4.2 AIR QUALITY

This section evaluates short-term (construction) and long-term (operational) impacts to air quality that would potentially occur as a result of implementation of the proposed Cypress College Facilities Master Plan (proposed project). Applicable laws, regulations, standards and enumerated thresholds established by the South Coast Air Quality Management District (SCAQMD), the California Air Resources Board (CARB), and the U.S. Environmental Protection Agency (EPA) are provided in Section 4.2.1, Existing Conditions, and Section 4.2.3, Thresholds of Significance. Relevant plans, policies, and ordinances are provided in Section 4.2.2. Emissions associated with the proposed project were calculated using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2 (available online at www.caleemod.com) and are discussed in Section 4.2.4, Impacts Analysis. Emission calculations and model outputs can be found in Appendix B.

No comments related to air quality were received in response to the Notice of Preparation.

4.2.1 Existing Conditions

The proposed project is located within the South Coast Air Basin (SCAB). The SCAB is characterized as having a Mediterranean climate (typified as semiarid with mild winters, warm summers, and moderate rainfall). The SCAB is a 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. It includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SCAB is a function of the area’s natural physical characteristics (e.g., weather and topography), as well as man-made influences (e.g., development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the SCAB.

4.2.1.1 Sensitive Receptors

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the SCAB, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts on those persons termed sensitive receptors are the most serious hazards that can result from changes in existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 2016a).

4.2.1.2 Pollutants and Effects

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive people from illness or discomfort. Pollutants of concern include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter equal to or less than 10 microns (coarse particulate matter; PM_{10}), particulate matter with an aerodynamic diameter equal to or less than 2.5 microns (fine particulate matter; $PM_{2.5}$), and lead (Pb). These pollutants are discussed below.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a colorless gas that is formed in the atmosphere when volatile organic compounds (VOCs), sometimes referred to as reactive organic gases, and oxides of nitrogen (NO_x) react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of VOCs and NO_x, the precursors of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

Nitrogen Dioxide. Most NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_x and are major contributors to O_3 formation. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the

[1] The following descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on the EPA's Six Common Air Pollutants (EPA 2016a) and the California Air Resources Board's Glossary of Air Pollutant Terms (CARB 2016a) published information.

atmosphere, with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis, and some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million by volume (ppm).

Carbon Monoxide. CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits placed on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Fine particulate matter, or $PM_{2.5}$, is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs. Inhalable or coarse particulate matter, or PM_{10}, is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport absorbed gases, such as chlorides or ammonium, into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as producing haze and reducing regional visibility.

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phase-out of leaded gasoline, secondary lead smelters and battery recycling and manufacturing facilities are becoming lead-emission sources of greater concern.

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

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC). Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced either on short-term (acute) or long-term (chronic) exposure to a given TAC.

4.2.1.3 Climate and Meteorology

Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the SCAB, averaging 75 degrees Fahrenheit (°F). However, with a less pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have recorded temperatures over 100°F in recent years. January is usually the coldest month at all locations, while July and August are usually the hottest months of the year. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the SCAB. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail, due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the SCAB. More specifically, the City of Cypress (City) enjoys a mild climate. The greatest precipitation in this area occurs in January and February, with an average maximum precipitation of 3.3 inches. The coolest months of the year are typically December and January, with a minimum temperature of 46°F. The warmest months are typically August and September, with a maximum temperature of 85°F (City-Data 2016).

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain primary pollutants (mainly VOCs and NO_x) react to form secondary pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind of the emission sources. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air would be mixed and dispersed into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlying cool, moist marine air, is a normal condition in coastal Southern California. The cool, damp, hazy sea air capped by coastal clouds is heavier than the warm, clear air above it, which acts as a lid through which the marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above mean sea level (amsl), the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet amsl, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet amsl, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal

SCAB. Usually, inversions are lower before sunrise than during the daylight hours. Mixing heights for inversions are lower in the summer and are more persistent, being partly responsible for the high levels of O_3 observed during summer months in the SCAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting in the presence of sunlight. The SCAB has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

The SCAB is susceptible to air inversions. This traps a layer of stagnant air near the ground, where pollutants are further concentrated. These inversions produce haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

4.2.1.4 Existing Emissions

Emissions generated during operation of existing buildings and facilities on campus were estimated to provide a baseline for comparison to projected operational emissions generated by buildout of buildings and facilities in the proposed project. Year 2015 was used to represent existing conditions.[2] Operation of the project would produce VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from area sources, energy sources, and mobile sources. Area sources include the use of consumer products, architectural coatings, and landscaping equipment. Energy sources include emissions associated with natural gas consumption. Mobile sources include emissions associated with motor vehicle trips to project land uses. The existing operation of the campus generates air emissions primarily through vehicular traffic generated by students, faculty, staff, employees, and visitors to the campus.

Emissions associated with existing daily traffic were modeled using weekday trip-generation rates, which were calculated using the project traffic generation values provided in the traffic impact analysis report. CalEEMod default Saturday and Sunday trip-generation rates were adjusted based on weekday trip-generation rates per land use type, as weekend trip-generation rates were not provided in the traffic impact analysis report. CalEEMod default data for temperature, variable start information, and emission factors were conservatively used for the model inputs. Project-related traffic was assumed to consist of a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2015 emission factors were used to represent existing conditions.

In addition to estimating mobile source emissions, CalEEMod was also used to estimate emissions from the project area sources, which include gasoline-powered landscape maintenance equipment, consumer products, and architectural coatings for the maintenance of buildings. The estimated

[2] Most of the existing data for the campus reflect conditions in the 2014 to 2016 time frame. Year 2015 was selected for purposes of the baseline analysis.

existing operational emissions were based on existing land use defaults and total area (i.e., square footage) of buildings and facilities that were in operation in 2015. Existing development of academic, general administrative, auxiliary, and recreational land uses on the campus totals 847,019 gross square feet (GSF) and 4,306 parking lot spaces. Default values provided by CalEEMod were changed for the VOC content of architectural coatings. The interior non-residential architectural coating VOC content was changed to 50 grams per liter (g/L) from the default value of 250 g/L in CalEEMod based on compliance with SCAQMD Rule 1113 and use of low-VOC flat coatings.

Emissions from energy sources, which include natural gas appliances and space and water heating, were also estimated using CalEEMod. Default values for indoor and outdoor water use were changed to 18,150,720 and 42,335,255 gallons per year, respectively, based on water consumption from November 2014 through October 2015. Solid waste generation rates were changed to 2,368 tons per year based on generation rates for the year 2015. Natural gas consumption defaults were also revised through Title 24 and non-Title 24 natural gas energy intensities to values of 37.37 and 18.28 thousand British thermal units per 1,000 square feet per year, respectively, to reflect Cypress College's natural gas consumption for 2014–2015 fiscal year.

Table 4.2-1, Existing Conditions 2015 Estimated Maximum Daily Operational Emissions, presents the maximum daily emissions associated with the operation of the existing Cypress College buildings and facilities. The values shown are the maximum summer or winter daily emissions results from CalEEMod. Details of the emission calculations are provided in Appendix B.

Table 4.2-1
Existing Conditions 2015 Estimated Maximum Daily Operational Emissions (unmitigated)

Emission Source	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
Area	56.39	0.01	0.54	<0.01	<0.01	<0.01
Energy	1.39	12.66	10.64	0.08	0.96	0.96
Mobile	99.80	232.67	1,066.04	2.45	178.82	49.73
Total Emissions	**157.58**	**245.34**	**1,077.22**	**2.53**	**179.78**	**50.69**

Notes: See Appendix B for complete results.
VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

4.2.2 Relevant Plans, Policies, and Ordinances

Regulatory oversight for air quality in the SCAB is maintained by CARB at the state level, and by the SCAQMD at the local level. Applicable laws, regulations, and standards of these three agencies are described in the following subsections.

Federal

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including National Ambient Air Quality Standards (federal standards) for major air pollutants, hazardous air pollutant standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions. Federal standards are established for "criteria pollutants" under the Clean Air Act, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The federal standards describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The federal standards (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. Federal standards for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the federal standards at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the federal standards must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the federal standards to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels.

State

CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (state standards), which are generally more restrictive than the federal standards. The state standards describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. The state standards for O_3, CO, SO_2 (1 hour and 24 hours), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The federal and state standards are presented in Table 4.2-2, Ambient Air Quality Standards.

Table 4.2-2
Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[a]	Federal Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3[f]	1 hour	0.09 ppm (180 μg/m^3)	—	Same as primary standard
	8 hours	0.070 ppm (137 μg/m^3)	0.070 ppm (137 μg/m^3)	
CO	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	
NO_2	1 hour	0.18 ppm (339 μg/m^3)	0.100 ppm (188 μg/m^3)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)	
SO_2	1 hour	0.25 ppm (655 μg/m^3)	0.75 ppm (196 μg/m^3)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m^3)
	24 hours	0.04 ppm (105 μg/m^3)	—	—
PM_{10}[g]	24 hours	50 μg/m^3	150 μg/m^3	Same as primary standard
	Annual arithmetic mean	20 μg/m^3	—	
$PM_{2.5}$[g]	24 hours	No separate state standard	35 μg/m^3	Same as primary standard
	Annual arithmetic mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
Lead[h]	30-day average	1.5 μg/m^3	—	—
	Calendar quarter	—	1.5 μg/m^3	Same as primary standard
	Rolling 3-month average	—	0.15 μg/m^3	
Hydrogen sulfide	1 hour	0.03 ppm	—	—
Vinyl chloride[g]	24 hours	0.01 ppm	—	—
Sulfates	24 hours	25 μg/m3	—	—
Visibility-reducing particles	8 hours (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	—

Source: CARB 2016b.

Notes: O_3 = ozone; ppm = parts per million by volume; μg/m^3 = micrograms per cubic meter; CO = carbon monoxide; mg/m^3 = milligrams per cubic meter; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; PST = Pacific Standard Time.

