4.2 AIR QUALITY

4.2.1 Introduction

This section evaluates the potential air quality impacts associated with the construction and operation of potential development that would be allowed under the proposed General Plan Land Use Element and Urban Design Elements Project (proposed project). This analysis evaluates potential project-specific air quality effects by identifying potential air quality impacts that may occur within the planning area by assessing the effectiveness of mitigation measures incorporated as part of the design of the proposed project. This section is based on information provided in the Air Quality Element (1996) of the City of Long Beach's (City) General Plan, and the Air Quality Impact Analysis (LSA 2019) prepared for the proposed project (Appendix B).

4.2.2 CEQA Baseline

Although the Notice of Preparation (NOP) was published in May 2015, the baseline for air quality is 2018, the year when the analysis for the Recirculated Draft Environmental Impact Report (EIR) was initiated. This provides an updated baseline that reflects current conditions related to air quality at the time the Recirculated Draft EIR was prepared.

4.2.3 Methodology

A number of modeling tools are available to assess air quality impacts of projects. In addition, certain air districts, such as the South Coast Air Quality Management District (SCAQMD), have created guidelines and requirements to conduct air quality analysis. SCAQMD's current guidelines, the *CEQA Air Quality Handbook,* were followed in the assessment of air quality impacts for the proposed project. The air quality models identified in the document (including an older version of the URBEMIS model) are outdated; therefore, the current reference materials in the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 model are used to estimate project-related mobile and stationary sources emissions. CalEEMod was developed by the California Air Pollution Control Officers Association for use in estimating emissions from land use development projects.

This section includes estimated emissions associated with implementation of the project. During construction, fugitive dust emissions are released during activities that disturb the soil, such as grading and excavation, and building demolition and construction. Additionally, emissions are released during is the application of architectural coating and off-gas emissions are associated with asphalt paving. Construction emissions associated with project implementation were calculated using CalEEMod. Criteria pollutants with regional impacts would be emitted by increased vehicle trips, as well as by emissions associated with area sources. Utilizing guidance from the SCAQMD for estimating emissions associated with land use development projects, emission factors, inventory data information, and references from CalEEMod were used to calculate the long-term operational emissions associated with implementation of the project. The criteria air pollutant emissions inventory and detailed methodology assumptions are included in Section 4.2.4.8 below. Calculation details are provided in Appendix B.

The net increase in pollutant emissions determines the significance and impact on regional air quality as a result of implementation of the proposed project. The results also allow the local

government to determine whether the new development that would occur with implementation of the proposed project would deter the region from achieving the goal of reducing pollutants in accordance with the SCAQMD Air Quality Management Plan (AQMP) in order to comply with the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS).

4.2.4 Existing Environmental Setting

4.2.4.1 Existing Project Site

The project's planning area includes the entire City as it is an update to the City's General Plan and is intended to guide growth and future development through the horizon year 2040. The project proposes to update the City's current Land Use Element (LUE) (1989) and adopt an entirely new Urban Design Element (UDE) into its General Plan. Through implementation of the LUE, the City is looking to target future growth in specific transit-rich corridors and districts in order to increase housing and job density in commercial and industrial areas, improve the corridors, and maintain and improve the existing established neighborhoods. The LUE will replace existing land use designations with "PlaceTypes" that are more flexible and comprehensive, and will lead to a subsequent comprehensive Zoning Code update. Major land use changes proposed as part of the LUE are identified as "Major Areas of Change," and are illustrated in previously referenced Figure 3.3, in Chapter 3.0, Project Description.

As previously identified, the City is also proposing to adopt a new UDE as part of its General Plan to replace its existing Scenic Routes Element (SRE). The UDE would work towards shaping the continued evolution of the urban environment in Long Beach, while also allowing for a balance between the existing natural environment and new development. The UDE is interconnected with the LUE and will provide minimum design standards for the "PlaceTypes" and their respective component development types and patterns.

The planning area is currently developed and consists of a mix of residential, commercial, medical, institutional, industrial, and open space and recreation uses. These uses currently generate criteria air pollutants from natural gas use for energy, heating and cooking, vehicle trips associated with each land use, and area sources such as landscaping equipment and consumer cleaning products.

4.2.4.2 Sensitive Uses in the Project Vicinity

Sensitive receptors in the City include residences, retirement facilities, hospitals, schools, recreational land uses, and similar uses that are sensitive to air pollutants. Construction and operation of development allowed under the LUE could adversely affect nearby air quality-sensitive land uses.

4.2.4.3 Climate and Meteorology

Air quality in Long Beach is affected by various emission sources (e.g., mobile and industry) as well as atmospheric conditions (e.g., wind speed, wind direction, temperature, and rainfall). The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States gives the South Coast Air Basin (Basin) some of the highest pollutant concentrations in the country.

The annual average temperature varies throughout the Basin, ranging from the low- to middle-60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas, including the City of Long Beach, show less variability in annual minimum and maximum temperatures than inland areas. The monthly average maximum temperature in Long Beach ranges from 65.2°F in January to 80.7°F in August. The monthly average minimum temperature ranges from 44.8°F in January to 62.1°F in August.[1] January is typically the coldest month, and July and August are typically the warmest months in this area of the Basin.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thunderstorms in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. The monthly average rainfall in Long Beach typically varies from 2.88 inches in January to 0.03 inch in August with an annual total of 12.72 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high, which is the semi-permanent high-pressure area of the north Pacific Ocean and is the dominating factor in California weather. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Winds in Long Beach blow predominantly from the west–northwest, with relatively low velocities.[2] Wind speeds in Long Beach average between 7 miles per hour (mph) and 4 mph. Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north, or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months and disperse air contaminants. The Santa Ana conditions tend to last for several days at a time.[3]

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollution concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are carbon monoxide (CO) and nitrogen oxides (NO_X) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog or ozone.

