4.B Air Quality

This section contains the following revisions to the 2017 Draft EIR:

- *An update of potential health effects of pollutants based on recent research*
- *More recent ambient air quality data*
- *Summary of a refined construction health risk assessment*

1. Introduction

This section provides an analysis of air emissions generated by construction and operation of the Project. In addition, consistency of the Project with air quality policies set forth within the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan (AQMP) and the City of El Segundo (City) General Plan is evaluated. The analysis of Project-generated air emissions focuses on whether the Project would cause an exceedance of an ambient air quality standard or a SCAQMD numeric indicator. Calculation worksheets, assumptions, and model outputs are provided in Appendix B of this Recirculated Partial Draft Environmental Impact Report (RPDEIR)~~EIR~~. In addition, in response to comments received during the public review period, this RPDEIR includes results of a refined construction health risk assessment (HRA) analysis that provides information that further substantiates the impact conclusions reached in the Project's Draft EIR. Detailed calculation worksheets and methodology for the refined construction HRA are provided in Appendix C of this RPDEIR.

2. Environmental Setting

a. Existing Conditions

(1) Regional Context

(a) Criteria Pollutants

The Project Site is located within the South Coast Air Basin (Air Basin), which is an approximately 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. The Air Basin consists of Orange County, Los Angeles County (excluding the Antelope Valley portion), and the western, non-desert portions of San Bernardino and Riverside Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Air Basin, as it is a coastal plain with connecting broad valleys and low hills.

The Air Basin lies in the semi-permanent high-pressure zone of the eastern Pacific Ocean, which provides a usually mild climatological pattern, interrupted by periods of hot weather, winter storms, or Santa Ana winds. The extent and severity of air pollutant concentrations in the Air Basin is a function of the area's natural physical characteristics (e.g., climate and topography) and man-made influences (e.g., development patterns and lifestyles). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of air pollutants throughout the Air Basin, making it an area of high air pollution potential. The Air Basin's

meteorological conditions, in combination with regional topography, are conducive to the formation and retention of ozone, which is a secondary pollutant that forms through photochemical reactions with ozone precursors in the atmosphere. Thus, the greatest air pollution impacts throughout the Air Basin typically occur from June through September, when days have the longest amount of daylight. This condition is generally attributed to the emissions occurring in the Air Basin, light winds, and shallow vertical atmospheric mixing, which reduce the potential for pollutant dispersion causing elevated air pollutant concentrations. Pollutant concentrations in the Air Basin vary with location, season, and time of day. Concentrations of ozone, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Air Basin and adjacent desert.

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment either directly or in reaction with other pollutants, due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and to facilitate improvement in air quality. These pollutants are regulated by the United States Environmental Protection Agency (USEPA) and are subject to emissions control requirements adopted by federal, state and local regulatory agencies. These pollutants are referred to as "criteria air pollutants", and National Ambient Air Quality Standards (NAAQS) have been adopted for them. NAAQS and California Ambient Air Quality Standards (CAAQS) for each of the monitored pollutants and their effects on health are summarized in **Table 4.B-1,** *Ambient Air Quality Standards*. NAAQS and CAAQS have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. A brief description of the health effects of these criteria air pollutants are provided below:

- **Ozone (O_3):** Ozone is a secondary pollutant formed by the chemical reaction of volatile organic compounds (VOCs) and nitrogen oxides (NO_X) in the presence of sunlight under favorable meteorological conditions, such as high temperature and stagnation episodes. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable. According to the U.S. EPA, ozone can cause the muscles in the airways to constrict potentially leading to wheezing and shortness of breath.[1] Ozone can make it more difficult to breathe deeply and vigorously; cause shortness of breath and pain when taking a deep breath; cause coughing and sore or scratchy throat; inflame and damage the airways; aggravate lung diseases such as asthma, emphysema and chronic bronchitis; increase the frequency of asthma attacks; make the lungs more susceptible to infection; continue to damage the lungs even when the symptoms have disappeared; and cause chronic obstructive pulmonary disease.[2] Long-term exposure to ozone is linked to aggravation of asthma, and is likely to be one of many causes of asthma development and long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage,

[1] United States Environmental Protection Agency (U.S. EPA), Health Effects of Ozone Pollution, last updated October 10, 2018, https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution. Accessed March 2019.

[2] U.S. EPA, Health Effects of Ozone Pollution.

such as abnormal lung development in children.[3] According to the California Air Resources Board (CARB), inhalation of ozone causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms and exposure to ozone can reduce the volume of air that the lungs breathe in and cause shortness of breath.[4] The U.S. EPA states that people most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers.[5] Children are at greatest risk from exposure to ozone because their lungs are still developing and they are more likely to be active outdoors when ozone levels are high, which increases their exposure.[6] According to CARB, studies show that children are no more or less likely to suffer harmful effects than adults; however, children and teens may be more susceptible to ozone and other pollutants because they spend nearly twice as much time outdoors and engaged in vigorous activities compared to adults.[7] Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults and are less likely than adults to notice their own symptoms and avoid harmful exposures.[8] Further research may be able to better distinguish between health effects in children and adults.[9]

- ~~**Ozone (O_3):** O_3 is a secondary pollutant formed by the chemical reaction of ozone precursors of volatile organic compounds (VOCs) and nitrogen oxides (NO_X) under favorable meteorological conditions, such as high temperature and stagnation episodes. O_3 concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions occur. Elevated O_3 levels irritate the lungs and breathing passages, causing coughing and pain in the chest and throat, thereby increasing susceptibility to respiratory infections and reducing the ability to exercise. Effects are more severe in people with asthma and other respiratory ailments. Long-term exposure may lead to scarring of lung tissue and may lower the lung efficiency.~~

- **Volatile Organic Compounds (VOCs):** VOCs are organic chemical compounds of carbon and are not "criteria" pollutants themselves; however, they contribute with NO_X to form ozone, and are regulated to prevent the formation of ozone.[10] According to CARB, some VOCs are highly reactive and play a critical role in the formation of ozone, other VOCs have adverse health effects, and in some cases, VOCs can be both highly reactive and have adverse health effects.[11] VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids, internal combustion associated with motor vehicle usage, and consumer products (e.g., architectural coatings, etc.).[12]

3 U.S. EPA, Health Effects of Ozone Pollution.
4 California Air Resources Board (CARB), Ozone & Health, Health Effects of Ozone, https://ww2.arb.ca.gov/resources/ozone-and-health. Accessed March 2019.
5 U.S. EPA, Health Effects of Ozone Pollution.
6 U.S. EPA, Health Effects of Ozone Pollution.
7 CARB, Ozone & Health, Health Effects of Ozone.
8 CARB, Ozone & Health, Health Effects of Ozone.
9 CARB, Ozone & Health, Health Effects of Ozone.
10 U.S. EPA, Technical Overview of Volatile Organic Compounds, last updated April 12, 2017, https://www.epa.gov/indoor-air-quality-iaq/technical-overview-volatile-organic-compounds. Accessed March 2019.
11 CARB, Toxic Air Contaminants Monitoring, Volatile Organic Compounds, last reviewed June 9, 2016, https://www.arb.ca.gov/aaqm/toxics.htm. Accessed March 2019.
12 CARB, Toxic Air Contaminants Monitoring, Volatile Organic Compounds.

- ~~**Volatile Organic Compounds (VOCs):** VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the State as toxic air contaminants (TACs). VOCs are comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons, as are architectural coatings. Emissions of VOCs themselves are not "criteria" pollutants; however, they contribute with NO_X in the formation of O_3 and are regulated as O_3 precursor emissions.~~

- **Nitrogen Dioxide (NO_2) and Nitrogen Oxides (NO_X):** NO_X is a term that refers to a group of compounds containing nitrogen and oxygen. The primary compounds of air quality concern include nitrogen dioxide (NO_2) and nitric oxide (NO). Ambient air quality standards have been promulgated for NO_2, which is a reddish-brown, reactive gas.[13] The principal form of NO_X produced by combustion is NO, but NO reacts quickly in the atmosphere to form NO_2, creating the mixture of NO and NO_2 referred to as NO_X.[14] Major sources of NO_X include emissions from cars, trucks and buses, power plants, and off-road equipment.[15] The terms NO_X and NO_2 are sometimes used interchangeably. However, the term NO_X is typically used when discussing emissions, usually from combustion-related activities, and the term NO_2 is typically used when discussing ambient air quality standards. Where NO_X emissions are discussed in the context of the thresholds of significance or impact analyses, the discussions are based on the conservative assumption that all NO_X emissions would oxidize in the atmosphere to form NO_2. According to the U.S. EPA, short-term exposures to NO_2 can potentially aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms while longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections.[16] According to CARB, controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics.[17] In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses.[18] Infants and children are particularly at risk from exposure to NO_2 because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration while in adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease.[19] CARB states that much of the information on distribution in air, human exposure and dose, and health effects is specifically for NO_2 and there is only limited information for NO and NO_X, as well as large uncertainty in relating health effects to NO or NO_X exposure.[20]

[13] CARB, Nitrogen Dioxide & Health, https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health. Accessed March 2019.
[14] CARB, Nitrogen Dioxide & Health.
[15] U.S. EPA, Nitrogen Dioxide (NO_2) Pollution, last updated September 8, 2016, https://www.epa.gov/no2-pollution/basic-information-about-no2. Accessed March 2019.
[16] U.S. EPA, Nitrogen Dioxide (NO_2) Pollution.
[17] CARB, Nitrogen Dioxide & Health.
[18] CARB, Nitrogen Dioxide & Health.
[19] CARB, Nitrogen Dioxide & Health.
[20] CARB, Nitrogen Dioxide & Health.

- **Nitrogen Dioxide (NO_2) and Nitrogen Oxides (NOx):** NO_X is a term that refers to a group of compounds containing nitrogen and oxygen including primarily NO_2, and nitric oxide (NO). Ambient air quality standards have been promulgated for NO_2, which is a reddish brown, reactive gas. The principal form of NO_X produced by combustion is NO, but NO reacts quickly in the atmosphere to form NO_2, creating the mixture of NO and NO_2 referred to as NO_X. Major sources of NO_X emissions include power plants, large industrial facilities, and motor vehicles. Emissions of NO_X are a precursor to the formation of ground-level ozone. NO_2 can potentially irritate the nose and throat, aggravate lung and heart problems, and may increase susceptibility to respiratory infections, especially in people with asthma. According to the California Air Resources Board (CARB), "NO_2 is an oxidizing gas capable of damaging cells lining the respiratory tract. Exposure to NO_2 along with other traffic-related pollutants, is associated with respiratory symptoms, episodes of respiratory illness and impaired lung functioning. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO_2 above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children."[21] NO_2 also contributes to the formation of particulate matter.

TABLE 4.B-1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Average Time	California Standards [a]		National Standards [b]		
		Concentration [c]	Method [d]	Primary [c,e]	Secondary [c,f]	Method [g]
O_3 [h]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
NO_2 [i]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemi-luminescence	100 ppb (188 µg/m^3)	None	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		53 ppb (100 µg/m^3)	Same as Primary Standard	
CO	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10mg/m^3)		9 ppm (10 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	

[21] California Air Resources Board, "Nitrogen Dioxide – Overview," http://www.arb.ca.gov/research/aaqs/caaqs/no2-1/no2-1.htm. Accessed April 2017.

Pollutant	Average Time	California Standards [a]		National Standards [b]		
		Concentration [c]	Method [d]	Primary [c,e]	Secondary [c,f]	Method [g]
SO_2 [j]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)[9]
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[j]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) [j]	—	
PM_{10} [k]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
$PM_{2.5}$ [k]	24 Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3 [k]	15 µg/m^3	
Lead [l,m]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[m]	Same as Primary Standard	
	Rolling 3-Month Average [m]	--		0.15 µg/m^3		
Visibility Reducing Particles [n]	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		**No Federal Standards**		
Sulfates (SO_4)	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride [l]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Pollutant	Average Time	California Standards [a]		National Standards [b]		
		Concentration [c]	Method [d]	Primary [c,e]	Secondary [c,f]	Method [g]

[a] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

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

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

[d] Any equivalent procedure which can be shown to the satisfaction of the California Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

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

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

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

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

[i] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb.

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

[k] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$.

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

[m] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

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

SOURCE: CARB, 2016.

- **Carbon Monoxide (CO):** Carbon monoxide (CO) is primarily emitted from combustion processes and motor vehicles due to the incomplete combustion of fuel, such as natural gas, gasoline, or wood, with the majority of outdoor CO emissions from mobile sources.[22] According to the USEPA, breathing air with a high concentration of CO reduces the amount of oxygen that can be transported in the blood stream to critical organs like the heart and brain and at very high levels, which are possible indoors or in other enclosed environments, CO can

[22] CARB, Carbon Monoxide & Health, https://ww2.arb.ca.gov/resources/carbon-monoxide-and-health. Accessed March 2019.

cause dizziness, confusion, unconsciousness and death.[23] Very high levels of CO are not likely to occur outdoors; however, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease since these people already have a reduced ability for getting oxygenated blood to their hearts and are especially vulnerable to the effects of CO when exercising or under increased stress.[24] In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina.[25] According to CARB, the most common effects of CO exposure are fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain.[26] For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress; inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance.[27] Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO.[28]

- ~~**Carbon Monoxide (CO):** CO is primarily emitted from combustion processes and motor vehicles due to incomplete combustion of fuel. Elevated concentrations of CO weaken the heart's contractions and lower the amount of oxygen carried by the blood. It is especially dangerous for people with chronic heart disease. Inhalation of CO can cause nausea, dizziness, and headaches at moderate concentrations and can be fatal at high concentrations.~~

- **Sulfur Dioxide (SO_2):** According to the U.S. EPA, the largest source of sulfur dioxide (SO_2) emissions in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities while smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore; natural sources such as volcanoes; and locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content.[29] In 2006, California phased-in the ultra-low-sulfur diesel regulation limiting vehicle diesel fuel to a sulfur content not exceeding 15 parts per million, down from the previous requirement of 500 parts per million, substantially reducing emissions of sulfur from diesel combustion.[30] According to the U.S. EPA, short-term exposures to SO_2 can harm the human respiratory system and make breathing difficult.[31] According to CARB, health effects at levels near the State one-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath and chest tightness, especially during exercise or physical activity and exposure at elevated levels of SO_2 (above 1 part per million (ppm)) results in increased incidence of pulmonary symptoms and disease, decreased