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

b Federal standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth-highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For NO_2 and SO_2, the standard is attained when the 3-year average of the 98th and 99th percentile, respectively, of the daily maximum 1-hour average at each monitoring station within an area does not exceed the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

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

[d] Federal primary standards: The levels of air quality necessary with an adequate margin of safety to protect the public health.
[e] Federal secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Local

South Coast Air Quality Management District

Air Quality Management Plan

The SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the proposed project is located. The SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD's air quality management plans (AQMPs) include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The most recent AQMP was adopted by the SCAQMD governing board on February 1, 2013 (SCAQMD 2013). The previous AQMP, adopted in 2007 (SCAQMD 2007), was prepared by SCAQMD and the Southern California Association of Governments (SCAG). The 2007 AQMP proposed policies and measures to achieve federal and state standards for improved air quality in the SCAB and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under SCAQMD jurisdiction. The 2007 AQMP incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. As part of the 2007 AQMP, the SCAQMD requested that the EPA "bump up" the O_3 nonattainment status from severe to extreme to allow additional time for the SCAB to achieve attainment of the federal standard. The additional time would provide for implementation of state and federal measures that apply to sources over which the SCAQMD does not have control. The 2007 AQMP was approved by CARB; however, on November 22, 2010, the EPA issued a proposed rule to approve in part and disapprove in part the portions related to attainment of the federal $PM_{2.5}$ standards. The EPA, however, approved the redesignation of the SCAB to an extreme O_3 nonattainment area, effective June 4, 2010.

The 2012 AQMP incorporates new scientific data and updated emission inventory methodologies and planning assumptions, including the 2012 *Regional Transportation Plan/ Sustainable Communities Strategy* (RTP/SCS). The 2012 AQMP includes the new federal requirements and develops compliance approaches (SCAQMD 2013).

On June 30, 2016, the SCAQMD released the draft 2016 AQMP for public review. The draft 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air. The draft 2016 AQMP represents a new approach, focusing on available, proven, and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2016b). Because mobile sources are the principal contributor to the SCAB's air quality challenges, the SCAQMD has been and will continue to be closely engaged with CARB and the EPA, who have primary responsibility for these sources. The draft 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality but also local businesses and the regional economy. These "win-win" scenarios are key to implementation of this draft 2016 AQMP with broad support from a wide range of stakeholders. Because the 2016 AQMP is in draft form, the current approved SCAQMD AQMP is the 2012 AQMP.

On April 7, 2016, SCAG's Regional Council adopted the 2016–2040 RTP/SCS (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The SCAQMD draft 2016 AQMP applies the updated SCAG growth forecasts assumed in the 2016 RTP/SCS; however, as explained previously, the current applicable air quality plan is the SCAQMD 2012 AQMP, which is based on the SCAG 2012 RTP/SCS.

Applicable Rules

Emissions that would result from stationary and area sources during operation under the proposed master plan revision may be subject to SCAQMD rules and regulations. The SCAQMD rules applicable to the proposed project may include the following:

- **Rule 401 – Visible Emissions.** This rule establishes the limit for visible emissions from stationary sources. This rule prohibits visible emissions as dark as or darker than Ringelmann No. 1 for periods greater than 3 minutes in any hour.
- **Rule 402 – Nuisance.** This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403 – Fugitive Dust.** This rule requires fugitive dust sources to implement best available control measures for all sources to ensure all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.

Local Ambient Air Quality

Pursuant to the 1990 federal Clean Air Act Amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 3 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS.

The entire SCAB is designated as a nonattainment area for both federal and state O_3 standards. The EPA has classified the SCAB as an extreme nonattainment area and has mandated that it achieve attainment no later than June 15, 2024. The SCAB is designated as an attainment area for state and federal CO standards. The SCAB is designated as an attainment area under the state and federal standards for NO_2. The entire basin is in attainment with both federal and state SO_2 standards. The SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard (for southern Los Angeles County only), and the SCAB is designated in attainment for the state lead standard. The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal standards. In regard to $PM_{2.5}$ attainment status, the SCAB is designated as a nonattainment area by CARB and the EPA. The attainment classifications for the criteria pollutants are outlined in Table 4.2-3.

Table 4.2-3
South Coast Air Basin Attainment Classification

Pollutant	Averaging Time	Designation/Classification
Federal Standards		
O_3	8 hours	Nonattainment/extreme
NO_2	1 hour Annual arithmetic mean	Unclassifiable/attainment Attainment (maintenance)
CO	1 hour; 8 hours	Attainment (maintenance)
SO_2	24 hours; annual arithmetic mean	Unclassifiable/attainment
PM_{10}	24 hours	Attainment (maintenance)

Table 4.2-3
South Coast Air Basin Attainment Classification

Pollutant	Averaging Time	Designation/Classification
$PM_{2.5}$	24 hours Annual arithmetic mean	Nonattainment/serious Nonattainment/moderate
Pb	Quarter 3-month average	Unclassifiable/attainment (southern Los Angeles County) Nonattainment (southern Los Angeles County)
State Standards		
O_3	1 hour; 8 hours	Nonattainment
NO_2	1 hour; annual arithmetic mean	Attainment
CO	1 hour; 8 hours	Attainment
SO_2	1 hour; 24 hours	Attainment
PM_{10}	24 hours; annual arithmetic mean	Nonattainment
$PM_{2.5}$	Annual arithmetic mean	Nonattainment
Pb[a]	30-day average	Attainment
Sulfates (SO_4)	24 hours	Attainment
Hydrogen sulfide (H_2S)	1 hour	Unclassified
Vinyl chloride[a]	24 hours	No designation
Visibility-reducing particles	8 hours (10:00 a.m.–6:00 p.m.)	Unclassified

Sources: EPA 2016b (federal); CARB 2016c (state).
Notes: O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; Pb = lead.
[a] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined.

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. The project site's local ambient air quality is monitored by the SCAQMD. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The Anaheim Monitoring Station, located at 1630 West Pampas Lane in the City of Anaheim, is the nearest air-monitoring station to the project area. The data collected at this station are considered representative of the air quality experienced in the project vicinity. Air quality data from 2013 through 2015 for the Anaheim Monitoring Station are provided in Table 4.2-4, Ambient Air Quality Data. Because SO_2 levels were not monitored at the Anaheim Monitoring Station, measurements were taken from the Costa Mesa Monitoring Station.

Table 4.2-4
Ambient Air Quality Data

Pollutant	Averaging Time	2013	2014	2015	Most Stringent Ambient Air Quality Standard	Monitoring Station
O_3	1 hour	0.084 ppm	0.111 ppm	0.100 ppm	0.09 ppm	Anaheim[a]
	State exceedances	*0*	*2*	*1*		
	8 hours	0.070 ppm	0.082 ppm	0.081 ppm	0.070 ppm	
	Federal exceedances	*0*	*4*	*1*		
	State exceedances	*0*	*6*	*1*		
PM_{10}	24 hours	77.0 $\mu g/m^3$	84.0 $\mu g/m^3$	59.0 $\mu g/m^3$	50 $\mu g/m^3$	Anaheim[a]
	Federal exceedances	*0*	*0*	*0*		
	State exceedances	*5.7*	*12.0*	*12.1*		
	Annual	25.2 $\mu g/m^3$	26.7 $\mu g/m^3$	25.3 $\mu g/m^3$	20 $\mu g/m^3$	
$PM_{2.5}$	24 hours	37.8 $\mu g/m^3$	45.0 $\mu g/m^3$	45.8 $\mu g/m^3$	35 $\mu g/m^3$	Anaheim[a]
	Federal exceedances	*1.1*	*N/A*	*N/A*		
	Annual	10.0 $\mu g/m^3$	N/A	N/A	12 $\mu g/m^3$	
NO_2	1 hour	0.082 ppm	0.076 ppm	0.059 ppm	0.100 ppm	Anaheim[a]
	Annual	N/A	N/A	0.014 ppm	0.030 ppm	
CO	1 hour	3.4 ppm	3.1 ppm	3.1 ppm	20 ppm	Anaheim[a]
	8 hours	2.6 ppm	2.1 ppm	2.2 ppm	9.0 ppm	
SO_2	1 hour	0.004 ppm	0.009 ppm	0.005 ppm	0.25 ppm	Costa Mesa[b]
	24 hours	0.001 ppm	0.001 ppm	0.001 ppm	0.040 ppm	

Sources: CARB 2016d; EPA 2016c.

Notes: Data were taken from CARB iADAM (2016; http://www.arb.ca.gov/adam) or EPA AirData (2016; http://www.epa.gov/airdata/) and represent the highest concentrations experienced over a given year. Exceedances of federal and state standards are only shown for ozone and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed either federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour $S0_2$, nor is there a state 24-hour standard for $PM_{2.5}$.

ppm = parts per million; O_3 = ozone; PM_{10} = coarse particulate matter; $\mu g/m^3$ = micrograms per cubic meter; $PM_{2.5}$ = fine particulate matter; NO_2 = nitrogen dioxide; N/A = not applicable; CO = carbon monoxide; SO_2 = sulfur dioxide.

[a] Anaheim Monitoring Station is at 1630 West Pampas Lane, Anaheim, California 92802.

[b] Costa Mesa Monitoring Station is at 2850 Mesa Verde Drive East, Costa Mesa, California 92626.

4.2.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to air quality are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). According to Appendix G of the CEQA Guidelines, a significant impact related to air quality would occur if the project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.

2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
3. Result in a cumulatively considerable new increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold emissions which exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people.

No topics related to air quality were eliminated in the Initial Study for the proposed project; therefore, all topics are covered in the impacts analysis.

In addition, Appendix G of the CEQA Guidelines indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the proposed project would have a significant impact on air quality. The SCAQMD *CEQA Air Quality Handbook* (SCAQMD 2016a) sets forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4.2-5 are exceeded. A project would result in a substantial contribution to an existing air quality violation of the federal or state standards for O_3 (see Table 4.2-3), which is a nonattainment pollutant, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 4.2-5. These emission-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly (see the previous discussion of O_3 and its sources), and the effects of an individual project's emissions of O_3 precursors (VOCs and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table 4.2-5
SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (pounds per day)*	*Operation (pounds per day)*
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150

Table 4.2-5
SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (pounds per day)*	*Operation (pounds per day)*
$PM_{2.5}$	55	55
Lead[a]	3	3
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥10 in 1 million Chronic and acute hazard index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants[c]		
NO_2 1-hour average NO_2 annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.030 ppm (state) and 0.0534 ppm (federal)	
CO 1-hour average CO 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
PM_{10} 24-hour average PM_{10} annual average	10.4 $\mu g/m^3$ (construction)[d] 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$	
$PM_{2.5}$ 24-hour average	10.4 $\mu g/m^3$ (construction)[d] 2.5 $\mu g/m^3$ (operation)	

Source: SCAQMD 2015a.
Notes: Greenhouse gas thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included in Table 4.2-4 as they will be addressed within the greenhouse gas emissions analysis and not the air quality study.
SCAQMD = South Coast Air Quality Management District; VOC = volatile organic compounds; lb/day = pounds per day; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; NO_2 = nitrogen dioxide; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
a The phase-out of leaded gasoline started in 1976. Since gasoline no longer contains lead, the proposed project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.
b TACs include carcinogens and non-carcinogens.
c Ambient air quality standards for criteria pollutants based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.
d Ambient air quality threshold based on SCAQMD Rule 403.