1 Western Regional Climate Center, 2015. Website: https://wrcc.dri.edu/.
2 Western Regional Climate Center, 2015. Website: https://wrcc.dri.edu/.
3 Ibid.

4.2.4.4 Regional Air Quality

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants:[4] CO, ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and suspended particulate matter (PM). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Long-term exposure to elevated levels of criteria pollutants may result in adverse health effects. However, emission thresholds established by an air quality district are used to manage total regional emissions within an air basin based on the air basin's attainment status for criteria pollutants. These emission thresholds were established for individual projects that would contribute to regional emissions and pollutant concentrations and could adversely affect or delay the projected attainment target year for certain criteria pollutants.

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

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

4.2.4.5 Toxic Air Contaminants

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

TACs do not have ambient air quality standards, but are regulated by the USEPA, CARB, and the SCAQMD. In 1998, CARB identified particulate matter from diesel-fueled engines as a TAC. CARB has

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

completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.[5] High-volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (e.g., distribution centers and truck stops) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high-volume transit centers, and schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

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

Although not specifically monitored, recent studies indicate that exposure to diesel particulate matter may contribute significantly to a cancer risk (a risk of approximately 500 to 700 in one million) that is greater than all other measured TACs combined.[6] The technology for reducing diesel particulate matter emissions from heavy-duty trucks is well established, and both State and federal agencies are moving aggressively to regulate engines and emission control systems to reduce and remediate diesel emissions. CARB anticipates that by 2020, average statewide diesel particulate matter concentrations will decrease by 85 percent from levels in 2000 with full implementation of CARB's Diesel Risk Reduction Plan,[7] meaning that the statewide health risk from diesel particulate matter is expected to decrease from 540 cancer cases in one million to 21.5 cancer cases in one million.

Table 4.2.A summarizes the sources and health effects of air pollutants discussed in this section. Table 4.2.B presents a summary of state and federal ambient air quality standards (AAQS).

4.2.4.6 Attainment Status

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

---

5 California Air Resources Board (CARB). 2000. Stationary Source Division and Mobile Source Control Division. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.* October.

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

7 Ibid.

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

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

Source: California Air Resources Board (2015).

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

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

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

Table notes are provided on the following page.

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

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

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

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

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

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

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

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

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24- hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[j] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

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

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

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

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

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

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

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

Table 4.2.C provides a summary of the attainment status for the Basin with respect to NAAQS and CAAQS.

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

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

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

4.2.4.7 Local Air Quality

Air quality monitoring stations are located throughout the nation and are maintained by the local air pollution control district and State air quality regulating agencies. The SCAQMD, together with CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to and within the project area is the 2425 Webster Street ambient air quality monitoring station in Long Beach, because it monitors the most air pollutant data in the City. The air quality trends from this station are used to represent the ambient air quality in Long Beach.

Pollutant monitoring results for years 2015 to 2017 at the 2425 Webster Street ambient air quality monitoring station in Long Beach, shown in Table 4.2.D, indicate that air quality in the vicinity of the City has generally been good. As indicated in the monitoring results, no violations of the federal PM_{10} standard occurred during the 3-year period. The State PM_{10} standard was exceeded six times in 2015, eight times in 2016, and ten times in 2017. $PM_{2.5}$ levels exceeded the Federal standard three times in 2015 and four times in 2017. Neither State nor Federal 1-hour ozone standards nor the State 8-hour ozone standard were exceeded in the 3-year period. In addition, the CO, SO_2, and NO_2 standards were also not exceeded in this area during the 3-year period.

Table 4.2.D: Ambient Air Quality at the Long Beach 2425 Webster Street Monitoring Station

Pollutant	Standard	2015	2016	2017
Carbon Monoxide (CO)				
Maximum 1-hour concentration (ppm)		3.3	3.3	3.9
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		2.2	2.2	2.6
Number of days exceeded:	State: > 9 ppm	0	0	0
	Federal: > 9 ppm	0	0	0
Ozone (O_3)				
Maximum 1-hour concentration (ppm)		0.087	0.079	0.082
Number of days exceeded:	State: > 0.09 ppm	0	0	0
Maximum 8-hour concentration (ppm)		0.067	0.059	0.069
Number of days exceeded:	State: > 0.07 ppm	0	0	0
	Federal: > 0.08 ppm	0	0	0
Coarse Particulates (PM_{10})				
Maximum 24-hour concentration (µg/m^3)		80.0	75.3	79.3
Number of days exceeded:	State: > 50 µg/m^3	6	8	10
	Federal: > 150 µg/m^3	0	0	0
Annual arithmetic average concentration (µg/m^3)		31.5	31.9	33.9
Exceeded for the year:	State: > 20 µg/m^3	Yes	Yes	Yes
	Federal: > 50 µg/m^3	No	No	No
Fine Particulates ($PM_{2.5}$)[1]				
Maximum 24-hour concentration (µg/m^3)		54.6	29.3	55.3
Number of days exceeded:	Federal: > 35 µg/m^3	3	0	4
Annual arithmetic average concentration (µg/m^3)		10.8	10.3	10.9
Exceeded for the year:	State: > 12 µg/m^3	No	No	No
	Federal: > 12 µg/m^3	No	No	No
Nitrogen Dioxide (NO_2)				
Maximum 1-hour concentration (ppm)		0.102	0.076	0.090
Number of days exceeded:	State: > 0.250 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.020	0.018	0.018
Exceeded for the year:	Federal: > 0.053 ppm	No	No	No
Sulfur Dioxide (SO_2)				
Maximum 1-hour concentration (ppm)		0.038	0.018	0.020
Number of days exceeded:	State: > 0.25 ppm	0	0	0
Maximum 3-hour concentration (ppm)		ND	ND	ND
Number of days exceeded:	Federal: > 0.50 ppm	ND	ND	ND
Maximum 24-hour concentration (ppm)		0.005	0.004	0.003
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.0009	0.0003	0.0009
Exceeded for the year:	Federal: > 0.030 ppm	No	No	No

Sources: CARB (2018) and USEPA (2018).