[23] U.S. EPA, Carbon Monoxide (CO) Pollution in Outdoor Air, last updated September 8, 2016, https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution. Accessed March 2019.
[24] U.S. EPA, Carbon Monoxide (CO) Pollution in Outdoor Air
[25] U.S. EPA, Carbon Monoxide (CO) Pollution in Outdoor Air
[26] CARB, Carbon Monoxide & Health.
[27] CARB, Carbon Monoxide & Health.
[28] CARB, Carbon Monoxide & Health.
[29] U.S. EPA, Sulfur Dioxide (SO_2) Pollution, last updated June 28, 2018, https://www.epa.gov/so2-pollution/sulfur-dioxide-basics. Accessed March 2019.
[30] CARB, Final Regulation Order, Amendments to the California Diesel Fuel Regulations, Amend Section 2281, Title 13, California Code of Regulations, approved July 15, 2004, https://www.arb.ca.gov/regact/ulsd2003/fro2.pdf. Accessed March 2019.
[31] U.S. EPA, Sulfur Dioxide (SO_2) Pollution.

pulmonary function, and increased risk of mortality.[32] Children, the elderly, and those with asthma, cardiovascular disease, or chronic lung disease (such as bronchitis or emphysema) are most likely to experience the adverse effects of SO_2.[33,34]

- ~~**Sulfur Dioxide (SO_2):** Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in asthmatics and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. High levels of particulates appear to worsen the effect of SO_2, and long-term exposures to both pollutants leads to higher rates of respiratory illness.~~

- **Particulate Matter (PM10 and PM2.5):** Particulate matter air pollution is a mixture of solid particles and liquid droplets found in the air.[35] Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye while other particles are so small they can only be detected using an electron microscope.[36] Particles are defined by their diameter for air quality regulatory purposes: inhalable particles with diameters that are generally 10 micrometers and smaller (PM10); and fine inhalable particles with diameters that are generally 2.5 micrometers and smaller (PM2.5).[37] Thus, PM2.5 comprises a portion or a subset of PM10. Sources of PM10 emissions include dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial sources, and wind-blown dust from open lands.[38] Sources of PM2.5 emissions include combustion of gasoline, oil, diesel fuel, or wood.[39] PM10 and PM2.5 may be either directly emitted from sources (primary particles) or formed in the atmosphere through chemical reactions of gases (secondary particles) such as SO_2, NO_X, and certain organic compounds.[40] According to CARB, both PM10 and PM2.5 can be inhaled, with some depositing throughout the airways; PM_{10} is more likely to deposit on the surfaces of the larger airways of the upper region of the lung while PM2.5 is more likely to travel into and deposit on the surface of the deeper parts of the lung, which can induce tissue damage, and lung inflammation.[41] Short-term (up to 24 hours duration) exposure to PM10 has been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits.[42] The effects of long-term (months or years) exposure to PM10 are less clear, although studies suggest a link between long-term PM10 exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer.[43] Short-term exposure to PM2.5 has been

[32] CARB, Sulfur Dioxide & Health, https://ww2.arb.ca.gov/resources/sulfur-dioxide-and-health. Accessed March 2019.
[33] CARB, Sulfur Dioxide & Health.
[34] U.S. EPA, Sulfur Dioxide (SO_2) Pollution.
[35] U.S. EPA, Particulate Matter (PM) Pollution, last updated November 14, 2018, https://www.epa.gov/pm-pollution/particulate-matter-pm-basics. Accessed March 2019.
[36] U.S. EPA, Particulate Matter (PM) Pollution.
[37] U.S. EPA, Particulate Matter (PM) Pollution.
[38] CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10), last reviewed August 10, 2017, https://www.arb.ca.gov/research/aaqs/common-pollutants/pm/pm.htm. Accessed March 2019.
[39] CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10).
[40] CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10).
[41] CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10).
[42] CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10).
[43] CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10).

associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days and long-term exposure to PM2.5 has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children.[44] According to CARB, populations most likely to experience adverse health effects with exposure to PM10 and PM2.5 include older adults with chronic heart or lung disease, children, and asthmatics and children and infants are more susceptible to harm from inhaling pollutants such as PM10 and PM2.5 compared to healthy adults because they inhale more air per pound of body weight than do adults, spend more time outdoors, and have developing immune systems.[45]

- ~~**Particulate Matter (PM_{10} and $PM_{2.5}$):** The human body naturally prevents the entry of larger particles into the body. However, small particles including fugitive dust, with an aerodynamic diameter equal to or less than ten microns (PM_{10}) and even smaller particles with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$), can enter the body and are trapped in the nose, throat, and upper respiratory tract. These small particulates could potentially aggravate existing heart and lung diseases, change the body's defenses against inhaled materials, and damage lung tissue. The elderly, children, and those with chronic lung or heart disease are most sensitive to PM_{10} and $PM_{2.5}$. Lung impairment can persist for two to three weeks after exposure to high levels of particulate matter. Some types of particulates could become toxic after inhalation due to the presence of certain chemicals and their reaction with internal body fluids. The elderly, children, and those with chronic lung or heart disease are most sensitive to PM_{10} and $PM_{2.5}$. In children, studies have shown associations between PM exposure and reduced lung function and increased respiratory symptoms and illnesses.[46]~~

- **Lead (Pb):** Major sources of lead emissions include ore and metals processing, piston-engine aircraft operating on leaded aviation fuel, waste incinerators, utilities, and lead-acid battery manufacturers.[47] In the past, leaded gasoline was a major source of lead emissions; however, the removal of lead from gasoline has resulted in a decrease of lead in the air by 98 percent between 1980 and 2014.[48] Lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system, and affects the oxygen carrying capacity of blood.[49] The lead effects most commonly encountered in current populations are neurological effects in children, such as behavioral problems and reduced intelligence, anemia, and liver or kidney damage.[50] Excessive lead exposure in adults can cause reproductive problems in men and women, high blood pressure, kidney disease, digestive problems, nerve disorders, memory and concentration problems, and muscle and joint pain.[51]

44 CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10).
45 CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10).
46 ~~California Air Resources Board, "Particulate Matter – Overview". Available at http://www.arb.ca.gov/research/aaqs/caaqs/pm/pm.htm. Accessed April 2017.~~
47 U.S. EPA, Lead Air Pollution, last updated November 29, 2017, https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution. Accessed March 2019.
48 U.S. EPA, Lead Air Pollution.
49 U.S. EPA, Lead Air Pollution.
50 CARB, Lead & Health, https://ww2.arb.ca.gov/resources/lead-and-health. Accessed March 2019.
51 CARB, Lead & Health.

- ~~**Lead:** Lead is emitted from industrial facilities and from the sanding or removal of old lead-based paint. Smelting or processing the metal is the primary source of lead emissions, which is primarily a regional pollutant. Lead affects the brain and other parts of the body's nervous system. Exposure to lead in very young children impairs the development of the nervous system, kidneys, and blood forming processes in the body.~~

(b) Other Criteria Pollutants (California Only)

The California Ambient Air Quality Standards (CAAQS) regulate the same criteria pollutants as the NAAQS but in addition, regulate State-identified criteria pollutants, including sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride.[52] With respect to the State-identified criteria pollutants (i.e., sulfates, hydrogen sulfide, visibility reducing particles, and vinyl chloride), the Project would either not emit them (i.e., hydrogen sulfide and vinyl chloride), or they would be accounted for as part of the pollutants estimated in this analysis (i.e., sulfates and visibility reducing particles). For example, visibility reducing particles are associated with particulate matter emissions and sulfates are associated with SO_X emissions. Both particulate matter and SO_X are included in the emissions estimates for the Project. A description of the health effects of the State-identified criteria air pollutants is provided below.

- **Sulfates (SO_4^{2-}):** Sulfates in the environment occur as a result of SO_2 (sulfur dioxide) being converted to SO_4^{2-} compounds in the atmosphere where sulfur is first oxidized to SO_2 during the combustion process of sulfur containing, petroleum-derived fuels (e.g., gasoline and diesel fuel).[53] Exposure to SO_4^{2-}, which are part of PM2.5, results in health effects similar to those from exposure to PM2.5 including reduced lung function, aggravated asthmatic symptoms, and increased risk of emergency department visits, hospitalizations, and death in people who have chronic heart or lung diseases.[54] Population groups with higher risks of experiencing adverse health effects with exposure to SO_4^{2-} include children, asthmatics, and older adults who have chronic heart or lung diseases.[55]

- **Hydrogen Sulfide (H_2S)**: H_2S is a colorless gas with a strong odor of rotten eggs. The most common sources of H_2S emissions are oil and natural gas extraction and processing, and natural emissions from geothermal fields. Industrial sources of H_2S include petrochemical plants and kraft paper mills. H_2S is also formed during bacterial decomposition of human and animal wastes, and is present in emissions from sewage treatment facilities and landfills.[56] Exposure to H_2S can induce tearing of the eyes and symptoms related to overstimulation of the sense of smell, including headache, nausea, or vomiting; additional health effects of eye irritation have only been reported with exposures greater than 50 ppm, which is considerably higher than the odor threshold.[57] H_2S is regulated as a nuisance based on its odor detection level; if the standard were based on adverse health effects, it would be set at a much higher level.[58] According to

[52] CARB, Vinyl Chloride, 2009, last reviewed August 22, 2016, https://www.arb.ca.gov/research/aaqs/caaqs/vc/vc.htm. Accessed March 2019.
[53] CARB, Sulfate & Health, https://ww2.arb.ca.gov/resources/sulfate-and-health. Accessed March 2019.
[54] CARB, Sulfate & Health.
[55] CARB, Sulfate & Health.
[56] CARB, Hydrogen Sulfide & Health, https://ww2.arb.ca.gov/resources/hydrogen-sulfide-and-health. Accessed March 2019.
[57] CARB, Hydrogen Sulfide & Health.
[58] CARB, Hydrogen Sulfide & Health.

CARB, there are insufficient data available to determine whether or not some groups are at greater risk than others.[59]

- **Visibility-Reducing Particles:** Visibility-reducing particles come from a variety of natural and manmade sources and can vary greatly in shape, size and chemical composition. Visibility reduction is caused by the absorption and scattering of light by the particles in the atmosphere before it reaches the observer. Certain visibility-reducing particles are directly emitted to the air such as windblown dust and soot, while others are formed in the atmosphere through chemical transformations of gaseous pollutants (e.g., sulfates, nitrates, organic carbon particles) which are the major constituents of particulate matter. As the number of visibility reducing particles increases, more light is absorbed and scattered, resulting in less clarity, color, and visual range.[60] Exposure to some haze-causing pollutants have been linked to adverse health impacts similar to PM10 and PM2.5 as discussed above.[61]

- **Vinyl Chloride:** Vinyl chloride is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products and are generally emitted from industrial processes and other major sources of vinyl chloride have been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.[62] Short-term health of effects of exposure to high levels of vinyl chloride in the air include central nervous system effects, such as dizziness, drowsiness, and headaches while long-term exposure to vinyl chloride through inhalation and oral exposure causes liver damage and has been shown to increase the risk of angiosarcoma, a rare form of liver cancer in humans.[63] Most health data on vinyl chloride relate to carcinogenicity; thus, the people most at risk are those who have long-term exposure to elevated levels, which is more likely to occur in occupational or industrial settings; however, control methodologies applied to industrial facilities generally prevent emissions to the ambient air.[64]

(c~~b~~) Air Toxics

In addition to criteria pollutants, SCAQMD periodically assesses levels of TACs in the Air Basin. A TAC is defined by California Health and Safety Code Section 39655:

> *"Toxic air contaminant" means an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal act (42 U.S.C. Sec. 7412(b)) is a toxic air contaminant."*

Between July 2012 and June 2013, SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES IV), which is a follow-up to previous air toxics studies conducted in the Air Basin. The MATES IV Final Report was issued in May 2015. The MATES IV study was based on actual

[59] CARB, Hydrogen Sulfide & Health.
[60] CARB, Visibility-Reducing Particles and Health, last reviewed October 11, 2016, https://www.arb.ca.gov/research/aaqs/common-pollutants/vrp/vrp.htm. Accessed March 2019.
[61] CARB, Visibility-Reducing Particles and Health.
[62] CARB, Vinyl Chloride & Health, https://ww2.arb.ca.gov/resources/vinyl-chloride-and-health. Accessed March 2019.
[63] CARB, Vinyl Chloride & Health.
[64] CARB, Vinyl Chloride & Health.

monitored data throughout the Air Basin and consisted of several elements. The elements included a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize carcinogenic risk across the Air Basin from exposure to TACs. MATES IV applied a two-kilometer (1.24-mile) grid over the Air Basin and reported carcinogenic risk within each grid space (covering an area of four square kilometers or 1.54 square miles). MATES IV concluded that the average of the modeled air toxics concentrations measured at each of the monitoring stations in the Air Basin equates to a background cancer risk of approximately 418 in 1,000,000 primarily due to diesel exhaust, which is approximately 65 percent lower than the previous MATES III cancer risk.[65] Subsequent to the SCAQMD's risk calculations estimates performed for MATES IV, the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA) updated the methods for estimating cancer risks.[66] The updated method utilizes higher estimates of cancer potency during early life exposures and uses different assumptions for breathing rates and length of residential exposures. When combined together, SCAQMD staff estimates that risks for the same inhalation exposure level will be approximately 2.5 to 2.7 times higher using the updated methods. This would be reflected in the average lifetime air toxics risk estimated from the monitoring sites data going from 418 per million to 1,023 per million.[67] Under the updated OEHHA methodology, adopted in March of 2015, the relative reduction in risk from the MATES IV results compared to MATES III would be the same (approximately 65 percent).

Approximately 68 percent of the risk is attributed to diesel particulate emissions, approximately 22 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately 10 percent of all airborne carcinogenic risk is attributed to stationary sources (which include industries and other certain businesses, such as dry cleaners and chrome plating operations).[68] The study also found lower ambient concentrations of most of the measured air toxics compared to the levels measured in the previous study conducted during 2004 and 2006. Specifically, benzene and 1,3-butadiene, pollutants generated mainly from vehicles, were down 35 percent and 11 percent, respectively. [69] The reductions were attributed to air quality control regulations and improved emission control technologies. In addition to air toxics, MATES IV included continuous measurements of black carbon and ultrafine particles (particles smaller than 0.1 microns in size), which are emitted by combustion of diesel fuels. Sampling sites located near heavily-trafficked freeways or near industrial areas were characterized by increased levels of black carbon and ultrafine particles compared to more rural sites.

As part of the MATES IV, SCAQMD prepared maps that show regional trends in estimated outdoor inhalation cancer risk from toxic emissions, as part of an ongoing effort to provide insight into

65 South Coast Air Quality Management District, Final Report – Multiple Air Toxics Exposure Study in the South Coast Air Basin, 2015, page ES-2.

66 California Environmental Protection Agency, Office of Health Hazard Assessment, Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments, 2015.

67 South Coast Air Quality Management District, Final Report – Multiple Air Toxics Exposure Study in the South Coast Air Basin, 2015, page 2-11.