In addition to the emission-based thresholds in Table 4.2-5, the SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of construction activities. The significance thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, while the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The significance threshold for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. For project sites of 5 acres or less, SCAQMD *Final Localized Significance Threshold Methodology*

(LST Methodology; SCAQMD 2008) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling. The allowable emission rates depend on the following parameters:

a. Source–Receptor Area in which the project is located

b. Size of the project site

c. Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals)

The project site is located in Source–Receptor Area 17 (Central Orange County). Campus building projects would be located near sensitive receptors. Of the proposed project components, two were analyzed because construction of these facilities could occur relatively close to sensitive receptors: the parking structure and Technical Education buildings 1, 2, and 3. The values from the SCAQMD lookup tables for Source–Receptor Area 17 for project sites of 1, 2, and 5 acres and the closest distances (25, 50, 100, 200, and 500 meters (approximately 80, 160, 330, 660, and 1,640 feet)) are shown in Table 4.2-6.

Table 4.2-6
LSTs for Source–Receptor Area 17

Pollutant	Thresholds (pounds per day)														
	1 Acre					*2 Acres*					*5 Acres*				
	25 meters	*50 meters*	*100 meters*	*200 meters*	*500 meters*	*25 meters*	*50 meters*	*100 meters*	*200 meters*	*500 meters*	*25 meters*	*50 meters*	*100 meters*	*200 meters*	*500 meters*
NO_2	81	83	98	123	192	115	114	125	148	205	183	167	180	202	245
CO	485	753	1,128	2,109	6,841	715	1,041	1,547	2,685	7,493	1,253	1,734	2,498	4,018	9,336
PM_{10}	4	12	28	60	158	6	19	35	68	166	13	39	55	88	188
$PM_{2.5}$	3	4	9	22	85	4	6	11	25	92	7	9	15	32	109

Source: SCAQMD 2008, Appendix C.
Notes: Localized significance thresholds are shown for 1-, 2-, and 5-acre project sites corresponding to a distance to a sensitive receptor of 25, 50, 100, 200, and 500 meters.
LST = localized significance threshold; NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

4.2.4 Impacts Analysis

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

As previously discussed, Cypress College is located within the SCAB under the jurisdiction of the SCAQMD, which is the local agency responsible for administration and enforcement of air quality regulations for the area. The SCAQMD has established criteria for determining consistency with the 2012 AQMP in Chapter 12, Sections 12.2 and 12.3 of the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993). The criteria are:

- **Consistency Criterion No. 1:** The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP.
- **Consistency Criterion No. 2:** The proposed project will not exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Consistency Criterion No. 1

Threshold 2 evaluates the project's potential impacts in regard to CEQA Guidelines Appendix G Threshold 2 (the project's potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation impact analysis). As discussed below, the project would not result in a significant and unavoidable impact associated with the violation of an air quality standard. Because the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, the project would not conflict with Consistency Criterion No. 1 of the SCAQMD *CEQA Air Quality Handbook*.

Consistency Criterion No. 2

While striving to achieve the federal standards for O_3 and $PM_{2.5}$ through a variety of air quality control measures, the 2012 AQMP also accommodates planned growth in the SCAB. Projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors (e.g., population, employment) is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD *CEQA Air Quality Handbook*). The future emissions forecasts are primarily based on demographic and economic growth projections provided by SCAG. Thus, demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by SCAG for their 2012–2035 RTP/SCS were used to estimate future emissions in the 2012 Final AQMP (SCAQMD 2013).

The proposed project would involve renovation and modernization of existing educational facilities on the Cypress College campus, as well as the construction of new educational facilities and demolition of existing facilities. The proposed project would not include the construction or development of housing facilities. However, the proposed project would involve an increase in student enrollment, which could result in an increase of students and employees living in the vicinity of the campus. Additionally, the proposed project would include the construction of an immersive digital classroom and viewing platform associated with the new Science, Engineering, and Mathematics (SEM) building, which could attract visitors to the campus.

As part of the 2012–2035 RTP/SCS, SCAG has prepared population projections for the region. Table 4.2-7 shows these projections from 2008 to 2035 for cities within the Cypress College service area. For the fall 2015 semester, the percentage of students per city of origin was determined by Cypress College for the entire service area, which is presented in Table 4.2-7. Assuming that the percentage of students per city of origin would not change during the Facilities Master Plan planning period, the projected number of students per city of origin during peak growth period is presented in Table 4.2-7 as a point of comparison of population growth per each city.

Table 4.2-7
Population Growth for Cities within the Cypress College Service Area and Projected Number of Students Per City of Origin

City	2008	2020	2035	Fall 2015 Percentage of Total Students Per City of Origin[a]	Projected Number of Students Per City of Origin During Peak Growth[b]
	students				
Anaheim	333,900	369,100	405,800	20.5	178
Buena Park	80,000	83,500	83,200	9.5	82
Cypress	47,800	50,300	51,400	7.1	62
Garden Grove	170,400	179,400	180,300	5.9	51
Long Beach	462,200	491,000	534,100	4.8	42
Fullerton	134,700	145,500	164,500	3.6	31
Norwalk	105,500	109,100	114,200	3.4	30
Stanton	38,100	40,800	43,400	3.2	28
Cerritos	49,000	49,400	49,800	3.1	27
Whittier	85,300	87,600	90,500	2.8	24
Lakewood	80,000	80,500	80,600	2.8	24
La Mirada	48,500	50,300	52,800	2.5	22
Downey	111,800	116,200	122,700	2.3	20
La Palma	15,500	15,600	15,600	1.9	16
Bellflower	76,600	76,600	81,300	1.8	16
La Habra	60,100	62,800	62,300	1.6	14
Los Alamitos	11,400	12,000	12,000	1.6	14
Westminster	89,700	92,900	92,600	1.5	13

Table 4.2-7
Population Growth for Cities within the Cypress College Service Area and Projected Number of Students Per City of Origin

City	2008	2020	2035	Fall 2015 Percentage of Total Students Per City of Origin[a]	Projected Number of Students Per City of Origin During Peak Growth[b]
	students				
Hawaiian Gardens	14,300	14,800	15,600	1	9
Paramount	54,100	57,100	62,600	0.9	8
Artesia	16,500	16,700	17,000	0.8	7
Santa Ana	323,900	337,600	336,700	0.7	6
Placentia	50,200	53,600	57,000	0.8	7
South Gate	94,400	101,200	110,000	0.7	6
Huntington Beach	189,700	199,800	205,500	0.7	6
Brea	39,200	48,300	49,800	0.7	6
Yorba Linda	63,500	69,700	69,400	0.6	5
Seal Beach	24,100	25,000	24,800	0.6	5
Lynwood	69,300	72,300	74,300	0.5	4
Bell Gardens	41,900	43,000	44,500	0.4	3
Fountain Valley	54,900	58,300	59,500	0.4	3
Pico Rivera	62,900	65,900	70,100	0.3	3
Santa Fe Springs	16,200	17,900	20,300	0.3	3
Orange	135,500	141,500	156,300	0.3	3
Hacienda Heights[c]	—	—	—	0.2	2
Chino Hills	74,600	76,600	78,400	0.2	2

Source: SCAG 2012; Rittel, pers. comm. 2016a.
Notes: — = not available
SCAG updated its growth projections as part of the 2016–2040 RTP/SCS. The current applicable air quality plan is the SCAQMD 2012 AQMP, which is based on the SCAG 2012-2035 RTP/SCS. In addition, the 2012–2035 RTP/SCS growth projections are generally lower than that of the 2016–2040 RTP/SCS growth projections. Therefore, the analysis presented herein is conservative because less growth is being assumed for each jurisdiction, which is being compared against campus growth.

[a] The fall 2015 percentage of total students per city of origin sums to 90% instead of 100% because the place of origin could not be determined for the entire student population.

[b] The projected number of students per city of origin during peak growth was determined by multiplying the percentages in fall 2015 percentage of total students per city of origin by the peak student growth (868 students) shown in SCAG 2012, Table 1.

[c] Hacienda Heights is a census-designated place; therefore, projections have not been determined by SCAG because SCAG determines population projections for cities and counties only.

As shown in Table 4.2-7, the projected number of students per city of origin would represent a small percentage of the population growth anticipated for each city. Therefore, projections are consistent with SCAG's growth projections for each city in Cypress College's service area, and impacts as a result of increased student headcount would not be substantial.

In addition to student growth, employee growth is anticipated upon buildout of the proposed project. Table 4.2-8 shows the anticipated employee growth upon buildout of the Facilities Master Plan.

Table 4.2-8
Cypress College Employee Growth

Employee Type	Current Employee Total	Projected Total Employees Upon Proposed Project Buildout[a]	Percentage of Employee Growth
Managers	40	0	0.00%
Full-Time Faculty	198	2	1.00%
Part-Time Faculty	536	3	0.50%
School of Continuing Education	35	0	0.00%
Classified Personnel	198	1	0.25%
Total	**1,007**	**6**	**0.60%**

Source: Rittel, pers. comm. 2016b, 2016c.
Note:
[a] The projected total employees upon proposed project buildout was determined by multiplying the employee growth percentages by the current employee total.

As shown in Table 4.2-8, employee growth would be minimal. Although the place of origin is not known for the projected new employees, the introduction of 6 employees to the region would not exceed SCAG's growth projections. Therefore, employee growth is consistent with SCAG's overall growth projections and would not result in a substantial increase in population growth.

Lastly, the proposed project would include the construction of an immersive digital classroom and viewing platform associated with the new SEM building, which could attract visitors to the campus. Although these facilities would be open for public use and could occasionally house special events, generally, Cypress College students and staff would be the primary users of these facilities. The newly constructed facilities would not result in substantial population growth.

Additionally, Cypress College is currently zoned Public and Semi-Public Zone/Civic Center Combining Zone (PS-CC) and a Public and Semi-Public Zone (PS) and has a General Plan land use designation of Educational Facility. The proposed project would be consistent with the current zoning and General Plan land use designation as well as SCAG's growth projections anticipated in the 2012 Final AQMP. Vehicle trips and trip distance would be consistent with SCAG's growth projections anticipated in the 2012 Final AQMP. As such, it is reasonable to assume vehicle trip generation associated with the proposed project has been anticipated in the SCAG growth projections because the land use would remain the same (i.e., educational facility). Because the proposed project is consistent with the anticipated population growth of the City of Cypress and the surrounding cities and the associated vehicle trips have been factored into the underlying growth projections of the 2012 Final AQMP, the project would not result in a conflict with, or obstruct implementation of, the applicable air quality plan. Accordingly, the project would meet Consistency Criterion No. 2 of the SCAQMD *CEQA Air Quality Handbook*.