[1] Data taken from the 3648 Long Beach Boulevard monitoring site.

µg/m^3 = micrograms per cubic meter

CARB = California Air Resources Board

ND = No data. There was insufficient (or no) data to determine the value.

ppm = parts per million

USEPA = United States Environmental Protection Agency

4.2.4.8 Existing City of Long Beach Criteria Pollutant Emissions Inventory

Table 4.2.E identifies the existing criteria air pollutant emissions inventory of the City of Long Beach using emission rates for year 2018 (existing conditions). The inventory is based on demographics in the City. The year 2018 inventory represents the estimated emissions generated by the existing land uses using the baseline year 2018 emission factors for on-road vehicles, energy sources, and area sources. Area emissions refer to emissions occurring from hearths, consumer products, area architectural coatings, and landscaping equipment. Energy use emissions refer to emissions occurring from building electricity and non-hearth natural gas usage.

Table 4.2.E: Existing City of Long Beach Regional Criteria Air Pollutant Emissions Inventory

Sector	Criteria Air Pollutant Emissions (lbs/day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Existing Year 2018						
Transportation (2018 emission factors)[1]	4,123	38,622	8,474	85	1,827	541
Energy: Residential[2]	83	838	357	7	58	58
Energy: Commercial + Industrial[2]	24	106	89	1	7	7
Energy: Public Facilities/Institutional[2]	7	65	55	0	5	5
Area Source: Residential[3]	8,837	2,990	46,580	82	5,478	5,478
Area Source: Commercial + Industrial[3]	952	1	1	0	1	1
Area Source: Public Facilities/Institutional[3]	295	0	1	0	0	0
Total Emissions for Existing Land Uses	**14,321**	**42,621**	**55,556**	**174**	**7,377**	**6,091**

Source: Compiled by LSA (March 2019).

[1] EMFAC2017 based on daily vehicle miles traveled (VMT) provided by LSA.

[2] Energy use calculated using CalEEMod version 2016.3.2

[3] Estimated using CalEEMod version 2016.3.2. Area source emissions include landscaping and consumer product emissions. Various industrial and commercial processes (e.g., manufacturing, dry cleaning) allowed under the Land Use Element would require permitting and would be subject to further study pursuant to SCAQMD Regulation XIII, New Source Review. Because the nature of those emissions cannot be determined at this time and are subject to further regulation and permitting, they are not considered for purposes of this analysis.

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

The criteria air pollutant emissions inventory includes the following sectors:

- **Transportation:** Based on the Traffic Impact Analysis (TIA), the existing 2018 citywide vehicle miles traveled (VMT) is approximately 9.48 million VMT. These trips are associated with the existing residential development, commercial facilities, industrial facilities, and public facilities/institutional land uses within the City.
    - Based on the TIA, the existing 2018 citywide VMT is approximately 9.48 million VMT. These trips are associated with the existing residential development, commercial facilities, industrial facilities, and public facilities/institutional land uses within the City.

- Under the existing General Plan under future 2040 conditions, VMT is expected to decrease to 8.91 million daily VMT.

- With implementation of the proposed project, the traffic is estimated to be 9.03 million daily VMT in year 2040 with anticipated buildout including SCAG-projected population and job growth, as well as new housing units both to support population growth and to alleviate overcrowding of existing housing units (such growth is not contemplated under the existing General Plan future 2040 conditions listed above).

- The off-peak VMT are generated by discretionary trips, which the traffic model calculates based on the number of households. In other words, the model assumes that people living in overcrowded housing conditions generate fewer trips to the grocery store than the same number of people living in less-crowded, separate housing. Because the proposed LUE reduces overcrowding compared to existing conditions by providing sufficient housing stock to reduce overcrowding over time, the model estimates that the number of discretionary trips would increase for residents living in separate units when compared to the number of trips for the same number of people living in one household, thereby increasing the off-peak VMT, and subsequently, the total VMT.

- **Energy and Area Source Emissions:** Non-hearth natural gas use and building electricity for residential and nonresidential land uses in the City. The electricity energy use used in the analysis is based on units of kilowatt hours (kWh) per size metric for each land use subtype. The natural gas use used in the analysis is based on units of a thousand British Thermal Units (kBTU) per size metric for each land use subtype.[8] Water use and wastewater generation used in the analysis are based on units of million gallons (Mgal) per size metric for each land use subtype. In addition, solid waste generation used in the analysis is based on the unit of tons per size metric for each land use subtype.

  The total number of units (or 1,000 square foot [ksf]) for each General Plan LUE and UDE land use type were divided by the units per acre (or ksf per acre), then multiplied by the following energy metrics: (a) units of kWh per size metric for each land use subtype for electricity, (b) units of kBTU per size metric for each land use subtype for natural gas consumption, (c) Mgal of water per size metric for each land use subtype for water consumption, (d) Mgal of wastewater per size metric for each land use subtype for wastewater generation, and (e) tons of solid waste per size metric for each land use subtype for solid waste generation.

  CalEEMod was used to estimate criteria air pollutant emissions from consumer products, area architectural coatings, landscaping equipment and light commercial equipment in the City.

[8] The electricity and natural gas usage factors were modeled by land use type to the equivalent of 1 acre (e.g., three single-family dwelling units per acre, 16 low-rise apartment units per acre, 38 mid-rise apartment units per acre, and 43,560 square feet of commercial land use per acre.