68 Ibid., ES-2.

69 South Coast Air Quality Management District, Final Report – Multiple Air Toxics Exposure Study in the South Coast Air Basin, 2015, page 6-1.

relative risks. The maps represent the estimated number of potential cancers per million people associated with a lifetime of breathing air toxics (24 hours per day outdoors for 70 years). The background potential cancer risk per million people using the update OEHHA methodology is estimated from 1,086 to 1,285 per million (compared to an overall South Coast Air Basin-wide risk of 1,023 per million).[70] Generally, the risk from air toxics is lower near the coastline and increases inland, with higher risks concentrated near diesel sources (e.g., freeways, airports, and ports).

(2) Local Air Quality

(a) Existing Criteria Pollutants Levels at Nearby Monitoring Stations

SCAQMD maintains a network of air quality monitoring stations located throughout the Air Basin to measure ambient pollutant concentrations. The monitoring station most representative of the Project Site is the Southwest Los Angeles County Coastal Monitoring Station. This station is located at the intersection of West 91st Street and Hastings Avenue in the City of Los Angeles, approximately 3.3 miles northwest of the Project Site. Criteria pollutants monitored at this station include ozone, NO_2, CO, SO_2, and PM_{10}. This station did not have data for $PM_{2.5}$, therefore, the next closest station with $PM_{2.5}$ measurements is the South Los Angeles County Coastal 1 Monitoring Station. This station is located at the intersection of East 37th Street and Long Beach Boulevard in the City of Long Beach, approximately 13 miles southeast of the Project Site. The most recent data available from the SCAQMD for these monitoring stations are from years 2011 to 2015. The pollutant concentration data for these years are summarized in **Table 4.B-2,** *Monitoring Station Ambient Air Quality Data*.

TABLE 4.B-2
MONITORING STATION AMBIENT AIR QUALITY DATA

Pollutant/Standard [a]	2013	2014	2015	2016	2017
O_3 (1-hour)					
Maximum Concentration (ppm)	0.105	0.114	0.096	0.087	0.086
Days > CAAQS (0.09 ppm)	1	1	1	0	0
O_3 (8-hour)					
Maximum Concentration (ppm)	0.081	0.080	0.077	0.080	0.070
4th High 8-hour Concentration (ppm)	0.060	0.075	0.069	0.067	0.064
Days > CAAQS (0.070 ppm)	1	6	3	2	0
Days > NAAQS (0.075 ppm)	1	3	1	1	0
Days > NAAQS (0.070 ppm)	--	6	3	3	0
NO_2 (1-hour)					
Maximum Concentration (ppm)	0.078	0.087	0.087	0.082	0.072
98th Percentile Concentration (ppm)	0.058	0.056	0.058	0.055	0.055
NO_2 (Annual)					
Annual Arithmetic Mean (0.030 ppm)	0.012	0.012	0.011	0.010	0.009

[70] South Coast Air Quality Management District, Multiple Air Toxics Exposure Study, MATES IV Carcinogenic Risk Interactive Map. Available at http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv. Accessed April 2017.

Pollutant/Standard [a]	2013	2014	2015	2016	2017
CO (1-hour)					
Maximum Concentration (ppm)	N/A	3.0	1.7	1.6	2.1
CO (8-hour)					
Maximum Concentration (ppm)	2.5	1.9	1.4	1.3	1.6
SO_2 (1-hour)					
Maximum Concentration (ppm)	0.010	0.015	0.015	0.001	0.001
99th Percentile Concentration (ppm)	0.007	0.009	0.007	0.006	0.007
PM_{10} (24-hour)					
Maximum Concentration (µg/m^3)	38	46	42	43	46
Est. Days > CAAQS (50 µg/m^3)	0	0	0	0	0
Est. Days > NAAQS (150 µg/m^3)	0	0	0	0	0
PM_{10} (Annual Average)					
Annual Arithmetic Mean (20 µg/m^3)	20.8	22.0	21.2	21.6	19.8
$PM_{2.5}$ (24-hour) [b]					
Maximum Concentration (µg/m^3)	47.2	51.5	54.6	29.37	55.30
98th Percentile Concentration (µg/m^3)	26.1	31.3	32.1	23.56	32.30
Est. Days > NAAQS (35 µg/m^3)	2	2	3	0	4
$PM_{2.5}$ (Annual)					
Annual Arithmetic Mean (12 µg/m^3)	11.3	11.4	10.8	10.4	10.9
Lead					
Maximum 30-day average (µg/m^3)	0.005	0.008	0.008	0.006	0.005

[a] ppm = parts per million; µg/m^3 = micrograms per cubic meter
[b] Data from the Southwest Los Angeles County Station did not provide PM2.5 data for years 2011-2015, instead the South Los Angeles County Coastal Monitoring Station was used to provide PM2.5 data.

SOURCE: SCAQMD, 2017.

(b) Existing Site Emissions

The 12.5-acre Project Site consists of three contiguous parcels: the 1955 East Grand Avenue Parcel, 333 Continental Boulevard Parcel, and 455 Continental Boulevard Parcel. The 333 Continental Boulevard Parcel would remain unchanged under the Project, and therefore, is not included in this air quality analysis. The 455 Continental Boulevard and 1955 East Grand Avenue Parcels, which are evaluated in this air quality analysis, do not currently generate vehicle trips, and therefore, do not generate mobile emissions. The 1955 East Grand Avenue Parcel produces minimal emissions from intermittent building operations. Therefore, this analysis will conservatively assume no existing site emissions that would offset the Project's overall operational emissions.

(c) Sensitive Receptors and Locations

Some population groups, such as children, the elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases, are considered more sensitive to air pollution than others. Potential sensitive receptors (e.g., child care facilities, residential areas, schools, or convalescent care facilities) located within the area are the DoubleTree Hotel, which is located to the south of the 333 Continental Avenue building and east of the 1955 East Grand Avenue property,

and the child care center located on the site on the 333 Continental Boulevard Parcel. While the public accessing the DoubleTree Hotel could include some members of sensitive population groups, these individuals are not specifically identified in the analysis in accordance with SCAQMD methodology, since their presence in the vicinity of the Project Site would be limited and/or intermittent. In addition, since the child care center is operated and maintained by Mattel on the Project Site, the Applicant would control the construction program and operation of the child care center such that children's exposure to TACs during Project construction would be avoided. ~~Sensitive land uses i~~In accordance with SCAQMD guidance, ESA identified the following off-site sensitive receptors located near the Project Site that are included in the refined construction HRA ~~include the following~~:

- The closest residence, approximately 1,100 feet west of the Project Site; and
- The closest schools, the Da Vinci School, approximately 1,850 feet southeast of the Project Site, and the El Segundo Middle School, approximately 2,500 feet west of the Project Site.

The closest schools are the Da Vinci School (DVS), which is located approximately 1,850 feet southeast of the Project Site, and the El Segundo Middle School (ESMS), which is located approximately 2,500 feet west of the Project Site. However, health impacts to students at the DVS and ESMS are not evaluated in the refined construction HRA for the following reasons: (1) students at DVS and ESMS would be located more than twice as far from the Project Site compared to children of the same age located at residences closer to the Project Site, (2) DVS teaches grades, 9 through 12 and ESMS teaches grades 6, 7, and 8, thus student breathing rates (2 to 16 age bin and 16+ age bin) would be lower compared to infant children (0 to 2 age bin) at the residences closer to the Project Site in which a majority of construction exposure occurs, (3) exposure durations of students at DVS and ESMS (180 days) would be less than that of children at residences (350 days), and (4) this refined construction HRA resulted in less than significant impacts for the maximum impacted residence which is closer to the Project Site than DVS and ESMS. Therefore, impacts to DVS and ESMS students would be less than significant.

In addition, while workers at commercial buildings are generally not considered sensitive receptors, worker receptors at commercial buildings located near the Project Site are also included in the refined construction HRA in order to provide a health-protective analysis of workers in the surrounding commercial buildings.

b. Regulatory Framework

A number of statutes, regulations, plans, and policies have been adopted that address air quality issues. The Project is subject to air quality regulations developed and implemented at the federal, state, and local levels. This section provides a summary of pertinent air quality regulations affecting the Project at the federal, state, and local levels.

(1) Federal

The Clean Air Act (CAA) of 1963 was the first federal legislation regarding air pollution control and has been amended numerous times in subsequent years, with the most recent amendments occurring in 1990. At the federal level, USEPA is responsible for implementation of certain

portions of the CAA including mobile source requirements. Other portions of the CAA, such as stationary source requirements, are implemented by state and local agencies.

The CAA establishes federal air quality standards and specifies future dates for achieving compliance. The CAA also mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting these standards. SIPs must include pollution control measures that demonstrate how the NAAQS will be met. The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA which are most applicable to the Project include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions).

The sections of the CAA which are most applicable to the Project include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions). Title I requirements are implemented for the purpose of attaining NAAQS for the following criteria pollutants: O_3; NO_2; CO; SO_2; PM_{10}; and lead. The NAAQS were amended in July 1997 to include an 8-hour standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. The NAAQS were last amended in September 2006 to include an established methodology for calculating $PM_{2.5}$ as well as revoking the annual PM_{10} threshold.

The Project is located within an area designated as non-attainment because it does not currently meet NAAQS for the 8-hour ozone, $PM_{2.5}$, and lead regulated under the CAA. The CAA sets certain deadlines for meeting the NAAQS within the Air Basin including the following: 1-hour O_3 by the year 2023; 8-hour O_3 by the year 2024;[71] PM_{10} is currently in attainment; and $PM_{2.5}$ by the year 2019.[72]

In 2008, the USEPA reduced the lead standard from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$. From this, USEPA designated a portion of Los Angeles County, excluding San Clemente, Santa Catalina Islands, and the high deserts, as non-attainment for the violation of the new 2008 lead standard.[73] The violation was based on 2007-2009 air quality monitoring data near a large lead-acid battery recycling facility.[74] The lead-acid battery recycling industry is the main source of lead emissions in Los Angeles County, all other ambient measurements of lead across the County are well below the 2008 standard.[75] In 2012, a state implementation plan was introduced with strategies and pollution control activities that would be necessary to demonstrate attainment of the lead NAAQS.

Title II of the CAA pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few

71 The 8-hour ozone attainment deadline for the 1997 standard of 80 parts per billion is 2024. The 8-hour ozone attainment deadline for the 2008 standard of 75 parts per billion is 2032.

72 $PM_{2.5}$ has a deadline of 2019 for the 24-hour standard of 35$\mu g/m^3$. Deadlines for the 1997 annual standard of 15.0 $\mu g/m^3$ is 2015 and for the 2012 annual standard of 12.0 $\mu g/m^3$ is 2025.

73 USEPA, Lead Designations - Table of EPA Initial Nonattainment Designations, 2017. Available at https://www.epa.gov/lead-designations/lead-designations-table-epa-initial-nonattainment-designations.

74 South Coast Air Quality Management District, Adopt the 2012 Lead State Implementation Plan for Los Angeles County, May 2012. Available at http://www3.aqmd.gov/hb/attachments/2011-2015/2012May/2012-May4-030.pdf.

75 Ibid.

of the mechanisms USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have strengthened in recent years to improve air quality. For example, the standards for NO_X emissions have been lowered substantially, and the specification requirements for cleaner burning gasoline are more stringent.

(2) State

(a) California Clean Air Act

The California CAA, signed into law in 1988, requires all areas of the State to achieve and maintain the CAAQS by the earliest practical date. The CAAQS apply to the same criteria pollutants as the federal CAA but also include State-identified criteria pollutants, which include sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. The CARB has primary responsibility for ensuring the implementation of the California CAA,[76] responding to the federal CAA planning requirements applicable to the state, and regulating emissions from motor vehicles and consumer products within the state. Table 4.B-1 shows the CAAQS currently in effect for each of the criteria pollutants as well as the other pollutants recognized by the state. As shown in Table 4.B-1, the CAAQS include more stringent standards than the NAAQS for most of the criteria air pollutants. Currently CO, NO_2, SO_2, and PM_{10} are in attainment for NAAQS, however PM_{10} is designated at non-attainment for CAAQS. O_3 and $PM_{2.5}$ are designated as non-attainment for NAAQS and CAAQS. Lead is designated as attainment for CAAQS. For NAAQS, lead is designated as non-attainment for a portion of Los Angeles County due to lead-acid battery recycling facilities, however, all other ambient air monitoring stations beyond these facilities have levels lower than the 2008 standard.

Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. **Table 4.B-3**, *South Coast Air Basin Attainment Status (Los Angeles County)*, provides a summary of the attainment status of the Los Angeles County portion of the Air Basin with respect to the state standards. The Air Basin is designated as attainment for the California standards for sulfates and unclassified for hydrogen sulfide and visibility-reducing particles. Because vinyl chloride is a carcinogenic toxic air contaminant, CARB does not classify attainment status for this pollutant.

(b) California Air Resources Board On-Road and Off-Road Vehicle Rules

In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel PM and other TACs. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given time.

[76] Chapter 1568 of the Statutes of 1988.

TABLE 4.B-3
SOUTH COAST AIR BASIN ATTAINMENT STATUS (LOS ANGELES COUNTY)

Pollutant	National Standards	California Standards
O_3 (1-hour standard)	N/A [a]	Non-attainment – Extreme
O_3 (8-hour standard)	Non-attainment – Extreme	Non-attainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM_{10}	Attainment	Non-attainment
$PM_{2.5}$	Non-attainment	Non-attainment
Lead	Non-attainment	Attainment
Visibility Reducing Particles	N/A	Unclassified
Sulfates	N/A	Attainment
Hydrogen Sulfide	N/A	Unclassified
Vinyl Chloride	N/A	N/A [b]

N/A = not applicable

[a] The NAAQS for 1-hour ozone was revoked on June 15, 2005, for all areas except Early Action Compact areas.
[b] In 1990 the California Air Resources Board identified vinyl chloride as a toxic air contaminant and determined that it does not have an identifiable threshold. Therefore, the California Air Resources Board does not monitor or make status designations for this pollutant.

SOURCE: USEPA, 2016 and CARB, 2017.

In 2008 CARB approved the Truck and Bus regulation to reduce NO_X, PM_{10}, and $PM_{2.5}$ emissions from existing diesel vehicles operating in California. The requirements were amended in December 2010 and apply to nearly all diesel fueled trucks and busses with a gross vehicle weight rating greater than 14,000 pounds. For the largest trucks in the fleet, those with a gross vehicle weight rating greater than 26,000 pounds, there are two methods to comply with the requirements. The first way is for the fleet owner to retrofit or replace engines, starting with the oldest engine model year, to meet 2010 engine standards, or better. This is phased over 8 years, starting in 2015 and would be fully implemented by 2023, meaning that all trucks operating in the State subject to this option would meet or exceed the 2010 engine emission standards for NO_X and PM by 2023. The second option, if chosen, requires fleet owners, starting in 2012, to retrofit a portion of their fleet with diesel particulate filters achieving at least 85 percent removal efficiency, so that by January 1, 2016 their entire fleet is equipped with diesel particulate filters. However, diesel particulate filters do not typically lower NO_X emissions. Thus, fleet owners choosing the second option must still comply with the 2010 engine emission standards for their trucks and busses by 2020.