Summary

As described above, the proposed project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, and would not conflict with Consistency Criterion No. 1. The proposed project would be consistent with the land use assumptions and demographic growth forecasts in the SCAG 2012 RTP/SCS and therefore would also be consistent with the SCAQMD 2012 AQMP, which based future emission estimates on the SCAG 2012 RTP/SCS. Thus, the project would not conflict with Consistency Criterion No. 2. Based on these considerations, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

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

Construction and operation of the proposed project would result in the emissions of criteria air pollutants from mobile, area, and/or stationary sources, which may cause exceedances of federal and state ambient air quality standards or contribute to existing nonattainment of ambient air quality standards. The following discussion identifies potential short- and long-term impacts that would result from implementation of the proposed project. Feasible mitigation measures to reduce or avoid any potential significant impacts, as appropriate, are proposed.

Construction Impacts

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by on-site sources (i.e., offroad construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., onroad haul trucks, vendor trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

As stated in Chapter 3, Project Description, development of the proposed project is planned incrementally. Phasing for development is planned in three segments, resulting in an estimated buildout of the proposed project by 2025. The renovation of the Technical Education buildings 1, 2, and 3; renovation of the Business Education building; and construction of the parking structure are unscheduled; however, all of the facilities were assumed to be constructed in Phase 3 for purposes of the emissions calculations. Accordingly, construction emissions were modeled by each project component in three separate phases: Phase 1 (2017–2020), Phase 2 (2020–2022), and Phase 3 (2024–2026).

Emissions from the construction of each project component were estimated using CalEEMod. Table 4.2-9, Construction Equipment, presents an example of the construction equipment mix used for the air emissions modeling of the proposed project. The equipment mix was generally followed for all construction modeling scenarios (i.e., construction of the SEM building and the Lot 7 parking structure). For analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours a day (or less), 5 days a week (22 days per month), during project construction. However, the construction phases (i.e., demolition, grading), construction equipment, and equipment hours of operation varied depending on the project component. Specific CalEEMod assumptions for each model scenario, including quantity of equipment, are provided in Appendix B.

Table 4.2-9
Construction Equipment

Construction Phase	Equipment
Demolition	Concrete/industrial saws
	Rubber-tired dozers
	Tractors/loaders/backhoes
Site preparation	Rubber-tired dozers
	Graders
	Tractors/loaders/backhoes
Grading	Rubber-tired dozers
	Graders
	Trackers/loaders/backhoes
Trenching	Trenchers
	Plate compactors
	Trackers/loaders/backhoes
Building construction	Cement and mortar mixers
	Bore/drill rigs
	Cranes
	Forklifts
	Welders
	Generator sets
	Trackers/loaders/backhoes
Paving	Paving equipment
	Cement and mortar mixers
	Pavers
	Rollers
	Tractors/loaders/backhoes
Architectural coating	Air compressors

Ground disturbance and equipment operation during construction activities, specifically during the grading, trenching, and site preparation phases, would produce short-term PM_{10} and $PM_{2.5}$ emissions. Implementation of the proposed project would generate construction-related air pollutant emissions from two general activity categories: entrained dust and vehicle emissions. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Vehicle exhaust results from internal combustion engines used by construction equipment and vehicles, which results in emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior/interior paint and other finishes, would also produce VOC emissions. Default values provided by CalEEMod were changed for the VOC content of architectural coatings. The interior non-residential architectural coating VOC content was changed to 50 g/L from the default value of 250 g/L in CalEEMod based on compliance with SCAQMD Rule 1113 and use of low-VOC flat coatings.

Soil import and export volumes are not currently known. Minimal activity is anticipated and grading is expected to be balanced on site; however, as specifics are not available, 5 haul trucks a day (10 trips) were conservatively assumed to capture potential import or export of material for projects 1 acre or less. For projects greater than 1 acre, 10 haul trucks a day (20 trips) were conservatively assumed to capture potential import or export of material.

During Phase 1, construction of the new Baseball Clubhouse, construction of the new SEM building, expansion of the Student Activities Center, which includes the new Veterans' Resource Center, renovation of the Student Activities Center, expansion of the Library and Learning Resource Center, and construction of the Veteran's Memorial Plaza, would total 146,604 GSF, and the total size of buildings demolished (baseball storage/clubhouse and temporary restrooms) would be 1,917 GSF.[3] Construction was assumed to commence in January 2017 and reach completion by January 2020, for a total duration of approximately 36 months.[4] Table 4.2-10, Phase 1 Estimated Maximum Daily Construction Emissions, presents the estimated maximum unmitigated daily construction emissions generated during construction of the proposed project in Phase 1.

Concurrent building construction of the Student Activities Center renovation, expansion of the Student Activities Center, which includes the new Veterans' Resource Center, and the

3 It should be noted that the estimated number of buildings to be constructed in each phase and the construction schedule are based on current estimates. The actual number and schedule may change; however, these assumed estimates are representative for purposes of assessing the potential for significant air quality impacts.
Building size estimates are provided in assignable square feet in Chapter 3. To estimate gross square feet for an accurate construction scenario, it was assumed that ASF = 0.59 × GSF. This is based on an average conversion rate of gross square feet to assignable square feet for existing Cypress College buildings and facilities.

4 It should be noted that timing estimates of the proposed project buildout were based on the preliminary project phasing schedule. Because CalEEMod uses real dates (e.g., January 15, 2024) to calculate construction emissions, assumptions were made as to key dates for each phase. While all dates reflected in this Program Environmental Impact Report (EIR) are estimates and actual dates may differ depending on funding, weather, future campus needs, and other factors, this analysis represents a conservative assessment of likely air quality impacts.

photovoltaic (PV; solar) carport installation, would occur in 2018. Concurrent building construction would also occur in 2018 between the new SEM building, Student Activities Center renovation, expansion of the Student Activities Center, which includes the Veterans' Resource Center, the Library and Learning Resource Center expansion, and Veteran's Memorial Plaza. Concurrent construction would not occur in 2017 or 2019. In this case, maximum daily emissions per pollutant for these individual project components in which schedule overlap would occur were totaled for 2018 to provide a potential estimate of the maximum daily emissions during each year of construction.

Table 4.2-10
Phase 1 Estimated Maximum Daily Construction Emissions (unmitigated)

	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
2017						
Parking Reconfiguration	60.69	13.62	10.77	0.02	1.82	0.79
Baseball Clubhouse	3.48	13.13	11.26	0.02	1.79	0.97
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No
2018						
SEM building	3.47	29.50	23.11	0.04	4.43	2.74
Expansion of Veterans' Resource Center	36.26	15.55	10.93	0.02	1.49	0.86
Student Activities Center Renovation	26.87	12.00	10.01	0.02	0.93	0.75
PV Carport Installation	5.02	10.73	7.36	0.02	0.75	0.60
Library and Learning Resource Center Expansion	31.73	15.55	11.49	0.02	2.05	0.88
Veteran's Memorial Plaza Construction	5.01	15.25	10.93	0.02	1.23	0.86
Total of project components with concurrent building construction (maximum overlap scenario)[a]	**103.34**	**93.11**	**71.15**	**0.12**	**10.51**	**6.45**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**YES**	No	No	No	No	No
2019						
SEM building	3.08	23.63	20.89	0.04	1.83	1.32
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Table 4.2-10
Phase 1 Estimated Maximum Daily Construction Emissions
(unmitigated)

	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
2020						
SEM building	98.55	21.84	20.35	0.04	1.69	1.18
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**YES**	No	No	No	No	No

Note: See Appendix B for complete results. These estimates reflect control of fugitive dust required by SCAQMD Rule 403.
VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
[a] Project components with concurrent building construction include the expansion of the Veterans Resource Center, Student Activities Center Renovation, and PV Carport Installation in 2018. Concurrent building construction would also occur between the SEM building, expansion of the Veterans' Resource Center, Student Activities Center Renovation, Library and Learning Resource Center Expansion, and Veterans Memorial Plaza in 2018. Maximum daily emissions per pollutant for these individual project components in which schedule overlap would occur were totaled for 2018 to provide a potential estimate of the maximum daily emissions during each year of construction. Of the two overlap scenarios, the maximum emissions are provided, for all pollutants this occurred during the SEM building, expansion of the Veterans' Resource Center, Student Activities Center Renovation, Library and Learning Resource Center Expansion, and Veteran's Memorial Plaza overlap.

Maximum daily emissions of NO_x generally occur during the grading phases for construction projects as a result of off-road equipment operation and on-road haul trucks. Fugitive dust and off-road equipment emissions during the site preparation and grading phases would generate the maximum daily $PM_{2.5}$ emissions. Maximum daily PM_{10} emissions would also occur during the site preparation and grading phases. The application of architectural coatings would produce the maximum daily VOC emissions.

As shown in Table 4.2-10, daily construction emissions would exceed the thresholds for VOC and would not exceed the thresholds for NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during Phase 1 construction. As such, construction of the proposed project during Phase 1 (2018 and 2020) would result in a potentially significant impact to air quality related to VOC emissions. **Mitigation Measure (MM) AQ-1** (see Section 4.2.5, Mitigation Measures) shall be incorporated during Phase 1 construction (2018 and 2020) to lessen impacts related to VOC emissions. Upon implementation of **MM-AQ-1**, impacts related to VOC emissions would be less than significant.

Construction of the Gymnasium Restroom building in Phase 2 would total 11,864 GSF[5], which would not require demolition of buildings. Phase 2 would include the renovation of the Fine Arts building, Humanities building, Aquatic Center, and Gymnasiums 1 and 2. Mass

[5] It should be noted that the estimated number of buildings to be constructed in each phase and the construction schedule are based on current estimates. The actual number and schedule may change; however, these assumed estimates are representative for purposes of assessing the potential for significant air quality impacts.
Building size estimates are provided in assignable square feet in Chapter 3. To estimate gross square feet for an accurate construction scenario, it was assumed that ASF = 0.59 × GSF. This is based on an average conversion rate of gross square feet to assignable square feet for existing Cypress College buildings and facilities.

communication and security upgrades would occur during building renovation. Phase 2 construction was assumed to start in August 2020 and finish in May 2022, lasting approximately 21 months.

