard conditions are regulatory requirements and were considered in the analysis of construction emissions. Because the project would not exceed the LSTs with compliance with regulatory requirements (and would be further reduced with implementation of Regulatory Compliance Measures AQ-1 through AQ-4), impacts related to exposure of sensitive receptors to substantial pollutant concentrations during project construction would be less than significant. No mitigation is required.

Operation. A project would generate localized exhaust emissions that have the potential to affect nearby sensitive receivers if the project includes stationary sources, or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., warehouse or transfer facilities). As such, operational LSTs are not applicable to the proposed project. Although the proposed project does not include such uses, impacts associated with the operational localized emissions have been analyzed for disclosure purposes. Operational LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$.

Screening-level analysis of LST is recommended for operational activities at the project site only. Off-site vehicle trips are not included in the LST analysis. The CalEEMod model includes all operational emission for both on- and off-site. For a worst-case scenario assessment, the LST emissions shown in Table 4.2.J include all on-site project-related stationary and area sources and 5 percent of the project-related mobile sources, which is an estimate of the amount of project-related vehicle traffic that would occur on site. As shown in Appendix B, a total of 5 percent is considered conservative because 95 percent of the project-related vehicle trips would occur off site.

As discussed previously, sensitive receptors near the project site include existing single- and multi-family residential homes located approximately 350 ft south of the project site, and LSTs for receptors located at 107 meters were used in this analysis.

Table 4.2.J shows the maximum daily emissions for the project's operational activities compared with the SCAQMD LSTs for NO_X, CO, PM_{10}, and $PM_{2.5}$.

As shown in Table 4.2.J, project operational source emissions would not exceed LSTs established by the SCAQMD. Therefore, because the project would not exceed the LSTs established by the SCAQMD, localized emissions from operation of the proposed project would not expose any sensitive receptors to substantial pollutant concentrations, impacts would be less than significant, and no mitigation is required.

Threshold 4.2.4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact.

Construction. Heavy-duty equipment on the project site during construction would emit odors, primarily from equipment exhaust. However, the construction activity would cease to occur after individual construction is completed. No other sources of objectionable odors would occur during construction of the proposed project, and no mitigation measures are required.

Operation. SCAQMD Rule 402 regarding nuisances states: "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."

Potential airborne odors could result from cooking activities associated with new restaurants and trash receptacles. These odors would be confined to the immediate vicinity of the project site and minimized by SCAQMD odor regulations and lids on trash receptacles. The proposed uses are not anticipated to emit any other types of objectionable odors. Therefore, operation of the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people, and this impact would be less than significant. No mitigation is required.

4.2.6 Level of Significance Prior to Mitigation

Prior to mitigation, the proposed project would result in less than significant impacts. However, the following regulatory compliance measures are existing SCAQMD regulations that are applicable to the proposed project and are considered in the analysis of potential impacts related to air quality. The City of Cypress considers these requirements to be mandatory; therefore, they are not mitigation measures.

4.2.7 Regulatory Compliance Measures and Mitigation Measures

4.2.7.1 Regulatory Compliance Measures

The following Regulatory Compliance Measures pertaining to air quality are applicable to the proposed project.

Regulatory Compliance Measure AQ-1 **SCAQMD Rule 403.** During clearing, grading, earth moving, or excavation operations, excessive fugitive dust emissions shall be controlled by regular watering or other dust preventative measures by using the following procedures, in compliance with South Coast Air Quality Management District (SCAQMD) Rule 403 during construction.

- All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering shall occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day.
- All material transported on-site or off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized so as to prevent excessive amounts of dust.
- These control techniques shall be indicated in project specifications. Compliance with this measure shall be subject to periodic site inspections by the City of Cypress (City).
- Visible dust beyond the property line emanating from the project shall be prevented to the maximum extent feasible.

Regulatory Compliance Measure AQ-2 All trucks that are to haul excavated or graded material shall comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads.

Regulatory Compliance Measure AQ-3 Prior to approval of the project plans and specifications, the City of Cypress Director of Community Development, or designee, shall confirm that the construction bid packages specify:

- Contractors shall use high-pressure-low-volume paint applicators with a minimum transfer efficiency of at least 50 percent;
- Coatings and solvents that will be utilized have a volatile organic compound content lower than required under SCAQMD Rule 1113; and
- To the extent feasible, construction/building materials shall be composed of pre-painted materials.

Regulatory Compliance Measure AQ-4 The project shall comply with SCAQMD Rule 402.

Regulatory Compliance Measure AQ-5 The project shall meet the Statewide 2019 Building Energy Efficiency Standards, formally known as Title 24, Part 6.

4.2.7.2 Mitigation Measures

No mitigation is required for the proposed project.

4.2.8 Level of Significance after Mitigation

Implementation of Regulatory Compliance Measures AQ-1 through AQ-5 would further reduce project-related air quality impacts to a less than significant level. No significant and unavoidable impacts related to air quality would occur with implementation of these standard measures. All anticipated impacts related to air quality would be considered less than significant and no mitigation is required.

4.2.9 Cumulative Impacts

As defined in Section 15130 of the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for air quality. The cumulative impact area for air quality related to the proposed project is the SCAB.

Air pollution is inherently a cumulative type of impact measured across an air basin. The discussion under Threshold 4.2.2, above, includes an analysis of the proposed project's contribution to cumulative air impacts. To summarize the conclusion with respect to that analysis, the incremental effect of projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively considerable. The proposed project's construction- and operation-related regional daily emissions are less than the SCAQMD significance thresholds for all criteria pollutants. In addition, adherence to SCAQMD rules and regulations on a project-by-project basis would substantially reduce potential impacts associated with the related projects and basin-wide air pollutant emissions. Therefore, the proposed project would not have a cumulatively considerable increase in emissions and the proposed project's cumulative air quality impacts would be less than significant.