In addition to limiting exhaust from idling trucks, CARB recently promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by the CARB on July 26, 2007, aims to reduce emissions by installation of

diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models. Implementation is staggered based on fleet size (which is the total of all off-road horsepower under common ownership or control), with the largest fleets to begin compliance by January 1, 2014. Each fleet must demonstrate compliance through one of two methods. The first option is to calculate and maintain fleet average emissions targets, which encourages the retirement or repowering of older equipment and rewards the introduction of newer cleaner units into the fleet. The second option is to meet the Best Available Control Technology (BACT) requirements by turning over or installing Verified Diesel Emission Control Strategies (e.g., engine retrofits) on a certain percentage of its total fleet horsepower. The compliance schedule requires that BACT turn overs or retrofits be fully implemented by 2023 in all equipment in large and medium fleets and across 100 percent of small fleets by 2028.

(3) Regional

(a) South Coast Air Quality Management District

The SCAQMD is primarily responsible for planning, implementing, and enforcing air quality standards for all of Orange County, Los Angeles County (excluding the Antelope Valley portion), the western, non-desert portion of San Bernardino County, and the western, Coachella Valley, and San Gorgonio Pass portions of Riverside County. While air quality in the Air Basin has improved, the Air Basin requires continued diligence to meet the air quality standards.

(i) Air Quality Management Plan

The SCAQMD has adopted a series of AQMPs to meet the CAAQS and NAAQS. In December 2012, the SCAQMD adopted the 2012 Air Quality Management Plan, which incorporates scientific and technological information and planning assumptions, including growth projections.[77] The 2012 AQMP incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. The 2012 AQMP builds upon improvements in previous plans, and includes new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. In addition, it highlights the significant amount of emission reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal CAA.

The key undertaking of the 2012 AQMP is to bring the Air Basin into attainment with the NAAQS for the 24-hour PM2.5 standard. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2024 8-hour O_3 standard deadline with new measures designed to reduce reliance on the federal CAA Section 182(e)(5) long-term measures for NO_X and VOC reductions. The SCAQMD expects exposure reductions to be achieved through

[77] South Coast Air Quality Management District, 2012 Air Quality Management Plan. Available at http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan. Accessed March 2017.

implementation of new and advanced control technologies as well as improvement of existing technologies.

The SCAQMD released the Draft 2016 AQMP on June 30, 2016 for public review and comment. A revised Draft 2016 AQMP was released in October 2016 and the SCAQMD Governing Board adopted the 2016 AQMP on March 3, 2017.[78] CARB approved the 2016 on March 23, 2017. Key elements of the 2016 AQMP include implementing fair-share emissions reductions strategies at the federal, state, and local levels; establishing partnerships, funding, and incentives to accelerate deployment of zero and near-zero-emissions technologies; and taking credit from co-benefits from greenhouse gas, energy, transportation and other planning efforts.[79] The strategies included in the 2016 AQMP are intended to demonstrate attainment of the NAAQS for the federal non-attainment pollutants ozone and PM2.5.[80] While the 2016 AQMP was adopted by the SCAQMD and CARB, it has not been yet received USEPA approval for inclusion in the SIP. Therefore, until such time as the 2016 AQMP is approved by the USEPA, the 2012 AQMP remains the applicable AQMP.

(ii) SCAQMD Air Quality Guidance Documents

The CEQA Air Quality Handbook was published by the SCAQMD in November 1993 to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The CEQA Air Quality Handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs and was used extensively in the preparation of this analysis. However, the SCAQMD is currently in the process of replacing the CEQA Air Quality Handbook with the Air Quality Analysis Guidance Handbook. While this process is underway, the SCAQMD recommends that lead agencies avoid using the screening tables in Chapter 6 (Determining the Air Quality Significance of a Project) of the CEQA Air Quality Handbook, because the tables were derived using an obsolete version of CARB's mobile source emission factor inventory, and the trip generation characteristics of the land uses identified in these screening tables were based on the fifth edition of the Institute of Transportation Engineer's Trip Generation Manual, instead of the most current edition. Additionally, the lead agency should avoid using the on-road mobile source emission factors in Table A9-5-J1 through A9-5-L (EMFAC7EP Emission Factors for Passenger Vehicles and Trucks, Emission Factors for Estimating Material Hauling, and Emission Factors for Oxides of Sulfur and Lead). The SCAQMD instead recommends using other approved models to calculate emissions from land use projects, such as the California Emissions Estimator Model (CalEEMod) software, initially released in 2011 and updated in 2016.[81]

78 South Coast Air Quality Management District, Air Quality Management Plan (AQMP). Available at http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan. Accessed March 2017.

79 Ibid.

80 South Coast Air Quality Management District, NAAQS/CAAQS and Attainment Status for South Coast Air Basin, 2016. Available at http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf?sfvrsn=2. Accessed March 2017.

81 South Coast Air Quality Management District, CEQA Air Quality Handbook (1993). Available at http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). Accessed April 2016.

The SCAQMD has published a guidance document called the Localized Significance Threshold Methodology for CEQA Evaluations that is intended to provide guidance in evaluating localized effects from mass emissions during construction.[82] The SCAQMD adopted additional guidance regarding PM2.5 in a document called *Final Methodology to Calculate Particulate Matter (PM)2.5 and PM2.5 Significance Thresholds*.[83] This latter document has been incorporated by the SCAQMD into its CEQA significance thresholds and Localized Significance Threshold Methodology.

(iii) SCAQMD Rules and Regulations

Several SCAQMD rules adopted to implement portions of the AQMP apply to the proposed Project. For example, SCAQMD Rule 403 requires implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. The Project would be subject to the following SCAQMD rules and regulations:

- **Regulation IV – Prohibitions:** This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, start-up/shutdown exemptions and breakdown events. The following is a list of rules which apply to the Project:

  - **Rule 402 – Nuisance:** This rule states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

  - **Rule 403 – Fugitive Dust:** This rule requires projects to prevent, reduce or mitigate fugitive dust emissions from a site. Rule 403 restricts visible fugitive dust to the project property line, restricts the net PM10 emissions to less than 50 micrograms per cubic meter ($\mu g/m^3$) and restricts the tracking out of bulk materials onto public roads. Additionally, projects must utilize one or more of the best available control measures (identified in the tables within the rule). Mitigation measures may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities. Finally, a contingency plan may be required if so determined by the USEPA.

- **Regulation XI – Source Specific Standards:** Regulation XI sets emissions standards for specific sources. The following is a list of rules which apply to the Project:

  - **Rule 1113 – Architectural Coatings:** This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions

[82] South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, 2008.

[83] South Coast Air Quality Management District, Final Methodology to Calculate Particulate Matter (PM)2.5 and PM2.5 Significance Thresholds, 2006.

from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

- **Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters:** This rule requires manufacturers, distributors, retailers, refurbishers, installers, and operators of new and existing units to reduce NOX emissions from natural gas-fired water heaters, boilers, and process heaters as defined in this rule.

- **Rule 1186 – PM_{10} Emissions from Paved and Unpaved Roads, and Livestock Operations:** This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM_{10} emissions by requiring the cleanup of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also Rule 403).

- **Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities:** This rule requires owners and operators of any demolition or renovation activity and the associated disturbance of asbestos-containing materials, any asbestos storage facility, or any active waste disposal site to implement work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials.

(b) Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization for the majority of the Southern California region and is the largest Metropolitan Planning Organization in the nation. With regard to air quality planning, SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) in April 2016, which addresses regional development and growth forecasts and forms the basis for the land use and transportation control portions of the AQMP. The growth forecasts are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP. The RTP/SCS and AQMP are based on projections originating within local jurisdictions.

SCAG's SCS provides specific strategies for successful implementation. These strategies include supporting projects that encourage a diverse job opportunities for a variety of skills and education, recreation and culture and a full-range of shopping, entertainment and services all within a relatively short distance; encouraging employment development around current and planned transit stations and neighborhood commercial centers; encouraging the implementation of a "Complete Streets" policy that meets the needs of all users of the streets, roads and highways including bicyclists, children, persons with disabilities, motorists, electric vehicles, movers of commercial goods, pedestrians, users of public transportation, and seniors; and supporting alternative fueled vehicles.

In 2008, SCAG released the Regional Comprehensive Plan (RCP) which addresses regional issues such as housing, traffic/transportation, water, and air quality. The RCP serves as an advisory document to local agencies in the Southern California region for their information and voluntary

use for preparing local plans and handling local issues of regional significance. The RCP presents a vision of how Southern California can balance air quality with growth and development by including goals such as: reducing emissions of criteria pollutants to attain federal air quality standards by prescribed dates and stated ambient air quality standards as soon as practicable; reverse current trends in greenhouse gas emissions to support sustainability goals for energy, water supply, agriculture, and other resource areas; and to minimize land uses that increase the risk of adverse air pollution-related health impacts from exposure to TACs, particulates (PM_{10} and $PM_{2.5}$) and CO.

(4) Local

(a) City of El Segundo

Local jurisdictions, such as the City, have the authority and responsibility to reduce air pollution through its land use decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions.

(i) General Plan Air Quality Element

The City's General Plan (El Segundo, 1992) has an Air Quality Element which includes Citywide goals, objectives, and policies related to air quality resources.[84] The City prepared the Air Quality Element to address problems of maximum air pollution levels, reduce the adverse of effects of air pollution regarding health and economics, comply with the 1991 AQMP, exploring the best options to address AQMP measures, and increase awareness of local community and government responsibility for air quality. A number of goals, objectives, and policies are relevant to the proposed Project and are related to traffic mobility, minimizing particulate emissions from construction activities, discouraging single-occupancy vehicle trips, managing traffic congestion during peak hours, and increasing energy efficiency in City facilities and private developments. The goals and policies applicable to the proposed project are included in the impact analysis below.

3. Environmental Impacts

a. Methodology

The methodology used to evaluate the potential impacts to regional and local air quality that may result from the construction and long-term operations of the Project is described below. Detailed calculation worksheets and methodology for the refined construction HRA are provided in Appendix A of this RPDEIR. ~~Calculation worksheets, assumptions, and model outputs are provided in Appendix B of this EIR.~~

(1) Consistency with Air Quality Management Plan

The SCAQMD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the Air Basin is in non-attainment of the NAAQS (e.g., ozone and $PM_{2.5}$). The SCAQMD's 2012 AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving the NAAQS. These strategies are developed, in part, based on regional

[84] City of El Segundo General Plan-1992. Available at http://www.elsegundo.org/depts/planningsafety/planning/general_plan/default.asp. Accessed April 2017.

growth projections prepared by the SCAG. Projects that are consistent with the assumptions used in the AQMP do not interfere with attainment because the growth is included in the projections utilized in the formulation of the AQMP. Thus, projects, uses, and activities that are consistent with the applicable growth projections and control strategies used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they were to exceed the SCAQMD's significance thresholds.

(2) Construction Impacts

Construction of the Project has the potential to generate temporary criteria pollutant emissions through the use of heavy-duty construction equipment, such as excavators and forklifts, and through vehicle trips generated from workers and haul trucks traveling to and from the Project Site. In addition, fugitive dust emissions would result from demolition and various soil-handling activities. Mobile source emissions, primarily NOx, would result from the use of construction equipment, such as excavators and forklifts. Construction emissions can vary substantially from day to day, depending on number and type of equipment, the specific type and level of construction activity, and prevailing weather conditions.

Daily regional emissions during construction are forecasted by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile source and fugitive dust emissions factors. The emissions are estimated using the CalEEMod (Version 2016.3.1) software, an emissions inventory software program recommended by the SCAQMD. The input values used in this analysis were adjusted to be Project-specific based on equipment types and the construction schedule. Construction haul and vendor truck emissions during grading, concrete pour and building construction were evaluated using regional heavy-duty truck emission factors from EMFAC2014. Daily truck trips and default trip length data were used to assess roadway emissions from truck exhaust, as well as typical CARB idling times of local emissions on-site. Detailed calculations are provided in Appendix B of this EIR. Maximum daily emissions are predicted values for the worst-case day and do not represent the emissions that would occur for every day of Project construction. The maximum daily emissions are compared to SCAQMD daily regional numeric indicators.

The localized effects from the on-site portion of the emissions are evaluated at nearby sensitive receptor locations potentially impacted by the Project according to SCAQMD's Localized Significance Threshold Methodology (June 2003, revised July 2008). The localized significance thresholds are only applicable to NOx, CO, PM_{10}, and $PM_{2.5}$. SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance thresholds and therefore not cause or contribute to an exceedance of the applicable ambient air quality standards without project-specific dispersion modeling. The localized analysis is based on this SCAQMD screening criteria.

(3) Operational Impacts

Operation of the Project has the potential to generate criteria pollutant emissions through vehicle trips traveling to and from the Project Site. In addition, emissions would result from area sources on-site such as natural gas combustion, landscaping equipment, and use of consumer products.

Operational impacts were assessed for the full Project buildout year (2024) with concurrent operation of both Phase 1 and Phase 2.

The operational emissions are estimated using the CalEEMod software. CalEEMod was used to forecast the daily regional emissions from area and stationary sources that would occur during long-term Project operations. In calculating mobile-source emissions, the trip length values were based on the distances provided in CalEEMod. The trip distances were applied to the maximum daily trip estimates, based on the trip rates in the traffic study.[85]

Area source emissions are based on natural gas (building heating and water heaters), landscaping equipment, and consumer product usage (including paints) rates provided in CalEEMod. Natural gas usage factors in CalEEMod are based on the California Energy Commission (CEC) California Commercial End Use Survey (CEUS) data set, which provides energy demand by building type and climate zone.[86] However, since the data from the CEUS is from 2002, correction factors are incorporated into CalEEMod to account for the appropriate version of the Title 24 Building Energy Efficiency Standards in effect.

Operational air quality impacts are assessed based on the incremental increase in emissions compared to baseline conditions. For this analysis, baseline emissions are zero since there are no existing site emissions. The Project Site consists of three contiguous parcels and each parcel has associated emissions. However, only the 455 Continental Boulevard and 1955 E. Grand Avenue Parcels would have new development and are included in this analysis. The maximum daily emissions from operation of the proposed Project are compared to the SCAQMD daily regional numeric indicators. Detailed emissions calculations are provided in Appendix B of this RPDEIR.

As with the construction analysis, the localized effects from the on-site portion of daily emissions from Project operation are evaluated at nearby sensitive receptor locations potentially impacted by the Project according to the SCAQMD's Localized Significance Threshold Methodology (June 2003, revised July 2008).