Table 4.2-11, Phase 2 Estimated Maximum Daily Construction Emissions, presents the estimated maximum unmitigated daily construction emissions generated during Phase 2 construction. Concurrent renovation of the Fine Arts building, Humanities building, and Aquatic Center would occur during 2020 and 2021. Concurrent renovation of Gymnasiums 1 and 2 and construction of the Gymnasium restroom would occur in 2021 and 2022. The highest emissions for either the maximum daily emissions of the concurrent renovation of the Gymnasiums 1 and 2 and construction of the Gymnasium restroom, or the total of the maximum daily emissions of the renovation of the Fine Arts building, Humanities building, and Aquatic Center are presented for 2021.

Table 4.2-11
Phase 2 Estimated Maximum Daily Construction Emissions (unmitigated)

	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
2020						
Fine Arts Renovation	2.03	13.94	13.72	0.03	1.09	0.79
Humanities Renovation	2.34	16.84	16.27	0.03	1.41	0.98
Total of project components with concurrent building construction[a]	**4.34**	**30.78**	**29.99**	**0.06**	**2.50**	**1.77**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No
2021						
Fine Arts Renovation	23.44	12.84	13.36	0.03	1.00	0.70
Humanities Renovation	32.25	15.44	15.83	0.03	1.29	0.87
Aquatic Center Renovation	79.26	12.89	14.90	0.04	8.27	1.74
Gymnasiums 1 and 2 Renovation	1.99	14.38	15.46	0.03	1.16	0.80
Gymnasium Restroom	1.10	11.24	10.34	0.02	1.47	0.90
Total of project components with concurrent building construction (maximum overlap scenario)[b]	**134.95**	**41.17**	**44.09**	**0.10**	**10.56**	**3.31**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**YES**	No	No	No	No	No

Table 4.2-11
Phase 2 Estimated Maximum Daily Construction Emissions
(unmitigated)

	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
2022						
Gymnasiums 1 and 2 Renovation	27.88	13.19	15.19	0.03	1.07	0.71
Gymnasium Restroom	22.21	9.57	9.74	0.02	0.53	0.44
Total of project components with concurrent building construction[c]	**50.09**	**22.76**	**24.93**	**0.05**	**1.60**	**1.15**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Notes: See Appendix B for complete results. These estimates reflect control of fugitive dust required by Rule 403.
lb/day = pounds per day; VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

[a] Concurrent renovation of the Fine Arts building and Humanities building would occur during 2020. The individual project component emissions are totaled between these renovation projects in 2020.

[b] Concurrent renovation of the Fine Arts building, Humanities building, and Aquatic Center would occur during 2021. Concurrent renovation of Gymnasium 1 and 2 and construction of the Gymnasium restroom would also occur in 2021. The highest emissions for either the maximum daily emissions of the concurrent renovation of the Gymnasium 1 and 2 and construction of the Gymnasium restroom, or the total of the maximum daily emissions of the renovation of the Fine Arts building, Humanities building, and Aquatic Center are presented for 2021.

[c] Concurrent renovation of Gymnasiums 1 and 2 and construction of the Gymnasium restroom would occur in 2021 and 2022. The individual project component emissions are totaled between these projects in 2022.

Maximum daily emissions of NO_x would occur during the grading phases for all projects as a result of off-road equipment operation and on-road haul trucks. Fugitive dust and off-road equipment emissions during the site preparation and grading phases would generate the maximum daily $PM_{2.5}$ emissions. Maximum daily PM_{10} emissions would also occur during the site preparation and grading phases. The application of architectural coatings would produce the maximum daily VOC emissions.

As shown in Table 4.2-11, maximum construction-generated VOC emissions of approximately 135 pounds per day in 2021 would exceed the SCAQMD's quantitative significance threshold of 75 pounds per day. Daily construction emissions would not exceed the thresholds for NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. As such, construction of the proposed project during Phase 2 would result in a potentially significant impact to air quality related to VOC emissions. **MM-AQ-1** (see Section 4.2.5) shall be incorporated during Phase 2 construction to lessen impacts related to VOC emissions. Upon implementation of **MM-AQ-1**, impacts related to VOC emissions would be less than significant.

Phase 3 could include construction of a parking structure, which could provide 1,000 parking spaces. Renovation of Technical Education buildings 1, 2, and 3, and the Business Education building would also occur. The existing SEM building would serve as swing space during renovation of the Technical Education Buildings 1, 2, 3, and Business Education buildings. Demolition of the SEM building would total 100,681 GSF and would occur after renovation of these buildings. Construction is assumed to commence in October 2024 and reach completion in November 2026, a total of 25 months of construction.

Table 4.2-12 presents estimated maximum unmitigated daily construction emissions generated during Phase 3 construction. Project components with concurrent building construction include the renovation of Technical Education buildings 1, 2, and 3, and the Business Education building, and construction of the parking structure for 2025. Concurrent construction would also occur between the parking structure and the renovation of the Business Education building in 2026.

Table 4.2-12
Phase 3 Estimated Maximum Daily Construction Emissions
(unmitigated)

	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
2024						
Technical Education Buildings 1, 2, and 3 Renovation	1.74	14.41	20.08	0.04	1.44	0.81
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No
2025						
Technical Education Buildings 1, 2, and 3 Renovation	27.01	13.43	19.88	0.04	1.35	0.73
Parking Structure[a]	3.20	26.75	38.55	0.10	8.83	4.87
Business Education Renovation	1.43	10.78	13.94	0.03	0.71	0.47
Total of project components with concurrent building construction[b]	**31.64**	**50.96**	**72.37**	**0.17**	**10.89**	**6.07**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No
2026						
Parking Structure[a]	14.15	17.25	28.73	0.07	2.96	1.24
Business Education Renovation	18.49	10.77	13.90	0.03	0.71	0.47
Existing SEM Demolition	1.69	14.89	20.20	0.04	6.12	1.47
Total of project components with concurrent building construction[c]	**32.64**	**28.02**	**42.63**	**0.1**	**3.67**	**1.71**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Notes: See Appendix B for complete results.
VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
[a] CalEEMod treats parking structures the same as other buildings that require extensive painting; however, parking structures generally require minimal painting (e.g., striping and signage). Accordingly, VOC emissions generated during the architectural coating phase were

estimated using an adjusted total floor area to better represent proposed exterior application of coatings. The alternative architectural coating emissions calculation is provided in Appendix B.

[b] Project components with concurrent building construction include the renovation of Technical Education buildings 1, 2, and 3 and the Business Education building, and construction of the parking structure for 2025.

[c] Concurrent construction would occur between the parking structure and the renovation of the Business Education building in 2026.

Maximum daily emissions of NO_x would occur during the grading phases for all projects as a result of off-road equipment operation and on-road haul trucks. Fugitive dust and off-road equipment emissions during the site preparation and grading phases would generate the maximum daily $PM_{2.5}$ emissions. Maximum daily PM_{10} emissions would also occur during the site preparation and grading phases. The application of architectural coatings would produce the maximum daily VOC emissions.

As shown in Table 4.2-12, daily construction emissions would not exceed the thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. As such, construction of the proposed project during Phase 3 would result in a less than significant impact.

As shown in Tables 4.2-10 through 4.2-12, the maximum construction-generated PM_{10} and $PM_{2.5}$ emissions would not exceed the SCAQMD's quantitative significance threshold of 150 pounds per day. Although such fugitive dust would be short term and would only last during the duration of grading activity, such PM_{10} and $PM_{2.5}$ emissions could be considered problematic since they could cause a public nuisance or further exacerbate the existing PM_{10} nonattainment situation in the SCAB. During construction, the project would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites (as well as other fugitive dust sources) in the SCAQMD. The general requirement prohibits a person from causing or allowing emissions of fugitive dust from construction (or other fugitive dust sources) such that the presence of such dust remains visible in the atmosphere beyond the property line of the emissions source. Although impacts related to anticipated PM_{10} and $PM_{2.5}$ emission levels during construction are below the threshold and are therefore considered less than significant, **MM-AQ-2** is recommended to further minimize impacts.

As discussed above, maximum construction-generated VOC emissions of approximately 103 pounds per day in 2018 and 99 pounds per day in 2020, and 135 pounds per day in 2021 would exceed the SCAQMD's quantitative significance threshold of 75 pounds per day. Daily construction emissions would not exceed the thresholds for NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. As such, construction of the proposed project during Phase 1 and Phase 2 would result in a significant impact to air quality related to VOC emissions. **MM-AQ-1** (see Section 4.2.5) shall be incorporated during Phase 1 and Phase 2 construction to lessen impacts related to VOC emissions. Upon implementation of **MM-AQ-1**, impacts related to VOC emissions would be less than significant.

Because the proposed project would not exceed the SCAQMD construction emission thresholds for NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$, the proposed project would result in a less-than-significant-impact related to these criteria pollutant emissions.

Operational Impacts

Operation of the project would produce VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from area sources, including natural gas combustion, use of consumer products, and motor vehicle trips to project land uses. The proposed project would primarily impact air quality through vehicular traffic generated by students, faculty, staff, employees, and visitors.

Emissions associated with existing and project-generated daily traffic were modeled using weekday trip-generation rates, which were calculated using the project traffic generation values provided in the traffic impact analysis report prepared by Linscott, Law & Greenspan, Engineers (Appendix F). CalEEMod default Saturday and Sunday trip-generation rates were adjusted based on weekday trip-generation rates per land use type, as weekend trip-generation rates were not provided in the traffic impact analysis report. CalEEMod default data for temperature, variable start information, and emission factors were conservatively used for the model inputs. Project-related traffic was assumed to consist of a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2025 emission factors were used to represent project buildout and the first full year of operation.

CalEEMod was used to estimate emissions from the project area sources, which include gasoline-powered landscape maintenance equipment, consumer products, and architectural coatings for building maintenance. The estimation of proposed operational emissions was based on proposed land use defaults and total area (i.e., square footage) of buildings and facilities that would be in operation in year 2025, with a few exceptions. Default values provided by CalEEMod were changed for the VOC content of architectural coatings for maintenance. The interior non-residential architectural coating VOC content was changed to 50 g/L from the default value of 250 g/L in CalEEMod based on compliance with SCAQMD Rule 1113 and use of low-VOC flat coatings.

Emissions from energy sources, which include natural gas appliances and space and water heating, were also estimated using CalEEMod. Default values for indoor and outdoor water use, and natural gas consumption (through Title 24 and non-Title 24 natural gas energy intensities) were used for the new facilities constructed as part of the proposed project. Solid waste generation rates were adjusted to reflect projected solid waste usage of 2,753 tons per year (see Section 4.12, Utilities and Service Systems). Default values for natural gas consumption through Title 24 and non-Title 24 natural gas energy intensities were adjusted to reflect historical energy use rates of existing facilities; see Section 4.2.1.4, Existing Emissions for intensities. In 2025, upon buildout of the proposed project, existing development and proposed development of academic, general administrative, auxiliary, and recreational land uses on the Cypress College campus would total approximately 976,566 GSF. A total of 5,406 parking spaces would be provided on campus.