4.2.5 Regulatory Setting

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

4.2.5.1 Federal Regulations

The 1970 Federal Clean Air Act authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 changed deadlines for attaining national standards as well as the remedial actions required of areas of the nation that exceed the standards. Under the Clean Air Act, State, and local agencies in areas that exceed the national standards are required to develop State Implementation Plans to demonstrate how they will achieve the national standards by specified dates.

4.2.5.2 State Regulations

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

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

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

The California Air Resources Board Handbook. CARB has developed an Air Quality and Land Use Handbook[9] (the CARB Handbook), which is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. According to the CARB Handbook, recent air pollution studies have shown an association between respiratory and other non-cancer health effects and

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

proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. The CARB Handbook recommends that county and city planning agencies strongly consider proximity to these sources when finding new locations for "sensitive" land uses such as homes, medical facilities, daycare centers, schools, and playgrounds.

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

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

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

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

4.2.5.3 Local and Regional Policies and Regulations

South Coast Air Quality Management District. The SCAQMD has jurisdiction over most air quality matters in the South Coast Air Basin (Basin). This area includes all of Orange County, Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. Los Angeles County is a subregion of the SCAQMD jurisdiction. The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Basin and is tasked with implementing certain programs and regulations required by the (Federal) Clean Air Act (CAA) and the California Clean Air Act (CCAA). The SCAQMD prepares plans to attain State and National Ambient Air Quality Standards (NAAQS). SCAQMD is directly responsible for reducing emissions from stationary (area and point) sources. The

SCAQMD develops rules and regulations, establishes permitting requirements, inspects emissions sources, and enforces such measures though educational programs or fines, when necessary.

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

- **Regulation IV - Prohibitions:** This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air pollutant emissions, fuel contaminants, start-up/shutdown exemptions, and breakdown events. These prohibitions will apply to future development facilitated by approval of the proposed project.

    - **Rule 402 - Nuisance:** This rule restricts the discharge of any contaminant in quantities that cause or have a natural ability to cause injury, damage, nuisance, or annoyance to businesses, property, or the public.

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

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

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

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

standards. Every 3 years, SCAQMD prepares a new AQMP, updating the previous plan and 20-year horizon.[10]

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

- Calculating and taking credit for co-benefits from other planning efforts (e.g., climate, energy, and transportation)
- A strategy with fair-share emission reductions at the federal, State, and local levels
- Investment in strategies and technologies meeting multiple air quality objectives
- Seeking new partnerships and significant funding for incentives to accelerate deployment of zero-emission and near-zero emission technologies
- Enhanced socioeconomic assessment, including an expanded environmental justice analysis
- Attainment of the 24-hour $PM_{2.5}$ standard in 2019 with no additional measures
- Attainment of the annual $PM_{2.5}$ standard by 2025 with implementation of a portion of the O_3 strategy
- Attainment of the 1-hour O_3 standard by 2022 with no reliance on "black box" future technology (FCAA Section 182(e)(5) measures)

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

Although SCAG is not an air quality management agency, it is responsible for developing transportation, land use, and energy conservation measures that affect air quality. SCAG's Regional Comprehensive Plan (RCP) provides growth forecasts that are used in the development of air

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

quality–related land use and transportation control strategies by the SCAQMD. The RCP is a framework for decision-making for local governments, assisting them in meeting federal and State mandates for growth management, mobility, and environmental standards, while maintaining consistency with regional goals regarding growth and changes. Policies within the RCP include consideration of air quality, land use, transportation, and economic relationships by all levels of government.

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

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

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

City of Long Beach General Plan Air Quality Element. The adopted City of Long Beach General Plan addresses air quality in the Air Quality Element[11] and contains goals and policies and actions in relation to government organization roles and responsibilities, ground transportation, air transportation, land use, particulate emissions, energy conservation, and education. The following goals and policies related to air quality are presented in the Air Quality Element:

GOAL 1: Effective coordination of air quality improvement efforts in the South Coast Air Basin, the Southeast Los Angeles County (SELAC) subregion of SCAG, and other agencies.

Policy 1.1: Establish a Coordinated Approach. Coordinate with other jurisdictions in the South Coast Air Basin a continuation of the consortium to establish air quality plans and implementation programs where practical.

Policy 1.2: Encourage Community Participation. Involve environmental groups, the business community, special interests, and the general public in the formulation and implementation of programs that effectively reduce airborne pollutants.

GOAL 2: A diverse and efficient ground transportation system that minimizes air pollutant emissions.

Policy 2.1.1: Reduce Vehicle Trips. Use incentives, regulations, and transportation demand management techniques, in cooperation with other jurisdictions in the South Coast Air Basin to eliminate vehicle trips that would otherwise occur.

Policy 2.1.2: Reduce Vehicle Miles Traveled. Use incentives, regulations, and transportation demand management in cooperation with other jurisdictions in the South Coast Air Basin, to reduce vehicle miles traveled.

Policy 2.1.3: Increase Cost-Effectiveness of Transportation and Parking Systems. Make cost-effective improvements to transportation and parking systems that will reduce traffic congestion and resulting emissions.

Policy 2.2.1: Modify Work Schedules. Promote and establish modified work schedules that reduce peak period auto travel.

Policy 2.3.1: Expand Transit in the City and the Region. Cooperate in efforts to expand all forms of mass transit within the City and the South Coast Air Basin.

[11] City of Long Beach. 1996. *Long Beach General Plan*. December.

Policy 2.4.1: Promote Non-Motorized Transportation. Promote convenient and continuous bicycle paths and pleasant pedestrian environments that will encourage non-motorized travel within the City.

Policy 2.5.1: Manage the Parking Supply. Manage the City's parking supply to inhibit auto use, while ensuring that economic development goals are not sacrificed.