(4) Toxic Air Contaminants Impacts ~~(Construction and Operation)~~

~~The potential for the Project to cause impacts from TACs are evaluated by conducting a screening-level analysis. The screening-level analysis consists of reviewing the Project's site plan and Project description to identify any new or modified TAC emission sources. If it is determined that the Project would introduce a new source of TACs, or modify an existing source, then downwind sensitive receptor locations are identified and a site-specific analysis is conducted.~~

Construction

The greatest potential for TAC emissions during construction would be related to diesel particulate matter emissions associated with heavy-duty equipment during demolition, excavation and grading

85 Kimley-Horn and Associates, Inc., Traffic Impact Study for the Continental Grand Campus Specific Plan, May 2017.

86 California Energy Commission, California Commercial End-Use Survey. Available at http://capabilities.itron.com/CeusWeb/Chart.aspx. Accessed April 2016.

activities. Construction activities associated with the Project would be sporadic, transitory, and short term in nature (approximately three years). Since Project construction would be temporary and would adhere to regulations that would limit construction TAC emissions, the Draft EIR evaluated construction TAC impacts qualitatively. As discussed previously, this RPDEIR provides a refined analysis to support the conclusions presented in the Draft EIR.

The SCAQMD does not require projects to prepare quantitative construction HRAs and has no guidance on construction HRAs. Thus, health risk calculations were used from available guidance based on SCAQMD's risk assessment procedures normally used to evaluate health risk impacts from long-term operations for stationary source facility permit projects.

(a) Emissions

As discussed previously, the Project's construction emissions were estimated using the CalEEMod software, an emissions computer model recommended by the SCAQMD. DPM emissions were assumed to be equal to PM10 exhaust emissions reported by CalEEMod. According to documentation from CARB, diesel exhaust consists of 92 percent PM2.5 and 100 percent PM10 (PM2.5 is a subset of PM10). Therefore, utilizing the PM10 exhaust emissions reported by CalEEMod is appropriate for analyzing potential health risk impacts from diesel particulate matter.

The refined construction HRA included DPM emissions from on-road construction haul and vendor truck trips estimated using USEPA-approved EMFAC2014 model. Emission factors for the starting year were conservatively used for each construction phase as the emission factors tend to decrease in the later years. For example, the 455 Continental Boulevard parcel building construction phase would begin in 2021 and end in 2022, therefore, emission factors for 2021 were applied for the entire phase. For the purposes of this refined construction HRA, truck emissions were limited to those emissions that would occur within an approximately 0.25-mile radius of the Project Site boundaries, which is consistent with general SCAQMD recommendations for HRAs when siting sources of TACs in relation to sensitive receptors.[87]

Idling emissions associated with heavy-duty trucks were estimated based on the Project's truck trips and idling emission factors for heavy-duty vehicles from EMFAC2014 for on-road emissions. It was assumed haul and vendor trucks' idling activities would total 15 minutes per trip, representing three separate 5-minute idling occurrences: check-in to the site or queuing at the site boundary upon arrival, on-site idling during loading/unloading, and check-out of the site or queuing at the site boundary upon departure. The 5-minute limit per idling occurrence is consistent with the CARB's Airborne Toxics Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling.

The maximum daily construction emissions were estimated for each construction phase and parcel of the Project. The maximum daily emissions are predicted values for a representative worst-case day based on heavy duty equipment being continuously used for eight hours. These emissions

[87] SCAQMD, Rule 212, Standards for Approving Permits and Issuing Public Notice, http://www.aqmd.gov/docs/default-source/rule-book/reg-ii/rule-212.pdf. Accessed February 2019. The SCAQMD provides recommendations for HRAs for facilities that have stationary sources or substantial daily trucks trips (such as warehouses, transit centers, truck stops, etc.).

would not represent the emissions that would occur for every day of construction. The maximum daily emissions of each construction phase were applied in the refined construction HRA analysis thereby providing a conservative analysis. Detailed calculations can be found in Appendix A of this RPDEIR.

(b) Dispersion Modeling

The refined construction HRA used the American Meteorological Society/Environmental Protection Agency regulatory air dispersion model (AERMOD version 18081) to estimate ambient concentrations of DPM at off-site receptors. Besides the residential and worker receptors described in Section 2.a(2)(c), a Cartesian receptor grid with 20-meter spacing and a radius of more than 400 meters was generated in AERMOD and covered the existing off-site residential and commercial areas. In addition, a refined receptor grid with 10-meters spacing was placed over the residential receptors. Each receptor was placed at a height of zero meters in accordance with SCAQMD modeling guidance for AERMOD.[88] Besides receptors, the AERMOD model requires numerous other inputs, such as meteorological data, topographical data, and source parameters, which are discussed below.

Meteorological Data

The analysis used the AERMOD-ready meteorological dataset of the nearest meteorological air monitoring site, which is located at the Los Angeles International Airport. The dataset includes five years of data from 2012-2016. The data was obtained from SCAQMD's meteorological database.

Modeling Terrain

Terrain and elevation data was imported from the United States Geological Survey's (USGS) National Elevation Dataset (NED) (United States Geological Survey 2013). The dataset consists of ground surface elevation data for the United States, Canada, and Mexico. Elevations for the modeled receptors and buildings were based on a NED dataset with a 10-meter resolution.

Based on the land use characteristics in the Project vicinity, urban dispersion coefficients were used in AERMOD. The site was modeled with the urban population of 9,818,605 based on SCAQMD's modeling guidance for AERMOD. The urban option in AERMOD accounts for increased turbulence associated with the urban heat island effect.

As noted above, construction sources include off-road construction equipment, on-road diesel trucks (including haul trucks and vendor trucks), and diesel truck idling. The modeling parameters used in AERMOD for each source are discussed below.

Modeled Source Characters

Emission rates from the construction emission sources were based on the anticipated hours of activity for each source as described above. Each emission source was modeled separately within AERMOD. The analysis used a unitized emission rate concept for each source group, where each source group is modeled with a unitized emission rate of 1 gram/second (g/s). The modeled concentration at each receptor (micrograms per cubic meter [μ/m^3]/[g/s]) represents a "dispersion

[88] SCAQMD, Modeling Guidance for AERMOD, https://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/modeling-guidance. Accessed February 2019.

factor," which was then multiplied by the actual emission rate of each source group to determine actual concentrations, and the final result from all the sources was superimposed.

Off-road Equipment

The exhaust emissions from off-road construction equipment were modeled as multiple area sources equal to the size of the construction areas, with a 5-meter release height and 1.4-meter initial vertical dispersion. For all construction activities, an even distribution of construction emissions over the entire area of construction for each construction phase was used with the assumption that emissions would originate from all potential locations within the construction source grid.

On-Road Heavy Duty Truck Travel

To represent the truck haul route, a line volume source (i.e., line sources as a series of volume sources) was placed along Grand Avenue heading west and then turning right onto Sepulveda Boulevard. The haul route was modeled with a 10-foot release height.[89]

Heavy Duty Truck Travel

DPM emissions for truck idling were assumed to occur along the portion of Grand Avenue that borders the Project Site. Idling emissions were modeled as line volume sources with a release height of 10 feet to represent haul trucks checking in and out of the construction site, as well as emissions from loading/unloading activities.[90] Although loading/unloading activities are likely to occur farther away from the construction site boundary, modeling these emissions at this location would be more conservative because emissions would be closer to the identified sensitive receptors analyzed in the refined construction HRA.

(c) Risk Characterization

Health risk calculations were performed using the Office of Environmental Health Hazard Assessment (OEHHA) methodologies and exposure parameters, and the corresponding SCAQMD guidance documents. In March 2015, OEHHA updated the methods for estimating cancer risks to use higher estimates of cancer potency during early life exposures and to use different assumptions for breathing rates and length of residential exposures. The new guidance, Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments, incorporates advances in risk assessment with consideration of infants and children using Age Sensitivity Factors (ASF) (OEHHA 2015). These updated exposure factors can result in numeric life-time health risk values to be approximately two to three times higher than those calculated under the previous OEHHA guidelines. The refined construction HRA followed the OEHHA 2015 guidance.

[89] Bay Area Air Quality Management District, Recommended Methods for Screening and Modeling Local Risks and Hazards, May 2012, p.71, http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf. Accessed February 19, 2019.

[90] Bay Area Air Quality Management District, Recommended Methods for Screening and Modeling Local Risks and Hazards, May 2012, p.71.

This analysis calculated the cancer risk and chronic hazard indices to estimate Project-specific health risks for construction emissions using annual average pollutant ambient concentrations modeled by AERMOD.

The health risks are calculated as follows:

Residential Cancer Risk

Equation 1: $Dose_{RESIDENT}$ (mg/kg/day) = C_{AIR} × DBR × A × EF × CF where:

- C_{AIR}= concentration in air (µg/m^3)
- DBR= daily breathing rate normalized to body weight (L/kg body weight-day)
- A= inhalation absorption factor (1 for DPM, unitless)
- EF= exposure frequency (unitless) (days/365 days)
- CF= 10^{-6}, correction factor, micrograms to milligrams conversion, liters to cubic meters conversion

Equation 2: $Risk_{INH\text{-}RESIDENT}$ (in one million) = $Dose_{AIR}$ × CPF × ASF × ED/AT × FAH × CCF

where:

- $Dose_{AIR}$= daily inhalation dose (mg/kg-day)
- CPF= cancer potency factor (mg/kg-day) $^{-1}$
- ASF= age sensitivity factor (unitless)
- ED= exposure duration (years)
- AT= averaging time for lifetime cancer risk (years)
- FAH= fraction of time spent at home (unitless)
- CCF= 10^6, cancer conversion factor to represent risk in chances per million

Worker Cancer Risk

Equation 3: $Dose_{WORKER}$ (mg/kg/day) = [C_{AIR} × WAF] × DBR × A × EF × CF where:

- C_{air}= concentration in air (µg/m^3)
- WAF= worker adjustment factor (unitless), WAF = ($H_{residential}$ / H_{source}) x ($D_{residential}$ / D_{source}) = (24/8) x (7/6) = 3.5
- DBR= daily breathing rate normalized to body weight (L/kg body weight-day)
- A= inhalation absorption factor (1 for DPM, unitless)
- EF= exposure frequency (unitless) 0.68 (250 days / 365 days). Equivalent to working 5 days/week, 50 weeks/year
- CF= 10^{-6}, correction factor, micrograms to milligrams conversion, liters to cubic meters conversion

Equation 4: $Risk_{INH\text{-}WORKER}$ (in one million) = $Dose_{AIR}$ × CPF × ASF × ED/AT × FAH × CCF

where:

- $Dose_{AIR}$= daily inhalation dose (mg/kg-day)
- CPF= cancer potency factor (mg/kg-day^{-1})
- ASF= age sensitivity factor (unitless)
- ED= exposure duration (years)
- AT= averaging time for lifetime cancer risk (years)
- CCF= 10^6, cancer conversion factor to represent risk in chances per million

A summary of the exposure parameters used under this methodology are shown in **Table 4.B-4**, *Cancer Risk Exposure Parameters*.

TABLE 4.B-4
CANCER RISK EXPOSURE PARAMETERS

Parameter	Residential			Worker
	3rd Trimester	0 < 2 years	2 < 5 years	
C_{AIR}	Based on AERMOD dispersion modeling results			
DBR[a] (L/kg BW-day)	361	1,090	631	230
A[b] (unitless)	1	1	1	1
EF[b] (unitless)	0.96	0.96	0.96	0.68
CF[b] (unitless)	10^{-6}	10^{-6}	10^{-6}	10^{-6}
CPF[b] (mg/kg-day^{-1})	1.1	1.1	1.1	1.1
ASF[b] (unitless)	10	10	3	1
ED[b,c] (years)	0.25	2	0.92	3.2
AT[b] (years)	70	70	70	70
FAH[a] (unitless)	1	1	1	--
WAF[a,c] (unitless)	--	--	--	3.5
CCF[b] (unitless)	10^6	10^6	10^6	10^6

[a] SCAQMD 2017 Risk Assessment Procedures, Permit Application N, Use in conjunction with the Risk Assessment Guideline 1401,1401.1, and 212
[b] OEHHA 2015 Guidance Manual
[c] WAF is based on construction emissions occurring 6 days per week for 8 hours per day.

Source: ESA, 2019.

(i) Risk Assessment

The assessment of health risks determines the relationship between the magnitude of chemical exposure and the nature and magnitude of adverse health risks resulting from this exposure. Cancer

and chronic health risks were calculated using the OEHHA cancer potency factor (CPF) and Reference Exposure Level (REL) for DPM.[91] There is no acute toxicity factor for DPM.

(ii) Age Sensitivity Factors

The estimated excess lifetime cancer risks for residential receptors (including the early-in-life exposure) were adjusted using the ASFs recommended in the California Environmental Protection Agency (Cal/EPA) OEHHA Technical Support Document and 2015 OEHHA guidance.[92] This approach accounts for an "anticipated special sensitivity to carcinogens" of infants and children. Cancer risk estimates were weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to two years of age and by a factor of three for exposures that occur from 2 to 15 years of age. No weighting factor (i.e., an ASF equal to one, which is equivalent to no adjustment) is applied to ages 16 to 70 years.

(iii) Cancer Risk Calculation

Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to carcinogens. The risk is expressed as a unitless probability, and was calculated as the number of cancer incidences per million individuals in the refined construction HRA. The cancer risk for each chemical was calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the DPM CPF. For cancer risk, the SCAQMD guidance identifies a significant impact if a project would result in an incremental cancer risk that is greater than 10 in one million for a sensitive receptor. Cancer burden is the estimated increased in the occurrence of cancer cases in population subject to maximum incremental cancer risk of greater than or equal to one in one million (1.0×10^{-6}) based on a 70-year exposure to TACs.[93] Since the construction phases of the Project would only last for approximately three years, cancer burden based on a 70-year exposure for construction is not appropriate and was not conducted.

(iv) Chronic Health Impacts

Non-cancer effects of chronic (i.e., long- term) DPM exposures were evaluated using the Hazard Index (HI) approach consistent with the OEHHA guidance. The chronic HI was calculated by dividing the modeled annual average concentration by the REL. The REL is the concentration at or below which no adverse health effects are anticipated. The REL for DPM was obtained from OEHHA. OEHHA has recommended an ambient concentration of 5 micrograms per cubic meter ($\mu g/m^3$) as the chronic inhalation REL for DPM exhaust. The SCAQMD guidance identifies a significant impact if a project would result in an incremental chronic HI that is greater than 1.0. This threshold is consistent with the chronic HI threshold stated in the Draft EIR.

[91] OEHHA, Hot Spots Unit Risk and Cancer Potency Values, https://oehha.ca.gov/media/CPFs042909.pdf. Accessed February 19, 2019.

[92] Cal/EPA, Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures, May 2009. https://oehha.ca.gov/media/downloads/crnr/tsdcancerpotency.pdf. Accessed February 2019.

[93] OEHHA, Air Toxics Hot Spots, https://oehha.ca.gov/air/air-toxics-hot-spots. Accessed February 19, 2019.