Table 4.2-13, Buildout Year 2025 Estimated Daily Maximum Operational Emissions, presents the maximum daily emissions associated with operation of the proposed project. The values shown are the maximum summer or winter daily emissions results from CalEEMod and incineration enclosure calculations. Details of the emission calculations are provided in Appendix B. The estimated existing emissions in 2015, as shown in Table 4.2-4, were subtracted from the proposed project emissions, and the net change in emissions is compared with SCAQMD significance thresholds.

Table 4.2-13
Buildout Year 2025 Estimated Daily Maximum Operational Emissions (unmitigated)

Emission Source	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
Area	69.18	<0.01	0.65	<0.01	<0.01	<0.01
Energy	1.35	12.15	10.2	0.08	0.93	0.93
Mobile	64.64	120.75	632.32	2.63	188.08	51.94
Total emissions	**135.17**	**132.90**	**643.17**	**2.71**	**189.01**	**52.87**
Existing emissions	157.58	245.34	1,077.22	2.53	179.78	50.69
Net change in emissions	**(22.41)**	**(112.44)**	**(434.05)**	**0.18**	**9.23**	**2.18**
Pollutant threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Notes: See Appendix B for complete results.
VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

As shown in Table 4.2-13, the net change in combined daily area, energy, and mobile source emissions would not exceed the SCAQMD operational thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Although the proposed project would increase the campus population (students, faculty, and staff) and the buildings relative to existing conditions, the emissions of most of the air pollutants would decrease over the next 10 years. This reduction would occur, in part, because more stringent motor vehicle emission standards would reduce total emissions as older, high-emission vehicles are replaced with newer, cleaner vehicles. In addition, the demolition of older existing campus facilities and the addition of new, more energy-efficient buildings would also be responsible for this reduction. Other sources of emissions, such as consumer products and architectural coatings for building maintenance, would increase because the estimated emissions from these sources are a function of building area, which would increase. In addition, the net PM_{10} emissions are indicated to increase, primarily because paved road dust, which is a function of total vehicle miles traveled, would not be affected by motor vehicle emission standards and other factors that tend to reduce project emissions over time.

Because the net change in emissions resulting from the proposed project would not exceed the SCAQMD operational thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$, the proposed project would result in a less-than-significant impact on air quality.

Would the project result in a cumulatively considerable new increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold emissions which exceed quantitative thresholds for ozone precursors)?

See Section 4.2.7, Cumulative Impacts, for a discussion of this threshold.

Would the project expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Thresholds

Sensitive receptors include but are not limited to residential land uses, schools, open space and parks, recreational facilities, hospitals, resident care facilities, daycare facilities, or other facilities that may house individuals with health conditions that would be affected by poor air quality. The nearest off-site sensitive receptors to the Cypress College campus are the residents located along the eastern, southern, western, and northern boundaries; Futureland Montessori School, located north of the campus; Holder Elementary School, located to the southeast; and Swain Elementary, to the west.

Construction activities associated with the proposed project would result in temporary sources of fugitive dust and construction vehicle emissions. Long-term operation of the proposed project would result in daily vehicular trips that would generate local emissions that could expose sensitive receptors to substantial pollutant concentrations.

As indicated in the discussion of the thresholds of significance, the SCAQMD also recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of the project site. The closest off-site existing sensitive receptors (residences) are located within 150 feet of the proposed Humanities building renovation. Additionally, residences are located within 225 and 250 feet of the proposed parking structure and Technical Education buildings 1, 2, and 3 renovation, respectively.

The proposed Humanities building renovation would be constructed during Phase 2. For the purposes of the LST analysis, it is assumed that the Humanities renovation would be 2 acres in area and the sensitive receptors would be located within 25 meters (82 feet) of construction activity.[6] Estimated maximum on-site emissions generated during construction of the Humanities renovation were used.

The impacts were analyzed using methods consistent with those in the SCAQMD's LST Methodology (SCAQMD 2008). The allowable emission rates for Source–Receptor Area 17 (Central Orange County) from the SCAQMD LST Methodology lookup tables are shown in Table 4.2-14, Humanities Renovation LST Analysis for Construction Emissions, and compared to the maximum daily on-site construction emissions of these pollutants during the renovation.

Table 4.2-14
Humanities Renovation
LST Analysis for Construction Emissions

Pollutant	Maximum Construction Emissions (pounds per day)[a]	LST Criteria (pounds per day)	Exceeds LST?
NO_2	16	115	No
CO	13	715	No
PM_{10}	1	6	No
$PM_{2.5}$	1	4	No

Source: SCAQMD 2008.
Notes: LST = localized significance threshold; NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
a See Appendix B for complete results. Construction emissions estimates rounded to nearest pound.

Residences are located within 225 feet of the proposed parking structure. For the purposes of the LST analysis, it is assumed that the parking structure would be 2 acres in area and the sensitive receptors would be located within 50 meters (164 feet) of construction activity. Estimated maximum on-site emissions generated during construction of the parking structure were used (see Table 4.2-15 for results).

Table 4.2-15
Parking Structure
LST Analysis for Construction Emissions

Pollutant	Maximum Construction Emissions (pounds per day)[a]	LST Criteria (pounds per day)	Exceeds LST?
NO_2	24	114	No
CO	25	1,041	No

6 While the actual construction area may be larger than 2 acres, using the smaller area results in a more conservative analysis because the LSTs for a 2-acre site are lower than those for a 5-acre site.

Table 4.2-15
Parking Structure
LST Analysis for Construction Emissions

Pollutant	Maximum Construction Emissions (pounds per day)[a]	LST Criteria (pounds per day)	Exceeds LST?
PM_{10}	8	19	No
$PM_{2.5}$	5	6	No

Source: SCAQMD 2008.
Notes: These estimates reflect control of fugitive dust required by Rule 403.
LST = localized significance threshold; NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
[a] See Appendix B for complete results. Construction emissions estimates rounded to nearest pound.

Residences are located within 250 feet of the proposed Technical Education buildings 1, 2, and 3 renovation. For the purposes of the LST analysis, it is assumed that the proposed Technical Education buildings 1, 2, and 3 renovation would be 5 acres in area and the sensitive receptors would be located within 50 meters (164 feet) of construction activity. Estimated maximum on-site emissions generated during renovation were used (see Table 4.2-16 for results).

Table 4.2-16
Technical Education Buildings 1, 2, and 3
LST Analysis for Construction Emissions

Pollutant	Maximum Construction Emissions (pounds per day)[a]	LST Criteria (pounds per day)	Exceeds LST?
NO_2	13	167	No
CO	16	1,734	No
PM_{10}	1	39	No
$PM_{2.5}$	1	9	No

Source: SCAQMD 2008.
Notes: LST = localized significance threshold; NO2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
[a] See Appendix B for complete results. Construction emissions estimates rounded to nearest pound.

As shown in Tables 4.2-14 through 4.2-16, construction activities would not generate emissions in excess of site-specific LSTs during the respective construction phases, and impacts to sensitive receptors in the vicinity of the project site would be less than significant.

Carbon Monoxide Hotspots

Mobile source impacts occur on two scales of motion. Regionally, project-related travel will add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SCAB. Locally, project traffic will be added to the City's roadway system near the Cypress College campus. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic. Because of continued improvement in mobile emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The traffic impact analysis report and Section 4.11, Traffic and Circulation, evaluated whether there would be a decrease in the level of service (LOS) (i.e., increased congestion) at the intersections affected by the project. The potential for CO hotspots was evaluated based on the results of the traffic impact analysis. The California Department of Transportation (Caltrans) Institute of Transportation Studies *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) (Caltrans 1997) was followed.

In accordance with the CO Protocol, CO hotspots are typically evaluated when (1) the LOS of an intersection or roadway decreases to LOS E or worse, (2) signalization and/or channelization is added to an intersection, and (3) sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or roadway segment. In general, the SCAQMD recommends that a quantitative CO hotspots analysis be performed for any intersections where the LOS worsens from C to D or for intersections that experience an increase in volume-to-capacity ratio of 2% or more as a result of a proposed project for intersections rated LOS D or worse.

The traffic impact analysis report evaluated 14 key intersections and 4 driveways in the project vicinity to assess existing conditions, year 2025 cumulative traffic conditions, and year 2025 cumulative plus project traffic conditions. Table 4.2-17, Year 2025 Peak Hour Intersection Capacity Analysis, summarizes the year 2025 cumulative traffic conditions, year 2025 cumulative plus project traffic conditions, and whether a CO hotspot analysis is required per the CO Protocol and SCAQMD recommendations.

Table 4.2-17
Year 2025 Peak Hour Intersection Capacity Analysis

Key Intersection		Time Period	Year 2025 Cumulative Traffic Conditions		Year 2025 Cumulative Plus Project Traffic Conditions		Increase	Requires CO Hotspot Analysis?
			ICU/HCM (s/v)	*LOS*	*ICU/HCM (s/v)*	*LOS*		*Yes/No*
1.	Valley View Street at Crescent Avenue	a.m. p.m.	0.816 0.724	D C	0.819 0.727	D C	0.003 0.003	No
2.	Holder Street at Crescent Avenue	a.m. p.m.	0.526 0.500	A A	0.529 0.502	A A	0.003 0.002	No
3.	Walker Street at Lincoln Avenue	a.m. p.m.	0.736 0.871	C D	0.740 0.874	C D	0.004 0.003	No
4.	Valley View Street at Lincoln Avenue	a.m. p.m.	0.815 0.836	D D	0.822 0.840	D D	0.007 0.004	No
5.	Holder Street at Lincoln Avenue	a.m. p.m.	0.655 0.634	B B	0.664 0.639	B B	0.009 0.005	No
6.	Knott Avenue at Lincoln Avenue	a.m. p.m.	0.674 0.729	B C	0.678 0.731	B C	0.004 0.002	No
7.	Walker Street at Orange Avenue	a.m. p.m.	0.724 0.675	C B	0.725 0.676	C B	0.001 0.001	No
8.	Valley View Street at Orange Avenue	a.m. p.m.	0.758 0.814	C D	0.759 0.818	C D	0.001 0.004	No
9.	Holder Street at Orange Avenue	a.m. p.m.	0.561 0.516	A A	0.566 0.522	A A	0.005 0.006	No
10.	Knott Avenue at Orange Avenue	a.m. p.m.	0.731 0.732	C C	0.734 0.732	C C	0.003 0.000	No
11.	Valley View Street at Ball Road	a.m. p.m.	0.824 0.810	D D	0.827 0.814	D D	0.003 0.004	No
12.	Holder Street at Ball Road	a.m. p.m.	0.649 0.694	B B	0.651 0.698	B B	0.002 0.004	No
14.	Valley View Street at Lakeshore Drive/Cypress College West	a.m. p.m.	0.604 0.706	B C	0.614 0.715	B C	0.010 0.009	No
18.	Holder Street at Lakeshore Drive/Via Arroyo Drive	a.m. p.m.	0.434 0.401	A A	0.449 0.406	A A	0.015 0.005	No

Notes: CO = carbon monoxide; ICU/HCM = Intersection Capacity Utilization/Highway Capacity Manual; LOS = level of service; s/v = seconds per vehicle.