Policy 2.6.1: Support Legislation. Participate with other local governments in seeking State and federal legislation to improve vehicle/transportation technology and establish a direct link between the true cost of emissions and the sources of pollution.

Policy 2.6.2: Fleet Conversion to Clean Fuels. Play a leadership role in the conversion to clean fuels by promoting the increased use of compressed natural gas (CNG), electric vehicles, and other alternative fuels.

GOAL 3: Minimum feasible emissions from Long Beach Airport.

Policy 3.1: Promote Improved Technology. Promote the use of the best available technology to reduce emissions from aircraft frequenting the Long Beach Airport.

GOAL 4: Minimum feasible emissions from the Ports of Long Beach and Los Angeles.

Policy 4.1: Minimize emissions from ships.

Policy 4.2: Reduce the impacts of rail-related emissions on Long Beach neighborhoods and the downtown.

Policy 4.3: Monitor particulate pollution at the Ports and locations downwind, and pursue methods of reducing emissions while accommodating needed growth.

GOAL 5: A pattern of land uses that can be efficiently served by a diversified transportation system and that directly and indirectly minimizes air pollutants.

Policy 5.1: Manage Growth. Regulate land use and promote development in a manner that will support established transit services and reduce the need for the automobile.

Policy 5.2: Balance Growth. Improve the balance between jobs and housing to create a more efficient urban form.

GOAL 6: Minimize particulate emissions from the construction and operation of roads and buildings, from mobile sources, and from the transportation, handling and storage of materials.

Policy 6.1: Control Dust. Further reduce particulate emissions from roads, parking lots, construction sites, unpaved alleys, and port operations and related uses.

GOAL 7: Reduce emissions through reduced energy consumption.

Policy 7.1: Energy Conservation. Reduce energy consumption through conservation improvements and requirements.

Policy 7.2: Recycle Wastes. Promote local recycling of wastes and the use of recycled materials.

GOAL 8: Education of City residents concerning air quality, energy, and congestion issues, and the need to modify present travel behavior and energy consumption patterns.

Policy 8.1: Promote Public Education Programs at the Local, Subregional, and Regional Level to Encourage Residents to Modify their Behavior to Reduce Automobile Trips. Coordinate with the Long Beach Unified School District, the Long Beach City College, California State University Long Beach, the American Lung Association, other jurisdictions and agencies, and environmental groups in the development of programs and campaigns to increase awareness of, and the number of stakeholders in, air quality, energy, and congestion issues.

City of Long Beach General Plan Mobility Element. The Mobility Element[12] of the City of Long Beach General Plan aims at creating a safe, efficient, balanced and multimodal mobility network, maintaining and enhancing air, ground, and water transportation capacity, and leading the region by example with innovative and experimental practices, and includes goals, policies, and actions that help reduce air pollutants and GHG emissions through more efficient transportation. The following goals, strategies, and policies related to air quality are presented in the Mobility Element:

GOAL 1: Create a safe, efficient, balanced, and multimodal mobility network.

Strategy 1: Establish a network of complete streets that complements the related street type.

Policy 1-9: Increase mode shift of transit, pedestrians, and bicycles.

[12] City of Long Beach. 2013. *Long Beach General Plan*. October.

Policy 1-12: Encourage large employers to provide transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education, and preferential parking for carpools/vanpools.

Policy 1-17: Develop land use policies that focus development potential in locations best served by transit.

Strategy 2: Reconfigure streets to emphasize their modal priorities.

Policy 2-17: Ensure safe, convenient, and adequate, on- and off-street bicycle parking facilities to accommodate and encourage residents to cycle for commuting and daily needs.

Strategy 3: Strategically improve congested intersections and corridors.

Policy 4-3: Develop a new Multimodal Level of Service (MMLOS) methodology that includes the following components:

- Emphasis on pedestrian and bicycle access and circulation.
- Maintenance of appropriate emergency vehicle access and response time.
- Support for reduced vehicle miles traveled.
- Considers, but does not deem, auto congestion in Downtown or Long Beach Boulevard Transit-Oriented Development (TOD) district to be an impact.

Strategy 5: Reduce the environmental impacts of the transportation system.

Policy 5-2: Reduce vehicle miles traveled (VMT) and vehicle trips through the use of alternative modes of transportation and Transportation Demand Management.

Policy 5-3: Encourage the use of low- or no-emission vehicles to reduce pollution.

Policy 5-4: Promote car-sharing and Neighborhood Electric Vehicle ownership as an important means to reduce traffic congestion.

Policy 5-5: Sustain the recent improvements in air quality and achieve further significant progress in such improvements to meet State and federal mandates.

Strategy 6: Manage the supply of parking.

Policy 6-3: Where appropriate, encourage the conversion of on-street parking space for expanded sidewalk widths or landscaping.

Policy 6-7: Support using parking supply and pricing as a strategy to encourage use of non-automobile modes where feasible.

Policy 6-8: Where applicable, encourage users to park once to meet all of their travel needs within the City.

Policy 6-11: Encourage the use of transit, carpooling, and walking to reduce the need for parking.

Policy 6-12: Promote transit-oriented development with reduced parking requirements around appropriate transit hubs and stations to facilitate the use of available transit services.

Policy 6-13: Consider reducing parking requirements for mixed-use developments, for developments providing shared parking or a comprehensive Transportation Demand Management Program, or developments located near major transit hubs.

Policy 6.15: Encourage and provide incentives for commercial, office, and industrial development to provide preferred parking for carpools, vanpools, electric vehicles, and flex cars.

GOAL 3: Lead the region by example with innovative and experimental practices.

Strategy 10: Be a leader in regional cooperation on transportation issues.

Strategy 11: Adapt mobility strategies and programs based on new concepts and technologies that reduce environmental impacts and increase quality of life.