~~). Given the temporary duration of Project construction, construction impacts associated with TACs are addressed qualitatively based on consistency with strategies and measures that limit, minimize, or reduce diesel emissions.~~

Operations

During operation, TACs could be emitted as part of periodic maintenance operations, cleaning, painting, etc., and from diesel-powered delivery and service vehicles. However, these uses are expected to be occasional and result in minimal exposure to off-site sensitive receptors. Since the Project consists of solely commercial uses, the Project would not include sources of substantive TAC emissions identified by the SCAQMD or CARB siting recommendations. Thus, a qualitative approach is appropriate.

The siting of the Project itself in relation to off-site sources of TACs is addressed under land use compatibility for the surrounding area in Section 4.G, Land Use and Planning.

b. Thresholds of Significance

The significance thresholds below are derived from the Environmental Checklist question in Appendix G of the *State CEQA Guidelines*.[94] Accordingly, a significant air quality impact would occur if the Project would:

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

AQ-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

AQ-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

AQ-4 Expose sensitive receptors to substantial pollutant concentrations.

AQ-5 Create objectionable odors affecting a substantial number of people.

As discussed in the Initial Study, which is contained in Appendix A, and in Chapter 6, Other CEQA Considerations, of the ~~this~~ Draft EIR the Project would have a less than significant impact with regard to odors. According to the SCAQMD, facilities that are typically associated with sources of odors include: wastewater treatment plants, landfills, waste transfers and recycling stations, composting operations, petroleum operations, food and byproduct processes, and agricultural operations. The Project is commercial in nature and would not introduce new substantial sources

[94] While the Appendix G Checklist Question were modified by the Natural Resources Agency in December 2018, the thresholds used in the Draft EIR are retained for comparison purposes. While the Appendix G questions relative the Air Quality have been revised, the revisions do not materially change the analyses that are necessary to address the thresholds.

of odors and is not associated with any of the uses or operations as described above. As such, no further analysis of this topic is necessary.

Pursuant to the *State CEQA Guidelines* (Section 15064.7), a lead agency may consider using, when available, the significance criteria established by the applicable air quality management district or air pollution control district when making determinations of significance. The Project would be under the SCAQMD's jurisdiction. SCAQMD has established air quality significance thresholds in its CEQA Air Quality Handbook. These thresholds are based on the recognition that the Air Basin is a distinct geographic area with a critical air pollution problem for which ambient air quality standards have been promulgated to protect public health.[95] The potential air quality impacts of the Project are, therefore, evaluated according to the most recent thresholds adopted by the SCAQMD in connection with its CEQA Air Quality Handbook, Air Quality Analysis Guidance Handbook, and subsequent SCAQMD guidance as discussed previously.[96]

(1) Construction Emissions

The SCAQMD has established numerical emission indicators of significance for construction. The numerical emission indicators are based on the recognition that the Air Basin is a distinct geographic area with a critical air pollution problem for which ambient air quality standards have been promulgated to protect public health.[97] Given that construction impacts are temporary and limited to the construction phase, the SCAQMD has established numeric indicators of significance specific to construction activity. Based on the indicators in the SCAQMD CEQA Air Quality Handbook, the Project would potentially cause or contribute to an exceedance of an ambient air quality standard if the following would occur:

- Regional construction emissions from both direct and indirect sources would exceed any of the following SCAQMD prescribed daily regional emissions thresholds:[98]
  - 75 pounds a day for VOC;
  - 100 pounds per day for NOx;
  - 550 pounds per day for CO;
  - 150 pounds per day for SO_2;
  - 150 pounds per day for PM_{10}; or
  - 55 pounds per day for $PM_{2.5}$.

95 South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993, page 6-2.

96 While the SCAQMD CEQA Air Quality Handbook contains significance thresholds for lead, Project construction and operation would not include sources of lead emissions and would not exceed the established thresholds for lead. Unleaded fuel and unleaded paints have virtually eliminated lead emissions from commercial and residential land use projects. As a result, lead emissions are not further evaluated in this Draft EIR.

97 South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993, page 6-2.

98 South Coast Air Quality Management District, SCAQMD Air Quality Significance Thresholds, March 2015. Available at http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2. Accessed June 2017.

In addition, the SCAQMD has developed a methodology to assess the potential for localized emissions to cause an exceedance of applicable ambient air quality standards or ambient concentration limits. Impacts would be considered significant if the following would occur:

- Maximum daily localized emissions of NO_X and/or CO during construction are greater than the applicable localized significance thresholds, resulting in predicted ambient concentrations in the vicinity of the Project Site greater than the most stringent ambient air quality standards for NO_2 and/or CO.[99]
- Maximum daily localized emissions of PM_{10} and/or $PM_{2.5}$ during construction are greater than the applicable localized significance thresholds, resulting in predicted ambient concentrations in the vicinity of the Project Site to exceed 10.4 $\mu g/m^3$ over 24 hours (SCAQMD Rule 403 control requirement).

As discussed previously under Methodology, the SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance thresholds and therefore not cause or contribute to an exceedance of the applicable ambient air quality standards or ambient concentration limits without project-specific dispersion modeling. This analysis uses the screening criteria to evaluate impacts from localized emissions.

(2) Operational Emissions

The SCAQMD has established numerical emission indicators of significance for operations. The numerical emission indicators are based on the recognition that the Air Basin is a distinct geographic area with a critical air pollution problem for which ambient air quality standards have been promulgated to protect public health.[100] The SCAQMD has established numeric indicators of significance in part based on Section 182(e) of the CAA which identifies 10 tons per year of VOC as a significance level for stationary source emissions in extreme non-attainment areas for O_3.[101] As shown in Table 4.B-4, the Air Basin is designated as extreme non-attainment for O_3. The SCAQMD converted this significance level to pounds per day for O_3 precursor emissions (10 tons per year × 2,000 pounds per ton ÷ 365 days per year = 55 pounds per day). The numeric indicators for other pollutants are also based on federal stationary source significance levels. Based on the indicators in the SCAQMD CEQA Air Quality Handbook, the Project would potentially cause or contribute to an exceedance of an ambient air quality standard if the following would occur:

- Regional operational emissions exceed any of the following SCAQMD prescribed daily regional emissions thresholds:[102]
  - 55 pounds a day for VOC;
  - 55 pounds per day for NOx;

[99] South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, 2008. Available at http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds. Accessed March 2017.

[100] South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993, page 6-2.

[101] South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993, page 6-1.

[102] South Coast Air Quality Management District, SCAQMD Air Quality Significance Thresholds, March 2015. Available at http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2. Accessed June 2017.

- 550 pounds per day for CO;
- 150 pounds per day for SO_2;
- 150 pounds per day for PM_{10}; or
- 55 pounds per day for $PM_{2.5}$.

In addition, the SCAQMD has developed a methodology to assess the potential for localized emissions to cause an exceedance of applicable ambient air quality standards. Impacts would be considered significant if the following were to occur:

- Maximum daily localized emissions of NO_X and/or CO during operation are greater than the applicable localized significance thresholds, resulting in predicted ambient concentrations in the vicinity of the project site greater than the most stringent ambient air quality standards for NO_2 and/or CO.[103]
- Maximum daily localized emissions of PM_{10} and/or $PM_{2.5}$ during operation are greater than the applicable localized significance thresholds, resulting in predicted ambient concentrations in the vicinity of the project site to exceed 2.5 $\mu g/m^3$ over 24 hours (SCAQMD Rule 1303 allowable change in concentration).

As discussed previously, the SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance thresholds and therefore not cause or contribute to an exceedance of the applicable ambient air quality standards or ambient concentration limits without project-specific dispersion modeling. This analysis uses the SCAQMD screening criteria to evaluate impacts from localized emissions.

(3) Carbon Monoxide Hotspots

With respect to the formation of CO hotspots, the Project would be considered significant if the following would occur:

- The Project would cause or contribute to an exceedance of the CAAQS one-hour or eight-hour CO standards of 20 or 9.0 parts per million (ppm), respectively.

(4) Toxic Air Contaminants

Based on criteria set forth by the SCAQMD, the Project would expose sensitive receptors to substantial concentrations of TACs if any of the following were to occur:[104]

- The Project would emit carcinogenic materials or TACs that exceed the maximum incremental cancer risk of ten in one million or a cancer burden greater than 0.5 excess cancer cases (in areas greater than or equal to 1 in 1 million) or an acute or chronic hazard index of 1.0.

As discussed previously, construction impacts <u>from</u>~~orm~~ TACs<u>, specifically DPM,</u> are evaluated <u>quantitatively in order to further substantiate the conclusions reached in the Draft EIR.</u> ~~qualitatively~~

[103] Ibid.

[104] South Coast Air Quality Management District, CEQA Air Quality Handbook, Chapter 6 (Determining the Air Quality Significance of a Project) and Chapter 10 (Assessing Toxic Air Pollutants), 1993. SCAQMD Air Quality Significance Thresholds, March 2011. Available at http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2. Accessed June 2017.

~~due to the sporadic and temporary emissions of TACs from construction equipment.~~ For operations, the impacts are analyzed qualitatively due to the limited and minimal sources of TACs associated with the Project.

c. Project Design Features

The Project incorporates project design features (PDFs) that would reduce operational emissions and target sustainable site development, water savings, energy efficiency, green-oriented materials selection, and improved indoor environmental quality. Building features would include installation of heating, ventilation, and air conditioning (HVAC) systems that use ozone-friendly refrigerants; use of materials and finishes that emit low quantities of VOCs; use of high efficiency fixtures and appliances, water conservation features; and recycling of solid wastes. The Project would also provide bicycle parking and designated parking for fuel-efficient, low-emitting, or carpool/van pool vehicles.

The following PDF would reduce air pollutant emissions as well as GHG emissions. To the extent they can be quantified, these features have been assumed in the impacts calculations, but all of these measures are considered in the consistency analysis:

PDF AQ-1 (Green Building Measures): The Project would be designed and operated to meet or exceed the applicable requirements of the California Green Building Standards Code and the City's Green Building Code. Green building features would include, but are not limited to the following:

- Expansion of existing recycling program for recycling paper, aluminum, magazines, cardboard, electronic waste, and plastic.
- Installation of low-flow water fixtures that meet the U.S. Environmental Protection Agency WaterSense standards or equivalent.
- Installation of lighting controls with occupancy sensors in indoor common areas to conserve energy and to take advantage of available natural light
- The parking structure on the 455 Continental Boulevard Parcel would be designed with occupancy-sensor controlled lighting that would place lighting fixtures in a low power state in unoccupied zones. A demonstration project by the United States Department of Energy indicated that the use of occupancy-sensor controlled lighting achieved a reduction of greater than 50 percent in lighting energy use compared to a similarly lighted parking structure without occupancy-sensor controls.[105] For the purposes of this assessment, compliance with this feature is assumed to achieve a minimum 50 percent reduction in the energy required for the parking structure.
- Use of reclaimed water for landscaping.
- Installation of efficient heating, ventilation, and air conditioning (HVAC) systems.
- Provision of designated parking for any combination of low-emitting, fuel efficient, and carpool/vanpool vehicles.

[105] United States Department of Energy, Building Technologies Office, SSL Demonstration: Parking Garage Lighting, Washington DC, June 2013. Available at https://www1.eere.energy.gov/buildings/publications/pdfs/ssl/deptoflabor_brief.pdf. Accessed May 2017.

- Installation of bicycle parking for employees.

d. Analysis of Project Impacts

(1) Air Quality Management Program

Threshold AQ-1: The Project would result in a significant impact if the Project would conflict with or obstruct the implementation of the applicable air quality plan.

Impact Statement AQ-1: The Project would not conflict with or obstruct implementation of relevant air quality policies in the Air Quality Management Plan. Therefore, impacts would be less than significant.

(a) Construction

Under this criterion, the SCAQMD recommends that lead agencies demonstrate that a project would not directly obstruct implementation of an applicable air quality plan and that a project be consistent with the assumptions upon which the air quality plan is based. The Project would result in an increase in short-term employment compared to existing conditions. Although the Project would require many workers over the construction process, these jobs would be temporary in nature. Construction jobs under the Project would not conflict with the long-term employment projections upon which the AQMP is based. Control strategies in the AQMP with potential applicability to short-term emissions from construction activities include strategies denoted in the AQMP as MOB-08 and MOB-10, which are intended to reduce emissions from on-road and off-road heavy-duty vehicles and equipment by accelerating replacement of older, emissions-prone engines with newer engines meeting more stringent emission standards. Project construction would not conflict with implementation of these strategies. Additionally, Project construction would comply with CARB requirements to minimize short-term emissions from on-road and off-road diesel equipment. Project construction would also comply with SCAQMD regulations for controlling fugitive dust pursuant to SCAQMD Rule 403.

Compliance with these requirements is consistent with and meets or exceeds the AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities. Because Project construction activities would not conflict with the control strategies intended to reduce emissions from construction equipment, Project construction would not conflict with or obstruct implementation of the AQMP, and impacts would be less than significant.

(b) Operations

The AQMP was prepared to accommodate growth, reduce the levels of pollutants within the areas under the jurisdiction of SCAQMD, return clean air to the region, and minimize the impact on the economy. Projects that are considered consistent with the AQMP would not interfere with attainment because the growth is included in the projections used in the formulation of the AQMP. The Project Site is located is located in an urbanized area and is an infill development. The Project would utilize the existing transportation and utility infrastructure and would not require mechanisms, such as road extensions and infrastructure that would have an indirect effect on growth. The Project's new development is within the range of development anticipated within the

established SCAG regional forecast for the City and would not involve construction of major infrastructure or extension of existing infrastructure. The City's Zoning Map designates the three-parcel Project Site as Corporate Office. As designed the Project would result in a floor area ratio (FAR) of 1.6 for the 12.5 acre-site exceeding the City's General Plan FAR of 0.8. The Project would seek approval of a General Plan amendment, as well as a Zone Text amendment to increase the FAR from 0.8 to 1.6. With approvals of these amendments the Project would not result in long-term operational population or employment growth that exceeds planned growth projections. As the Project would not conflict with the growth projections in the AQMP, impacts would be less than significant.

(c) General Plan Air Quality Element

The City's General Plan defines Citywide policies regarding a range of City resources and services, some of which are relevant to air quality. The evaluation for consistency is found below in **Table 4.B-118,** *Comparison of the Project to Applicable Air Quality Policies of the General Plan*.

(2) Regional Impacts

Threshold AQ-2: The Project would result in a significant impact if the Project would violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Impact Statement AIR-2: Construction and operation of the Project would not exceed the applicable SCAQMD daily regional numeric thresholds for VOC, NO_x, CO, SO_2, PM_{10}, or $PM_{2.5}$ Therefore, regional construction and operational emission impacts would be less than significant.

(a) Construction

Project construction would consist of two phases and these phases would not occur at the same time. Phase 1 would consist of the proposed improvements on the 455 Continental Boulevard Parcel and would take approximately 15.5 to 19.5 months. Phase 1 would commence during the first quarter of 2021 and would be complete by the third quarter of 2022. Phase 1 would have three stages of activity: demolition, site preparation/excavation, and construction. Demolition would involve removal of the existing private recreational facilities, landscaping and other minor improvements, which would take approximately two weeks. Site preparation and excavation for the proposed tower and parking structure would take from three to five months and construction is projected to take approximately 12 to 14 months.