As shown in Table 4.2-17, no intersections would deteriorate from LOS C to D or experience an increase in the volume-to-capacity ratio of 2% or more as a result of the proposed project for intersections rated LOS D or worse under year 2025 cumulative plus project traffic conditions; therefore, no CO hotspot analysis would be required per SCAQMD recommendations.

Additionally, the traffic impact analysis report evaluated four driveways in the project vicinity to assess existing conditions, year 2024 cumulative traffic conditions, and year 2024 cumulative plus project traffic conditions. Table 4.2-18 summarizes the year 2024 cumulative traffic conditions, year 2024 cumulative plus project traffic conditions, and whether a CO hotspot analysis is required per the CO Protocol recommendations for the five driveways.[7]

Table 4.2-18
Year 2024 Peak Hour Intersection Capacity Analysis - Driveways

Key Intersection		Time Period	Year 2024 Cumulative Traffic Conditions		Year 2024 Cumulative Plus Project Traffic Conditions		Increase	Requires CO Hotspot analysis?
			HCM (s/v)	*LOS*	*HCM (s/v)*	*LOS*	*HCM (s/v)*	*Yes/No*
13.	Valley View Street at Driveway No. 1	a.m. p.m.	17.1 **76.4**	C **F**	17.2 **83.4**	C **F**	0.1 7.0	No
15.	Cypress College South at Orange Avenue	a.m. p.m.	16.1 15.2	C C	16.6 15.7 s	C C	0.5 0.5	No
16.	Holder Street at Driveway No. 2	a.m. p.m.	9.3 8.5	A A	9.4 8.6	A A	0.1 0.1	No
17.	Holder Street at Driveway No. 3	a.m. p.m.	14.9 11.6	B B	15.1 11.7	C B	0.2 0.1	No

Notes: CO = carbon monoxide; HCM = Highway Capacity Manual; LOS = level of service; s/v = seconds per vehicle.

None of the driveways in Table 4.2-18 would decreases to LOS E or worse as a result of a proposed project under year 2025 cumulative plus project traffic conditions. Valley View Street and Driveway No. 1 currently operates at LOS F and will continue to operate at LOS F with the proposed project; therefore, a CO hotspot analysis is not warranted. Accordingly, impacts would be less than significant.

Toxic Air Contaminants

The proposed project would involve the operation of an incineration enclosure. The incineration enclosure is a piece of equipment requested by the Department of Mortuary Science, which would meet the educational program requirements for the Baccalaureate Program. In addition, the equipment would also provide on-campus incineration service currently provided by third-party vendors. The proposed equipment would be located in the new SEM building. The Department of Mortuary Science would use the incineration enclosure for animal remains. The incineration enclosure would also be used by the biology program to dispose of animal samples

[7] SCAQMD recommendations cannot be applied in this case because the volume-to-capacity ratio is not used and it is not possible to determine the increase in volume-to-capacity ratio.

used in the biology laboratories (fetal pigs and cow brains). The incineration enclosure would not be used for human remains (Fee and Rittel, pers. comm. 2016).

Incineration enclosures are a stationary source that emits TACs; therefore, an analysis is required to determine the impacts to residents in the vicinity of Cypress College. TACs associated with incineration enclosures include arsenic and compounds, beryllium and compounds, cadmium and compounds, chromium 6+, polychlorinated dibenzofurans, 2,3,7,8-tetrachlorodibenzo-p-dioxin, formaldehyde, hydrochloric acid, lead and compounds, nickel and compounds, and polycyclic aromatic hydrocarbons. Mercury and compounds can also result from the operation of incineration units, but specifically during the preparation of human remains. Mercury and compounds are generally not emitted from the incineration of animal remains (SCAQMD 2016c).

This analysis adapted the health risk thresholds provided in the SCAQMD's *Risk Assessment Procedures for Rules 1401, 1401.1, and 212 Version 8.0* (Risk Assessment Procedures; SCAQMD 2015b) to evaluate the significance of health impacts. The SCAQMD indicates that the health impacts of a project would not be significant if they do not exceed the health risk public notification thresholds. The public notification threshold is 10 excess cancer cases in 1 million for cancer risk. Cancer risk is defined as the increase in probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased chances in one million. The SCAQMD has also established noncarcinogenic risk parameters. Noncarcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or reference exposure level (REL). A REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. Within this analysis, noncarcinogenic exposures of less than 1.0 are considered less than significant.

According to the SCAQMD Risk Assessment Procedures (SCAQMD 2015b), there are several tiers for preparing a risk assessment, from a quick look-up table to a detailed risk assessment involving air quality dispersion modeling analysis. The tiers are designed to be used in order of increasing complexity, with each higher tier providing a more refined estimate of risk than the lower tier. If compliance cannot be demonstrated using one tier, the permit applicant may proceed to the next tier. A permit applicant who can show compliance by using a lower tier does not need to perform an analysis for the higher tiers. In general, for most permits a detailed analysis is not required. The tiers are as follows:

- Tier 1: Screening Emission Levels
- Tier 2: Screening Risk Assessment
- Tier 3: Screening Dispersion Modeling
- Tier 4: Detailed Risk Assessment (SCAQMD 2015b)

Tier 1 involves a simple look-up table in which the equipment's emissions are compared to screening levels. The screening levels are pollutant emission thresholds that are not expected to produce a maximum individual cancer risk greater than 1 in 1 million nor a hazard index greater than one. Tier 2 is a screening risk assessment, which includes procedures for determining the level of risk from a source for cancer risk, cancer burden, acute, 8-hour, and chronic hazard indices. If the estimated risk from Tier 2 screening is below SCAQMD Rule 1401 limits, then a more detailed evaluation is not necessary. Tier 3 uses a screening dispersion model to estimate risk. This tier requires more expertise than Tiers 1 and 2. Tier 4 is a detailed risk assessment using the Hotspots Analysis and Reporting Program Version 2 (HARP 2) software developed by CARB, which replaces the prior version of HARP software and incorporates the information in the 2015 Office of Environmental Health Hazard Assessment Guidance Manual. Tier 4 is an option if neither Tier 2 nor Tier 3 can demonstrate compliance (SCAQMD 2015b).

A Tier 1 and Tier 2 analysis was performed using the Rule 1401 Risk Assessment Program RiskTool (V1.02) Version 8.0 and Attachment M (SCAQMD 2016c). Default crematory emission factors developed by the EPA Final 1999 Non Point HAP Source Estimates and provided in the RiskTool V1.02 were used. The "Animal Cremation" function was selected in the spreadsheet for crematory type.

The incineration enclosure would operate during 4 weeks of each semester, for a total of 12 weeks of operation per year assuming three semesters in each calendar year. The incineration enclosure would operate on 1 day of each week of operation, and would operate for 3 hours per day of operation. Therefore, the incineration unit would operate for 36 hours per year (Fee et al., pers. comm. 2016). The Department of Mortuary Science currently disposes of approximately 400 gallons of animal waste per semester through a vendor service. Each gallon typically carries 8 pounds of waste. This equates to 3,200 pounds of waste per semester (Fee et al., pers. comm. 2016). These numbers, while characteristic of existing conditions, are representative of future disposal needs. Provided that the incineration enclosure would operate for 12 hours per semester, and 3,200 pounds of waste are anticipated to be disposed of per semester, this equates to a maximum burn rate of 270 pounds per hour, which was assumed as an input value in the RiskTool V1.02.

Table 4.2-19 shows the stack data that was input into the RiskTool V1.02.

Table 4.2-19
Stack Data for the SCAQMD Rule 1401 Risk Assessment Program RiskTool (V1.02)

Stack Data	Input (Units)
Hours/Day	3
Days/Week	1
Weeks/Year	12

Table 4.2-19
Stack Data for the SCAQMD Rule 1401 Risk Assessment Program RiskTool (V1.02)

Stack Data	Input (Units)
Emission Units	pound/hour
Control Efficiency[a]	0
Does source have best available control technology for toxics (T-BACT)?[b]	No
Source	Point source
Building Area	5,000 square feet
Distance to Residential[c]	75 meters
Distance to Commercial[d]	88 meters
Meteorological Station	Anaheim
Project Duration[e]	30 years
Source Type	Crematory
Screening Mode (No = Tier 1 or Tier 2, Yes = Tier 3)	No

Notes:
[a] Only applicable for non-combustion sources. Range from 0 to 1. Since the proposed incineration enclosure is a combustion source, this would not apply.
[b] According to the CARB *Risk Management Guidelines for New and Modified Sources of Toxic Air Pollutants* (CARB 1993), "T-BACT means the most effective emissions limitation or control technique which: (1) has been achieved in practice for such permit unit category or class of source; or (2) is any other emissions limitation or control technique, including process and equipment changes of basic and control equipment, found by the Executive Officer or Air Pollution Control Officer to be technologically feasible for such class or category of sources, or for a specific source." It was assumed that the proposed incineration enclosure would not include T-BACT.
[c] The closest residences are located north of the proposed SEM building, located on Promisa Way.
[d] The closest commercial property is a hotel located south of Lincoln Avenue on Grand Circle Way.

According to the Tier 1 Report of the RiskTool V1.02, the incineration enclosure would fail the cancer and chronic Application Screening Index (ASI) and would pass the acute ASI. The cancer/chronic ASI and acute ASI would total to 23.6 and 0.249, respectively (see Appendix B). Since the incineration enclosure would fail the Tier 1 screening, a Tier 2 screening with a more refined approach was required to determine the cancer and chronic risk.