Strategy 12: Develop freight-related improvements consistent with the regional transportation network.

Policy 13-2: Reduce truck congestion and parking impacts on City streets.

Strategy 14: Reduce the air quality impacts of freight transportation and Port-related traffic.

Policy 14-1: Provide for the efficient, clean, and safe movement of goods to support commerce and industry.

Policy 14-2: Adopt and enforce truck routes to minimize the impacts of truck emissions on the community.

Policy 14-3: Reduce congestion on freeways and designated truck routes.

Policy 14-4: Encourage ridesharing activities within the Harbor District to reduce vehicle miles traveled (VMT) and parking space requirements in compliance with the South Coast Air Quality Management District requirements.

City of Long Beach *Sustainable City Action Plan*. The City of Long Beach's *Sustainable City Action Plan* (SCAP) was adopted in February 2010.[13] The SCAP is intended to guide operational, policy, and financial decisions to create a more sustainable Long Beach. The SCAP includes initiatives, goals, and actions that will move Long Beach toward becoming a sustainable city. These goals and actions included in the SCAP relate to the following:

- Buildings & Neighborhoods
- Energy
- Green Economy & Lifestyle
- Transportation
- Urban Nature
- Waste Reduction
- Water

4.2.6 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the *State CEQA Guidelines*. Based on these thresholds, implementation of the proposed project would have a significant adverse impact with respect to air quality if it would:

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

Threshold 4.2.2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard;

Threshold 4.2.3: Expose sensitive receptors to substantial pollutant concentrations; or

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

CEQA generally does not require analysis or mitigation of the impact of existing environmental conditions on a project, including a project's future users or residents. However, as with other laws and regulations enforced by other agencies that protect public health and safety, the City, as the lead agency, has authority other than CEQA to institute policies that aim to protect public health and safety. Policies that aim to address the impact of existing environmental conditions on future projects have been included in the LUE plan and will be implemented on a case-by-case basis through the discretionary review process.

[13] City of Long Beach. 2010. *Sustainable City Action Plan*. February.

4.2.7 Compliance Measures and Project Design Features

Compliance measures are regulations imposed uniformly by the approving agency based on the proposed action taken and are required of the proposed project to reduce its potential environmental effects. Because these features are standard requirements, they do not constitute mitigation measures. The following compliance measure would apply to discretionary projects that might be facilitated by the proposed project with respect to air quality. Compliance Measure CM AQ-1 includes a list of the types of measures within the existing regulatory framework that future projects may be required to comply with based on their specific impacts.

CM AQ-1: To ensure compliance with South Coast Air Quality Management District (SCAQMD) rules and provide Best Management Practices (BMPs) to reduce air pollutant emissions during construction of future projects facilitated under the proposed project, the construction contractor shall implement the following BMPs during construction, where feasible, to further reduce emissions from construction emissions of volatile organic compounds (VOCs), nitrogen oxides (NO_X), and particulate matter:

- Install temporary construction power supply meters on site and use these to provide power to electric power tools whenever feasible. If temporary electric power is available on site, forbid the use of portable gasoline- or diesel-fueled electric generators.
- Use of diesel oxidation catalysts and/or catalyzed diesel particulate traps on diesel equipment, as feasible.
- Maintain equipment according to manufacturers' specifications.
- Restrict idling of equipment and trucks to a maximum of 5 minutes (per California Air Resources Board [CARB] regulation).
- Phase grading operations to reduce disturbed areas and times of exposure.
- Avoid excavation and grading during wet weather.
- Limit on-site construction routes and stabilize construction entrance(s).
- Remove existing vegetation only when absolutely necessary.
- Sweep up spilled dry materials (e.g., cement, mortar, or dirt track-out) immediately. Never attempt to wash them away with water. Use only minimal water for dust control.
- Store stockpiled materials and wastes under a temporary roof or secured plastic sheeting or tarp.
- Properly dispose of all demolition wastes. Materials that can be recycled from demolition projects include: metal framing, wood, concrete, asphalt, and plate glass. Unusable, un-recyclable debris should be confined to dumpsters, covered at night, and taken to a

landfill for disposal. Hazardous debris such as asbestos must be handled in accordance with specific laws and regulations and disposed of as hazardous waste. For more information on asbestos handling and disposal regulations, contact the SCAQMD.

4.2.7.1 Proposed Land Use Element Strategies and Policies

The following proposed Goals, Strategies, and Policies are applicable to the analysis of air quality and would replace existing goals, strategies, and policies outlined in the City's existing LUE and SRE following project approval:

Land Use Element.

Strategy No. 1: Support sustainable urban development patterns.

- **LU Policy 1-1:** Promote sustainable development patterns and development intensities that use land efficiently and accommodate and encourage walking.
- **LU Policy 1-3:** Require sustainable design strategies to be integrated into public and private development projects.
- **LU Policy 1-4:** Require electric vehicle charging stations to be installed in new commercial, industrial, institutional, and multiple-family residential development projects. Require that all parking for single-unit and two-unit residential development projects be capable of supporting future electric vehicle supply equipment.
- **LU Policy 1-6:** Require that new building construction incorporate solar panels, vegetated surface, high albedo surface, and/or similar roof structures to reduce net energy usage and reduce the heat island effect.
- **LU Policy 1-7:** Encourage neighborhood-serving retail, employment, and entertainment destinations in new mixed-use projects to create local, walkable daily trip destinations.

Strategy No. 11: Create healthy and sustainable neighborhoods.

- **LU Policy 11-2:** Provide for a wide variety of creative, affordable, and sustainable land use solutions to help resolve air, soil, and water pollution, energy consumption, and resource depletion issues.
- **LU Policy 11-5:** Ensure neighborhoods are accessible to open spaces, parks, trails, and recreational programs that encourage physical activity and walkability.