Phase 2 of the buildout of the Continental Grand Campus Specific Plan would be the development of the 1955 East Grand Avenue Parcel and would take about 13 to 18 months. Phase 2 would start upon completion of Phase 1 and be complete by the first quarter of 2024. Similar to Phase 1, there would be three stages of activity: demolition, site preparation/excavation, and construction. Demolition of the existing building and surface parking lot would take approximately 4 months. Site preparation and excavation for the new structure would take approximately 2 months. Construction on the new building is projected to take approximately nine to 12 months.

Construction of the Project would require the use of heavy equipment during the demolition, grading, and excavation activities at the Project Site. During each stage of development, there would be a different mix of equipment including aerial lifts, air compressors, cement and mortar mixers, cranes, generator sets, graders, pavers, paving equipment, rollers, rough terrain forklifts, scrapers, tractor/loader/backhoe, water trucks, and welders.

The maximum daily construction emissions were estimated for each construction phase and parcel of the Project. Some individual construction phases potentially overlap and the maximum daily emissions account for the overlap in activities. The maximum daily emissions are predicted values for a representative worst-case day, and would not represent the emissions that would occur for every day of construction. Detailed emissions calculations are provided in Appendix B of this Draft EIR. Results of the criteria pollutant calculations are presented in **Table 4.B-54**, *Maximum Unmitigated Regional Construction Emissions*. These calculations include appropriate dust control measures required by SCAQMD Rule 403 (Control of Fugitive Dust) to be implemented during each phase of development. Therefore, with respect to regional emissions from construction activities, impacts would be less than significant.

(b) Operations

Operational criteria pollutant emissions were assessed for mobile, area, and stationary sources of the Project for the full buildout year (2024). Daily trip generation rates for the Project were provided in the Traffic Impact Study.[106] Operational emission estimates also incorporate the green building design features detailed in the Project Design Features, including increased energy efficiency measures. With regard to VOCs, SCAQMD Rule 1113 would be enforced that limits the VOC content of architectural coating emissions. Detailed emissions calculations are provided in Appendix B of this Draft EIR.

Results of the criteria pollutant calculations are presented in **Table 4.B-65.** *Maximum Unmitigated Regional Operational Emissions*. The net increase in operational-related daily emissions (Project emissions minus existing emissions) for the criteria and precursor pollutants (VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$) would not exceed SCAQMD thresholds of significance. Therefore, Project-related regional operational emissions would result in a less-than-significant impact.

(3) Non-Attainment Criteria Pollutants

Threshold AQ-3: The Project would result in a significant impact if the Project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

[106] Kimley-Horn and Associates, Inc. Traffic Impact Study for the Continental Grand Campus Specific Plan. May 2017.

TABLE 4.B-54
MAXIMUM UNMITIGATED REGIONAL CONSTRUCTION EMISSIONS (POUNDS PER DAY)[A]

Source[c]	VOC	NO_X	CO	SO_2	PM_{10} [b]	$PM_{2.5}$ [b]
455 Continental Boulevard Parcel						
Demolition - 2021	2	26	15	<1	1	1
Site Preparation/Grading/Excavation - 2021	2	24	12	<1	4	2
Building Construction - 2021	6	47	47	<1	16	5
Building Construction - 2022						
Architectural Coating - 2022	25	52	57	<1	17	5
Paving - 2022						
Maximum Daily Regional (On-site and Off-Site) Emissions	**25**	**52**	**57**	**<1**	**17**	**5**
SCAQMD Numeric Indicators	75	100	550	150	150	55
Over/ (Under)	(50)	(48)	(493)	(150)	(133)	(50)
Exceeds Indicator?	No	No	No	No	No	No
1955 East Grand Avenue Parcel						
Demolition - 2022	3	29	21	<1	3	1
Demolition - 2023	2	25	21	<1	4	1
Site Preparation/Grading/Excavation - 2023	3	30	20	<1	4	2
Building Construction - 2023						
Architectural Coating - 2023	15	40	43	<1	4	2
Paving - 2023						
Building Construction - 2024						
Architectural Coating - 2024	15	37	43	<1	4	2
Paving - 2024						
Maximum Regional (On-site and Off-Site) Emissions	**15**	**40**	**43**	**<1**	**4**	**2**
SCAQMD Numeric Indicators	75	100	550	150	150	55
Over/ (Under)	(60)	(60)	(507)	(150)	(146)	(53)
Exceeds Indicator?	No	No	No	No	No	No

[a] Totals may not add up exactly due to rounding in the modeling calculations Detailed emissions calculations are provided in Appendix B.
[b] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.
c Accounts for overlapping construction phases.
SOURCE: ESA PCR, 2017

TABLE 4.B-~~6~~5
MAXIMUM UNMITIGATED REGIONAL OPERATIONAL EMISSIONS (POUNDS PER DAY) [A]

Source	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Project Total (455 Continental Boulevard and 1955 E. Grand Avenue)						
Area	12	<1	<1	<1	<1	<1
Energy	<1	2	1	<1	<1	<1
Mobile	7	29	88	<1	32	9
Total Project Operational Emissions	**18**	**31**	**90**	**<1**	**32**	**9**
SCAQMD Numeric Indicators	55	55	550	150	150	55
Over/(Under)	(37)	(24)	(460)	(150)	(118)	(46)
Exceeds Thresholds?	No	No	No	No	No	No

[a] Totals may not add up exactly due to rounding in the modeling calculations Detailed emissions calculations are provided in Appendix B.

SOURCE: ESA PCR, 2017

Impact Statement AQ-3: The South Coast Air Basin is designated as non-attainment for O_3, PM_{10}, and $PM_{2.5}$ under federal and/or state ambient air quality standards. Construction and operation of the Project would not exceed the applicable SCAQMD significance thresholds for ozone precursor emissions (i.e., VOCs and NO_X), PM_{10}, or $PM_{2.5}$. Therefore, construction and operational emissions would be less than significant.

(a) Construction

The Project would result in the emission of criteria pollutants for which the project area is in non-attainment during both construction and operation. A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. The Air Basin is currently in non-attainment under federal or state standards for ozone, PM_{10}, and $PM_{2.5}$. The emissions from construction of the Project are not predicted to exceed any applicable SCAQMD regional or local impact threshold and therefore, are not expected to result in ground level concentrations that exceed the NAAQS or CAAQS. Therefore, the Project would not result in a cumulatively considerable net increase for non-attainment pollutants or ozone precursors and would result in a less than significant impact for construction emissions.

(b) Operations

Future operations would generate ozone precursors (i.e., VOCs and NO_X), CO, PM_{10}, and $PM_{2.5}$. Operational emissions would not exceed the SCAQMD regional or local thresholds and would not be expected to result in ground level concentrations that exceed the NAAQS or CAAQS. Since the project would not introduce any substantial stationary sources of emissions, Therefore, operation of the Project would not result in a cumulatively considerable net increase for non-attainment of criteria pollutants or ozone precursors. As a result, the project would result in a less than significant impact for operational emissions.

(4) Expose Sensitive Receptors to Substantial Pollutant Concentrations

Threshold AQ-4: The Project would result in a significant impact if the Project would expose sensitive receptors to substantial pollutant concentrations.

Impact Statement AQ-4: Construction and operation of the Project would not exceed the localized significance thresholds at off-site sensitive receptors. The Project would not cause or contribute to an exceedance of the CAAQS one-hour or eight-hour CO standards of 20 or 9.0 ppm, respectively. Therefore, CO hotspots impacts would be less than significant. Construction of the Project would not generate emissions of TACs (i.e., diesel PM) that would result in a significant health impact to off-site sensitive receptors. Operation of the Project would not include permanent sources (equipment, etc.) that would generate substantial long-term TAC emissions in excess of the health risk thresholds. Therefore, construction and operational TAC impacts would be less than significant.

(a) Localized Construction

The localized construction air quality analysis was conducted using the methodology described in the SCAQMD Localized Significance Threshold Methodology (June 2003, revised July 2008). The screening criteria provided in the methodology were used to determine localized construction emissions thresholds for the Project. The maximum daily localized emissions for each of the construction phases and localized significance thresholds are presented in **Table 4.B-7~~6~~,** *Maximum Unmitigated Localized Construction Emissions*. As shown therein, maximum localized construction emissions for sensitive receptors would not exceed the localized thresholds for NO_X, CO, PM_{10}, and $PM_{2.5}$. Therefore, with respect to localized construction emissions, impacts would be less than significant.

(b) Localized Operations

The localized operational air quality analysis was conducted using the methodology described in the SCAQMD Localized Significance Threshold Methodology (June 2003, revised July 2008). The screening criteria provided in the Localized Significance Threshold Methodology were used to determine localized operational emissions thresholds for the Project. The maximum daily localized emissions and localized significance thresholds are presented in **Table 4.B-8~~7~~,** *Maximum Unmitigated Localized Operational Emissions*. As shown therein, the increase in maximum localized operational emissions for sensitive receptors would not exceed the localized thresholds for NO_X, CO, PM_{10}, and $PM_{2.5}$. Therefore, with respect to localized operational emissions, impacts would be less than significant.

(c) Carbon Monoxide Hotspots

The potential for the Project to cause or contribute to CO hotspots is evaluated by comparing Project intersections (both intersection geometry and traffic volumes) with prior studies conducted by SCAQMD in support of their AQMPs and considering existing background CO concentrations. As discussed below, this comparison demonstrates that the Project would not cause or contribute considerably to the formation of CO hotspots, that CO concentrations at Project impacted intersections would remain well below the ambient air quality standards, and that no further CO analysis is warranted or required.

As shown previously in Table 4.B-2, CO levels in the Project area are substantially below the federal and state standards. Maximum CO levels in recent years are 2.0 ppm (one-hour average) and 1.4 ppm (eight-hour average) compared to the thresholds of 20 ppm (one-hour average) and 9.0 ppm (eight-hour average).

TABLE 4.B-~~7~~6
MAXIMUM UNMITIGATED LOCALIZED CONSTRUCTION EMISSIONS (POUNDS PER DAY) [A]

455 Continental Boulevard Parcel[c]	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Demolition - 2021	26	14	1	1
Site Preparation/Grading/Excavation - 2021	23	11	3	2
Building Construction - 2021	21	19	<1	1
Building Construction - 2022				
Architectural Coating - 2022	27	29	1	1
Paving - 2022				
Maximum Daily Regional (On-Site and Off-Site) Emissions	**27**	**29**	**3**	**2**
SCAQMD Numeric Indicators	247	6661	125	62
Over/ (Under)	(220)	(6631)	(121)	(60)
Exceeds Indicator?	No	No	No	No
1955 East Grand Avenue Parcel	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Demolition - 2022	23	19	2	1
Demolition - 2023	21	19	2	<1
Site Preparation/Grading/Excavation - 2023	28	19	3	2
Building Construction - 2023				
Architectural Coating - 2023	35	37	2	1
Paving - 2023				
Building Construction - 2024				
Architectural Coating - 2024	33	36	1	1
Paving - 2024				
Maximum Regional (On-Site and Off-Site) Emissions	**35**	**37**	**3**	**2**
SCAQMD Numeric Indicators	246	6661	125	62
Over/ (Under)	(212)	(6624)	(121)	(60)
Exceeds Indicator?	No	No	No	No

a Totals may not add up exactly due to rounding in the modeling calculations Detailed emissions calculations are provided in Appendix B.
b The SCAQMD LSTs are based on Source Receptor Area 3 (Southwest Los Angeles County Coastal) for a 5-acre site with an interpolated 333-meter receptor distance.
c Accounts for overlapping construction phases.

SOURCE: ESA PCR, 2017

TABLE 4.B-~~8~~7
MAXIMUM UNMITIGATED LOCALIZED OPERATIONAL EMISSIONS (POUNDS PER DAY) [A]

Source	NO_X	CO	PM_{10}	$PM_{2.5}$
Project Total (455 Continental Boulevard & 1955 E. Grand Avenue)				
Area	<1	<1	<1	<1
Energy	2	1	<1	<1
Total Project Operational Emissions	**2**	**1**	**<1**	**<1**
SCAQMD Numeric Indicators	246	6661	30	16
Over/(Under)	(245)	(6659)	(30)	(16)

[a] Totals may not add up exactly due to rounding in the modeling calculations Detailed emissions calculations are provided in Appendix B.

[b] The SCAQMD LSTs are based on Source Receptor Area 3 (Southwest Los Angeles County Coastal) for a 5-acre site with an interpolated 333-meter distance.

SOURCE: ESA PCR, 2017

CO levels decreased dramatically in the Air Basin with the introduction of the catalytic converter in 1975. No exceedances of CO have been recorded at monitoring stations in the Air Basin for some time and the Air Basin is currently designated as a CO attainment area for both the CAAQS and NAAQS. Thus, it is not expected that CO levels at Project-impacted intersections would rise to the level of an exceedance of these standards.

Additionally, SCAQMD conducted CO modeling for the 2003 AQMP for the four worst-case intersections in the Air Basin: (1) Wilshire Boulevard and Veteran Avenue; (2) Sunset Boulevard and Highland Avenue; (3) La Cienega Boulevard and Century Boulevard; and (4) Long Beach Boulevard and Imperial Highway. In the 2003 AQMP, SCAQMD notes that the intersection of Wilshire Boulevard and Veteran Avenue is the most congested intersection in Los Angeles County, with an average daily traffic volume of approximately 100,000 vehicles per day. This intersection is located near the on- and off-ramps to Interstate 405 in West Los Angeles.

The evidence provided in the 2003 AQMP (Table 4-10 of Appendix V) shows that the peak modeled CO concentration due to vehicle emissions at these four intersections was 4.6 ppm (one-hour average) and 3.2 (eight-hour average) at Wilshire Boulevard and Veteran Avenue. When added to the today's existing background CO concentrations, the screening values would be 7.6 ppm (one-hour average) and 5.7 ppm (eight-hour average).

Based on the Project's Traffic Impact Study,[107] of the studied intersections that were found to operate at a Level of Service (LOS) F under future operational year plus Project conditions, one intersection would potentially have peak traffic volumes of approximately 82,280 per day. As a result, CO concentrations are expected to be less than those estimated in the 2003 AQMP, which

[107] Kimley-Horn and Associates, Inc. Traffic Impact Study for the Continental Grand Campus Specific Plan, May 2017.

would not exceed the thresholds. Thus, this comparison demonstrates that the Project would not contribute considerably to the formation of CO hotspots, and no further CO analysis is required. The Project would result in less than significant impacts with respect to CO hotspots.