The Tier 2 Report was generated using the same parameters above for Tier 1, using the RiskTool V1.02. According to the Tier 2 Report, worker maximum individual cancer risk would be 0.41 in a million and would pass the screening threshold (1 in a million). Residential maximum individual cancer risk would total 3.33 in a million and would fail the screening threshold (1 in a million) (see Appendix B). Under Rule 1401, permits to operate may not be issued when emissions of TACs result in a maximum incremental cancer risk greater than 1 in 1 million without application of the best available control technology for toxics (T-BACT), or a maximum incremental cancer risk greater than 10 in 1 million with application of T-BACT, or a health hazard index (chronic and acute) greater than 1.0 (SCAQMD 2010). Therefore, **MM-AQ-3** would require the application of T-BACT, which would reduce impacts to a less than significant level. Upon implementation of **MM-AQ-3**, impacts would be less than significant.

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

Construction of proposed project components would result in the emission of diesel fumes and other odors typically associated with construction activities. These compounds would be emitted in varying amounts on campus, depending on where construction activities were occurring. Sensitive receptors located in the vicinity of the construction sites, including schools, open space areas, or residences that house children, may be affected. However, SCAQMD rules restrict the VOC content (the source of odor-causing compounds) in paints. Construction of the proposed project would use typical construction techniques in compliance with SCAQMD rules. Odors are highest near the source and would quickly dissipate off site. Any odors associated with construction activities would be temporary and would cease upon completion of construction.

Land uses and industrial operations that typically are associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Accordingly, it is not anticipated that any operational sources under the proposed project would result in objectionable odors.

4.2.5 Mitigation Measures

MM-AQ-1 The following measures shall be adhered to during the architectural coating phases of project construction to reduce volatile organic compound (VOC) emissions from activities during Phases 1 and 2:

a. The North Orange County Community College District (District) shall procure architectural coatings from a supplier in compliance with the requirements of South Coast Air Quality Management District (SCAQMD) Rule 1113 (Architectural Coatings).

b. The maximum VOC content of exterior coatings shall be limited to 100 grams per liter (g/L) for the Science, Engineering, and Mathematics (SEM) building, Expansion of the Veterans' Resource Center, Library and Learning Resource Center Expansion, and Veteran's Memorial Plaza Construction.

c. The architectural coating phase of the Aquatic Center shall occur over a 10-day duration, or the coating application rate shall be limited to 3,410 square feet a day. The maximum VOC content of exterior coatings shall be limited to 100 g/L.

d. The architectural coating phase of the Fine Arts building renovation shall occur over a 20-day duration, or the coating application rate shall be limited to 5,007 square feet a day.

e. The architectural coating phase of the Humanities building renovation shall occur over a 20-day duration, or the coating application rate shall be limited to 6,906 square feet a day.

f. The architectural coating phase of the Student Activities Center expansion shall occur over a 10-day duration, or the coating application rate shall be limited to 5,731 square feet a day.

MM-AQ-2 Consistent with SCAQMD Rule 403, it is required that fugitive dust generated by grading and construction activities be kept to a minimum, with a goal of retaining dust on the site, by following the dust control measures listed as follows:

a. During clearing, grading, earthmoving, excavation, or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.

b. During construction, water truck or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas later in the morning, after work is completed for the day, and whenever winds exceed 15 miles per hour (mph).

c. Soil stockpiled for more than 2 days shall be covered, kept moist, or treated with soil binders to prevent dust generation.

d. Speeds on unpaved roads shall be reduced to less than 15 mph.

e. All grading and excavation operations shall be halted when wind speeds exceed 25 mph.

f. Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadways shall be swept, vacuumed, and/or washed at the end of each workday.

g. Should minor import/export of soil materials be required, all trucks hauling dirt, sand, soil, or other loose material to and from the construction site shall be tarped and maintain a minimum 2 feet of freeboard.

h. At a minimum, at each vehicle egress from the project site to a paved public road, a pad shall be installed consisting of washed gravel (minimum size: 1 inch) maintained in a clean condition to a depth of at least 6 inches and extending to a width of at least 30 feet and a length of at least 50 feet (or as otherwise directed by SCAQMD) to reduce trackout and carryout onto public roads.

i. Review and comply with any additional requirements of SCAQMD Rule 403.

MM-AQ-3 As part of the permit process, the SCAQMD will evaluate compliance of the incineration enclosure with Rule 1401, New Source Review of Toxic Air Contaminants. The proposed incineration enclosure would be required to apply best available control technology for toxics (T-BACT) prior to operation. Under Rule 1401, permits to operate may not be issued when a maximum incremental cancer risk greater than 10 in 1 million with application of T-BACT, or a health hazard index (chronic and acute) greater than 1.0 (SCAQMD 2010), exists. T-BACT will be determined on a case-by-case basis.

4.2.6 Level of Significance After Mitigation

The analysis above and as presented in Appendix B concludes that the daily construction emissions would not exceed the SCAQMD's significance thresholds for NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction in any of the construction phases. The proposed project would, however, exceed daily construction emissions thresholds for VOCs. However, upon implementation of **MM-AQ-1**, impacts would be less than significant. Table 4.2-20 presents emissions upon implementation of **MM-AQ-1**.

Table 4.2-20
Estimated Maximum Daily Construction Emissions (mitigated)

	VOCs (lb/day)	NO_x (lb/day)	CO (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Phase 1						
2018						
SEM building	3.47	29.50	23.11	0.04	4.43	2.74
Expansion of Veterans' Resource Center	22.78	15.55	10.93	0.02	1.49	0.86
Student Activities Center Renovation	13.59	12.00	10.01	0.02	0.93	0.75
Library and Learning Resource Center Expansion	19.95	15.55	11.49	0.02	2.05	0.88
Veteran's Memorial Plaza Construction	3.24	15.23	10.93	0.02	1.23	0.86
Total of project components with concurrent building construction[a]	**63.03**	**87.83**	**66.47**	**0.12**	**10.13**	**6.09**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No
2020						
SEM building	61.70	21.82	20.34	0.04	1.69	1.18
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Table 4.2-20
Estimated Maximum Daily Construction Emissions (mitigated)

	VOCs (lb/day)	NO_x (lb/day)	CO (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Phase 2						
2021						
Fine Arts Renovation	11.84	12.84	13.36	0.03	1.00	0.70
Humanities Renovation	16.24	15.44	15.83	0.03	1.29	0.87
Aquatic Center Renovation	16.03	12.89	14.90	0.04	8.27	1.74
Total of project components with concurrent building construction[b]	**44.11**	**41.17**	**44.09**	**0.10**	**10.56**	**3.31**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Notes: See Appendix B for complete results. These estimates reflect control of fugitive dust required by SCAQMD Rule 403.
lb/day = pounds per day; VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

[a] Project components with concurrent building construction include the expansion of the Veterans' Resource Center, Student Activities Center Renovation, and PV Carport Installation. Concurrent building construction would also occur between the SEM building, expansion of the Veterans' Resource Center, Student Activities Center Renovation, Library and Learning Resource Center Expansion, and Veteran's Memorial Plaza. Maximum daily emissions per pollutant for these individual project components in which schedule overlap would occur were totaled for 2018 to provide a potential estimate of the maximum daily emissions during each year of construction. Of the two overlap scenarios, the maximum emissions are provided, for all pollutants this occurred during the SEM building, expansion of the Veterans' Resource Center, Student Activities Center Renovation, Library and Learning Resource Center Expansion, and Veteran's Memorial Plaza overlap. The other scenario did not result in an exceedance of the SCAQMD VOC threshold; therefore, **MM-AQ-1** would apply to construction of the SEM building, expansion of the Veterans' Resource Center, Student Activities Center Renovation, Library/Learning Resource Center Expansion, and Veteran's Memorial Plaza.

[b] Concurrent renovation of the Fine Arts building, Humanities building, and Aquatic Center would occur during 2021. Concurrent renovation of Gymnasiums 1 and 2 and construction of the Gymnasium restroom would also occur in 2021. The highest emissions for either the maximum daily emissions of the concurrent renovation of Gymnasiums 1 and 2 and construction of the Gymnasium restroom, or the total of the maximum daily emissions of the renovation of the Fine Arts building, Humanities building, and Aquatic Center, are presented for 2021. Of the two overlap scenarios, the maximum emissions are provided. For all pollutants, this occurred during the Fine Arts building, Humanities building, and Aquatic Center renovation overlap. The other scenario did not result in an exceedance of the SCAQMD VOC threshold; therefore, **MM-AQ-1** would apply to renovation of the Fine Arts building, Humanities building, and Aquatic Center.

As shown in Table 4.2-20, daily construction emissions would not exceed the thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during Phase 1 and Phase 2 construction upon implementation of **MM-AQ-1**; impacts would be less than significant.

MM-AQ-2, described in Section 4.2.5, would further minimize less-than-significant impacts associated with fugitive dust generation.

MM-AQ-3 would require the application of T-BACT, which would reduce impacts to a less-than-significant level. Upon implementation of **MM-AQ-3**, impacts would be less than significant.

4.2.7 Cumulative Impacts

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

In analyzing cumulative impacts from the proposed project, the assessment must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SCAB is designated as nonattainment for the federal or state standards. Implementation of the proposed project would generate short-term air pollutant emissions during construction and long-term operational emissions associated with vehicle traffic to and from the campus as well as energy use of buildings and facilities.

Cumulative localized impacts could occur if the construction of a project component were to occur concurrently with another off-campus project. Construction under the proposed project would occur in multiple phases over 10 years throughout the Cypress College campus. Construction schedules for potential future projects near the Cypress College campus are currently unknown; therefore, potential construction impacts associated with two simultaneous projects are speculative. The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145). This analysis is nonetheless provided in an effort to show good faith analysis and comply with CEQA's information disclosure requirements.

Air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by the SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites in the SCAQMD. The maximum daily PM_{10} and $PM_{2.5}$ emissions would not exceed the significance thresholds during proposed project construction activities, although fugitive dust, as well as vehicle and equipment exhaust, generated during project construction would contribute to the SCAB's nonattainment designation for PM_{10} and $PM_{2.5}$; however, this contribution would not be considered cumulatively considerable.

With regard to operational cumulative impacts associated with nonattainment pollutants, in general, if a project is consistent with the community and general plans, it has been accounted for in the attainment demonstration contained within the state implementation plan and would therefore not cause a cumulatively significant impact on the ambient air quality. As discussed in Section 4.2.4, the proposed project would result in population growth that is consistent with the growth projections anticipated in the SCAQMD's 2012 AQMP. Accordingly, the proposed project would not result in a cumulatively considerable contribution to the nonattainment pollutants in the SCAB, and this impact would be less than significant.

4.2.8 References

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