Strategy No. 16: Protect neighborhoods from adverse environmental conditions.

- **LU Policy 16-1:** Develop public health and environmental protection programs that promote equity and that provide for the fair treatment of all Long Beach residents, regardless of race, age, culture, income, or geographic location.
- **LU Policy 16-2:** Continue to work with the State, the Port of Los Angeles, and other agencies and organizations to improve air quality around the ports and reduce vessel, truck, rail, and other equipment emissions from port operations.

- **LU Policy 16-3:** Continue to be an advocate for residential neighborhoods that will be adversely affected by major port-related facility expansion projects.
- **LU Policy 16-4:** Work with regional agencies, residents, and businesses to preserve established homes, businesses, and open spaces; limit the exposure of toxic pollutants and vehicle noise and minimize traffic issues impacting residential neighborhoods as a result of the I-710 Freeway expansion.
- **LU Policy 16-13:** Locate sensitive land uses (e.g., residences, schools, and daycare centers) to avoid incompatibilities with recommended buffer distances identified in the most current version of the CARB *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB Handbook). Sensitive land uses that are within the recommended buffer distances listed in the CARB Handbook shall provide enhanced filtration units or submit a Health Risk Assessment (HRA) to the City. If the HRA shows that the project would exceed the applicable thresholds, mitigation measures capable of reducing potential impacts to an acceptable level must be identified and approved by the City.
- **LU Policy 16-14**: When residential or other sensitive land uses are proposed within proximity to freeways or the Port, use the discretionary review process to impose site plan and design features aimed at minimizing exposure to environmental pollution. For example, locate balconies, outdoor amenity spaces, and when possible occupied portions of buildings as far from the pollution source as a particular site will allow, and require the planting of vegetation and landscape buffering as appropriate.
- **LU Policy 6-15**: Encourage the design of warehouse and distribution center check-in points that minimize queuing outside of the facility. The design shall also locate truck traffic within the site away from the property line(s) closest to its residential or sensitive receptor neighbors.
- **LU-M-55:** Continue to develop and implement innovative programs aimed at reducing the air pollutants from port operations (e.g., San Pedro Bay Clean Air Action Plan, Clean Truck Programs, Main Engine Low-Sulfur Fuel Incentive Program, and Shoreside Electricity).
- **North Long Beach Land Use Strategy 1:** Consolidate the intensity of commercial activities into neighborhood-serving nodes, at major corridor crossroads, and in expanded commercial centers.
- **North Long Beach Land Use Strategy 2:** Facilitate the development of new multiple-family housing along corridors between commercial nodes and centers.
- **North Long Beach Land Use Strategy 3:** Buffer heavy industrial activities from residential uses by encouraging Neo Industrial and commercial conversions of some industrial properties.
- **North Long Beach Land Use Strategy 4:** Along Cherry Avenue, Paramount Boulevard, and Downey Avenue, use the Neo Industrial PlaceType to develop cleaner and more attractive commercial/industrial properties.

- **North Long Beach Land Use Strategy 5:** Upgrade the quality of development by using design guidelines, new zoning standards, and improved design review processes to ensure that all new buildings, remodels, and additions enhance the neighborhood fabric.
- **North Long Beach Land Use Strategy 6:** Use design guidelines and upgraded zoning standards to further protect established residential districts from the intrusion of commercial activities.
- **North Long Beach Land Use Strategy 7:** Continue to implement the North Long Beach Strategic Guide for Development and North Long Beach Street Enhancement Master Plans (originated under the Redevelopment Agency) including the North Village and North Library plans.
- **North Long Beach Land Use Strategy 8:** Seek opportunities to create open recreation and green areas, and implement the RiverLink Plan for the Los Angeles River.
- **North Long Beach Land Use Strategy 9:** Implement the I-710 Livability Plan.
- **North Long Beach Land Use Strategy 10:** Implement Mobility Element capital improvements for North Long Beach include:
    - Artesia Boulevard Complete Streets Improvements
    - Atlantic Avenue Streetscape Enhancements
    - South Street Signal Improvements
    - Market Street Enhanced Bikeway Access
    - Walnut Avenue Bikeway
- **Bixby Knolls Land Use Strategy 3:** Use design guidelines and upgraded zoning standards to further protect established residential districts from the intrusion of commercial activities.
- **Bixby Knolls Land Use Strategy 4:** Consolidate the intensity of commercial activities along Long Beach Boulevard, Atlantic Avenue, and Cherry Avenue, as depicted on the PlaceTypes Map.
- **Bixby Knolls Land Use Strategy 6:** Seek opportunities to create recreation and green areas, and implement the RiverLink Plan for the Los Angeles River.
- **Bixby Knolls Land Use Strategy 7:** Implement the I-710 Livability Plan for the Long Beach Freeway.
- **Westside and Wrigley Land Use Strategy 2:** Consolidate the intensity of commercial activity along Pacific Coast Highway, Willow Street, Pacific Avenue, and Long Beach Boulevard.
- **Westside and Wrigley Land Use Strategy 5:** Create a landscaped, open space buffer between port-related industrial operations (e.g., ICTF and SCIG railroad yards, trucking and container storage facilities) and neighborhoods on the Westside.
- **Westside and Wrigley Land Use Strategy 6:** Uses allowed in the Edison and Union Pacific Railroad utility rights-of-way must be designed to have minimal dust, noise, traffic, visual,

and other nuisance impacts on residential neighbors. These properties shall be screened with landscape (green) buffers and proactively maintained.