(d) Toxic Air Contaminants

(i) Construction

The greatest potential for TAC emissions would be related to diesel particulate matter emissions associated with heavy equipment operations during demolition, grading, and site preparation activities. In addition, incidental amounts of toxic substances such as oils, solvents, and paints would be used. These products would comply with all applicable SCAQMD rules for their manufacture and use. The Project would be subject to several SCAQMD rules designed to limit exposure to TACs during construction activities. The Project would be required to comply with the CARB ATC~~CT~~M that limits diesel powered equipment and vehicle idling to no more than 5 minutes at a location, and the CARB In-Use Off-Road Diesel Vehicle Regulation. Compliance with these control measures would minimize emissions of TACs during construction. The Project would also incorporate appropriate dust control measures during site activities and transport of materials.

The Applicant would be required to comply with the requirements of SCAQMD Rule 1403 regarding the abatement and disposal of asbestos found during construction activities.[108] Rule 1403 regulates asbestos as a toxic material and controls the emissions of asbestos from demolition and renovation activities by specifying agency notifications, appropriate removal procedures, and handling and clean-up procedures. Rule 1403 applies to owners and operators involved in the demolition or renovation of Asbestos Containing Materials (ACM)-containing structures, asbestos storage facilities, and waste disposal sites. The requirements under Rule 1403 include: surveying structures for ACM; agency notification of intention to remove asbestos; ACM removal procedures and time schedules; ACM handling and clean-up procedures; ACM storage, disposal, and landfill requirements; and record keeping. In addition, any facility known to contain asbestos is required to have a written asbestos management plan (also known as an Operations and Maintenance [O&M] Program).

As discussed previously, the resulting health risk calculations were performed using a spreadsheet tool consistent with the OEHHA guidance. The spreadsheet tool incorporates the algorithms, equations, and a variable described above as well as in the OEHHA Guidance, and incorporates the results of the AERMOD dispersion model. **Table 4.B-9** presents the maximum incremental increase in cancer risk for construction. As shown below, the Project would not exceed the 10 in one million cancer risk threshold for the modeled receptor types. Therefore, Project impacts would be less than significant. The maximum impacted receptors for each scenario are shown in **Figure 1,** *Project Cancer Risk,* of Appendix A of this RPDEIR.

[108] Since the structure was built in 1978 it is possible that asbestos materials were used.

TABLE 4.B-9
CONSTRUCTION MAXIMUM INCREMENTAL INCREASE IN CANCER RISK

Receptor Type	Cancer Risk (chances in one million)
Off-Site Residential	2.2
Off-Site Worker	3.8
SCAQMD Cancer Risk Threshold (in one million)	10
Exceeds Threshold?	**No**

SOURCE: ESA, 2019.

Table 4.B-10 presents the chronic hazard indices for construction. As shown below, the Project would not result in a chronic hazard index greater than 1.0; therefore, chronic health risks would be less than significant. The maximum impacted receptors for each scenario are shown in **Figure 2,** *Project Chronic Health Risks* of Appendix A of this RPDEIR.

TABLE 4.B-10
CONSTRUCTION MAXIMUM CHRONIC HAZARD INDEX

Receptor Type	Chronic Hazard Index
Off-Site Residential	0.002
Off-Site Worker	0.03
SCAQMD Hazard Index Threshold	1.0
Exceeds Threshold?	**No**

SOURCE: ESA, 2019.

Based on the analysis above, the refined construction HRA results indicate that the residential and worker health impacts would be less than the applicable SCAMQD thresholds. Therefore, impacts from construction DPM exposure would be less than significant and no further analysis or mitigation measures are required.

~~Compliance with the above regulatory requirements and standard conditions of approval would minimize emissions of TACs during construction and would not result in long-term health risks to existing off-site sensitive populations. Based on the above, impacts to off-site sensitive receptors from criteria pollutants and TACs impacts would be less than significant and no mitigation measures would be necessary.~~

(ii) Operations

Project operations would generate minor amounts of diesel emissions from commercial delivery truck operations. The trucks would comply with the applicable provisions of the CARB Truck and

Bus regulation to minimize and reduce emissions from existing diesel trucks. Therefore, the Project operations would not be considered a substantial source of diesel particulates.

In addition, Project operations would result in minimal emissions of air toxics from maintenance or other ongoing activities, such as from the use of architectural coatings, landscaping, and cleaning products. As a result, toxic or carcinogenic air pollutants are not expected to occur in substantial amounts in conjunction with operation of the proposed office use within the Project site. Based on the uses expected on the Project site, potential long-term operational impacts associated with the release of TACs would be minimal and would not be expected to exceed SCAQMD thresholds of significance. Therefore, impacts would be less than significant.

TABLE 4.B-11~~8~~
COMPARISON OF THE PROJECT TO APPLICABLE AIR QUALITY POLICES OF THE GENERAL PLAN

Policy	Characteristics of the Proposed Project
Policy AQ1-1.1: It is the policy of the City of El Segundo that the City encourage businesses to adopt alternative work schedules and prepare guidelines to assist local businesses in the implementation of alternative work schedule programs.	**Consistent:** Mattel currently allows flexibility in employee's work schedule and operates a half day on Friday, which results in some reduction to peak hour employee trips. In addition, Mattel has a successful Transportation Demand Management (TDM) program that would be expanded to include the future employees of the Project. The benefits of the rideshare program are communicated through a dedicated section on the Mattel intranet, periodically through company newsletter, as well as communicated to new hires during the orientation process. Therefore, the Project would be consistent with this policy.
Policy AQ1-1.2: It is the policy of the City of El Segundo that businesses be encouraged to establish and maintain telecommuting or work-at-home programs to reduce employee work trips.	**Consistent:** As discussed above, Mattel has a successful TDM program that would be expanded to include the new buildings. While not providing specifically for telecommuting, Mattel provides a program to reduce the number of peak hour trips. Therefore, the Project would be supportive of this policy.
Policy AQ1-1.3: It is the policy of the City of El Segundo that Transportation System Management (TSM) plans provide a 30 percent reduction in vehicle ridership or the equivalent Average Vehicle Ridership (AVR) per commute vehicle.	**Consistent:** As indicated above, Mattel, Inc. has a successful TDM program in place, which would be expanded to the Project. Mattel has a documented 19 percent participation in its ride share program. Mattel has a designated employee who provides Transportation Management services and the program is promoted through the company intranet. The program would be expanded to include the Project. Therefore, the Project would be consistent with this policy.
Policy AQ3-1.1: It is the policy of the City of El Segundo that the City continue to require employers in existing congested areas of the City and developers of large new developments to adopt Transportation System Management (TSM) plans and provide incentives for the provision of transit support facilities.	**Consistent:** Currently, Mattel, Inc., has a successful TDM plan in place, which would be expanded to include the Project. The TDM plan would encourage ridesharing, carpooling and vanpooling. In addition, the Project is located within close proximity to public transit, including MTA, MAX, the Green Line, and Torrance Transit. When transfer opportunities are considered, the Project site is in one of the best served transit areas in the region. Mattel encourages employee ridership of public transit through employee awareness and convenient access to schedules and routes. Finally, the Project would provide amenities to accommodate alternative modes of transportation, such as bicycle racks, lockers, and on-site shower facilities for employees. Bicycle racks would be provided similar to those provided for the existing 333 Continental Boulevard building. Therefore, while

Policy	Characteristics of the Proposed Project
	incentives for the provision of transit are not provided, the proposed Project would encourage the use of alternative modes of transportation and therefore, would be supportive of this policy.
Policy AQ3-1.2: It is the policy of the City of El Segundo that it continue to require developer TSM plans to encourage trip reduction programs and development of transit and ridesharing facilities over highway capacity expansion in order to achieve and maintain mobility and air quality.	**Consistent:** As indicated above, Mattel has an active and successful TDM program, which serves to reduce vehicle trips. In addition, when transfer opportunities are considered, the Project Site is located in one of the best served transit areas in the region. Mattel encourages employee ridership of public transit through employee awareness and convenient access to schedules and routes. Therefore, the Project would be consistent with this policy.
Policy AQ5-1.1: It is the policy of the City of El Segundo that the City discourage the use of single-occupant vehicles in congested areas of the City by changing or modifying the availability and cost of parking.	**Consistent:** In support of Mattel's TDM program, preferential parking for high occupancy vehicles would be provided in the new parking structure and within the surface parking lot, similar to the preferential parking available at the existing parking structure for the 333 Continental Boulevard building. Therefore, the Project would be consistent with this policy.
Policy AQ10-1.3: It is the policy of the City of El Segundo that all new development projects meet or exceed requirements of the South Coast Air Quality Management District for reducing PM_{10} standards.	**Consistent:** The Project would comply with SCAQMD Rule 403, which regulates and minimizes fugitive dust emissions for development projects. In addition, all areas that are not developed with building or paved for access would be landscaped, which would reduce soil erosion on the site. Therefore, the Project would be consistent with the policy.
Policy AQ12-1.2: It is the policy of the City of El Segundo that the City encourage the incorporation of energy conservation features in the design of new projects and the installation of conservation devices in existing developments.	**Consistent:** The Project would comply the State Building Energy Efficiency Standards of Title 24 of the California Code of Regulations, which limit energy consumption in new buildings. The efficiency standards regulate energy consumed for heating, cooling, ventilation, water heating, and lighting within new construction, and are enforced through the building permit process. Therefore, the Project would be consistent with the policy.
Policy AQ12-1.4: It is the policy of the City of El Segundo that new construction not preclude the use of solar energy systems by uses and buildings on adjacent properties and consider enactment of a comprehensive solar access ordinance.	**Consistent:** Given the distance between buildings and the building orientation, the Project would not preclude the use of solar energy systems on adjacent properties to the north.

e. Cumulative Impacts

The SCAQMD CEQA Air Quality Handbook states that the "Handbook is intended to provide local governments, project proponents, and consultants who prepare environmental documents with guidance for analyzing and mitigating air quality impacts of projects."[109] The SCAQMD CEQA Air Quality Handbook also states that "[f]rom an air quality perspective, the impact of a project is determined by examining the types and levels of emissions generated by the project and its impact on factors that affect air quality. As such, projects should be evaluated in terms of air pollution thresholds established by the District."[110] The SCAQMD has also provided guidance on an

[109] South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993, page iii.
[110] South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993, page 6-1.

acceptable approach to addressing the cumulative impacts issue for air quality as discussed below:[111]

> *As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR… Projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.*

Because the City has not adopted specific Citywide significance thresholds for air quality impacts, it is appropriate to rely on thresholds established by the SCAQMD (refer to CEQA Guidelines Section 15064.7). While it may be possible to add emissions from the list of related projects and the Project, it would not provide meaningful data for evaluating cumulative impacts under CEQA because neither the City nor the SCAQMD have established numerical thresholds applicable to the summation of multiple project emissions for comparison purposes. Additionally, regional emissions from a project have the potential to affect the whole Air Basin and unlike other environmental issues areas, such as aesthetics or noise, it is not possible to establish a geographical radius from a specific project site where potential cumulative impacts from regional emissions would be limited. Meteorological factors, such as wind, can disperse pollutants, often times tens of miles downwind from a project site. Therefore, consistent with accepted and established SCAQMD cumulative impact evaluation methodologies, the potential for the Project to results in cumulative impacts from regional emissions is assessed based on the SCAQMD thresholds.

(1) Construction

The Project would result in emissions of criteria air pollutants for which the region is in non-attainment during both construction and operation. The Air Basin fails to meet NAAQS for O_3 and $PM_{2.5}$, and therefore is considered a federal "non-attainment" area for these pollutants. SCAQMD has designed significance thresholds to assist the region in attaining the applicable CAAQS and NAAQS, apply to both primary (criteria and precursor) and secondary pollutants (O_3). Although the Project Site is located in a region that is in non-attainment for O_3 and $PM_{2.5}$, the emissions associated with Project construction would not be cumulatively considerable, as the emissions would fall below SCAQMD daily regional significance thresholds.

Any quantitative analysis to ascertain daily construction emissions that assumes multiple, concurrent construction projects would be speculative. SCAQMD recommends that project-specific air quality impacts be used to determine the potential cumulative impacts to regional air quality.

With respect to the Project's short-term construction-related air quality emissions and cumulative conditions, SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in

[111] South Coast Air Quality Management District, Cumulative Impacts White Paper, Appendix D. Available at http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4. Accessed May 2017.

the AQMP pursuant to the federal CAA mandates. Construction of the Project would comply with SCAQMD Rule 403 requirement, which focuses on reducing fugitive dust emissions and the ATCM to limit heavy duty diesel motor vehicle idling to no more than 5 minutes at any given time. In addition, the Project would utilize a construction contractor(s) that complies with required and applicable BACT and the In-Use Off-Road Diesel Vehicle Regulation. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects in the Air Basin, which would include the cumulative projects in the Project Area. Consistent with SCAQMD guidance for cumulative impacts, regional and localized emissions would be less than SCAQMD significance thresholds as shown above in Table 4.B-5~~4~~ and Table 4.B-7~~6~~. As such, the Project's contribution to cumulatively significant construction impacts to air quality would not be cumulatively considerable and cumulative impacts would be less than significant for regional and localized criteria pollutants during construction.

(2) Operation

SCAQMD's approach for assessing cumulative impacts related to operations or long-term implementation is based on attainment of ambient air quality standards in accordance with the requirements of the federal CAA and California CAA. As discussed earlier, SCAQMD has developed a comprehensive plan, the AQMP, which addresses the region's cumulative air quality condition.

A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or California non-attainment pollutant. Because the Los Angeles County portion of the Air Basin is currently in non-attainment for ozone, NO_2, PM_{10}, and $PM_{2.5}$, cumulative projects could exceed an air quality standard or contribute to an existing or projected air quality exceedance. Cumulative impacts to air quality are evaluated under two sets of thresholds for CEQA and SCAQMD. In particular, Section 15064(h)(3) of the CEQA Guidelines provides guidance in determining the significance of cumulative impacts, which states in part that:

> *A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency.*

For purposes of the cumulative air quality analysis with respect to CEQA Guidelines Section 15064(h)(3), the Project's incremental contribution to cumulative air quality impacts is determined based on compliance with the AQMP. The Project would not conflict with or obstruct implementation of AQMP and would be consistent with the growth projections in the AQMP.

Nonetheless, SCAQMD no longer recommends relying solely upon consistency with the AQMP as an appropriate methodology for assessing cumulative air quality impacts. SCAQMD recommends that project-specific air quality impacts be used to determine the potential cumulative impacts to regional air quality. The Project's regional and localized emissions would be below SCAQMD significance thresholds as shown in Table 4.B-6~~5~~ and Table 4.B-8~~7~~. Therefore, the Project's incremental contribution to long-term emissions of non-attainment pollutants and ozone precursors, considered together with cumulative projects, would not be cumulatively considerable, and therefore the cumulative impact of the Project would be less than significant.

4. Mitigation Measures

Mitigation measures are not required since Project construction and operational impacts would be less than significant.

5. Level of Significance After Mitigation

Impacts relative to air quality would be less than significant and no mitigation measures are required.