- **Westside and Wrigley Land Use Strategy 8:** Implement the I-710 Livability Plan for the Long Beach Freeway as part of the I-710 Corridor Project.
- **Westside and Wrigley Land Use Strategy 10:** Improve quality of life, health, and overall livability through the implementation of the West Long Beach Livability Implementation Plan.
- **Eastside Land Use Strategy 10:** Finish the City's urban forestry inventories then develop and implement tree planting, maintenance, and greening plans which are coordinated with citywide air quality improvement, greenhouse gas reduction, and local water-saving landscape plans and programs.
- **Central Land Use Strategy 9:** Convert Zaferia's industrial land uses to Neo-Industrial to promote industries that are more environmentally compatible with the residential character of the surrounding neighborhoods.

4.2.8 Project Impacts

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

Significant and Unavoidable Impact.

The proposed project site is located within the Basin and is within the jurisdiction of the SCAQMD. Basin-wide air pollution levels are monitored by the SCAQMD through the AQMP. The current regional AQMP is the 2016 AQMP, approved by the SCAQMD on March 3, 2017. Key elements of the 2016 AQMP include the following:

- Calculating and taking credit for co-benefits from other planning efforts (e.g., climate, energy, and transportation)
- A strategy with fair-share emission reductions at the federal, State, and local levels
- Investment in strategies and technologies meeting multiple air quality objectives
- Seeking new partnerships and significant funding for incentives to accelerate deployment of zero-emission and near-zero emission technologies
- Enhanced socioeconomic assessment, including an expanded environmental justice analysis
- Attainment of the 24-hour $PM_{2.5}$ standard in 2019 with no additional measures
- Attainment of the annual $PM_{2.5}$ standard by 2025 with implementation of a portion of the O_3 strategy
- Attainment of the 1-hour O_3 standard by 2022 with no reliance on "black box" future technology (Federal Clean Air Act [FCAA] Section 182(e)(5) measures)

The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with the AQMP for development projects is determined by demonstrating compliance with local land use

plans and/or population projections. The AQMP uses the assumptions and projections of local planning agencies to determine control strategies for regional compliance status. Since the AQMP is based on local land use plans, projects that are deemed consistent with local land use plans are found to be consistent with the AQMP.

CEQA requires that general plans be evaluated for consistency with the AQMP. There are two key indicators of consistency:

- **Indicator 1:** Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the AAQS or emission reductions in the AQMP.
- **Indicator 2:** Whether the project would exceed the assumptions in the AQMP. The AQMP strategy is, in part, based on projections from local general plans.

Indicator 1: The proposed project involves long-term growth associated with the anticipated build out of the City and therefore, emissions of criteria pollutants associated with future development allowed for under the project could contribute emissions of PM_{10}, $PM_{2.5}$, NO_X, and VOCs, which could affect attainment of the AAQS. Future development allowed under the proposed project would be required to comply with CARB motor vehicle standards, SCAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and the proposed LUE/UDE goals and policies. Additionally, future projects would be required to comply with existing City policies and regulations, as well as the proposed LUE/UDE goals and policies, in order to further reduce air quality impacts.

Citywide, VMT per capita is anticipated to decline in the future as a result of previous planning efforts and is anticipated to decline further due to the elements of the 2016 SCAG RTP/SCS. The traffic analysis prepared for the project indicates VMT in Long Beach will be reduced from 9,482,252 VMT per day in the existing condition to 9,028,327 VMT with the proposed project (a 9 percent decrease). However, VMT during off-peak times increases slightly in the horizon year with the LUE as compared to the existing LUE. These off-peak VMT are generated by discretionary trips, which the traffic model calculates based on the number of households. In other words, the model assumes that people living in overcrowded housing conditions generate fewer trips to the grocery store than the same number of people living in less-crowded, separate housing. Because the proposed LUE reduces overcrowding compared to existing conditions by providing sufficient housing stock to reduce overcrowding over time, the number of discretionary trips would increase for residents living in separate units compared to the number of trips for the same number of people living in one household (the model assumes that people living in overcrowded conditions take discretionary trips together, whereas that same number of people in separate units, the model assumes, would take separate trips) thereby increasing the off-peak VMT, and subsequently, the total VMT. In terms of household VMT, the existing VMT per household is 56.9 VMT per day, which is anticipated to decline in the future to 49.9 VMT per day in 2040 without the LUE. The efficiency of the distribution of land uses in the LUE would reduce household VMT further to 46.1 VMT per day per household (a 19 percent decrease from existing conditions).

The State of California has concurrent goals of reducing VMT and increasing housing supply to improve affordability and reduce overcrowding. The proposed project would increase the number of

housing units to reduce overcrowding in Long Beach. The efficiency of the location of land uses in the LUE (i.e., infill development policies and sites) results in a 19 percent decrease in VMT per household compared to existing conditions. Other measures of VMT, including per capita and absolute terms, decline as well compared to existing conditions. With the proposed LUE/UDE, VMT per capita in Long Beach remains lower than the region as a whole and lower than in Los Angeles County. The City believes that the proposed General Plan strikes the appropriate balance between the State's concurrent goals of reducing VMT and increasing housing supply.

Based on the emissions modeling prepared for the project (refer to Table 4.2.H), emissions under future with project conditions would exceed SCAQMD thresholds for VOC and CO as a result of additional housing anticipated under the proposed project. Therefore, the proposed project would result in a potentially significant impact associated with consistency with the applicable AQMP, and would not be consistent with the AQMP under the first indicator.

Indicator 2: The land-use designations in the City's existing LUE form, in part, the foundation for the emissions inventory for the Basin in the AQMP. The AQMP is based on projections in population, employment, and VMT in the Basin projected by SCAG. SCAG projections for the City LUE and UDE proposed land uses are partially based on the current adopted General Plan. Implementation of the proposed General Plan LUE and UDE would not result in higher population and would not generate employment for the City compared to SCAG forecasts. Growth expected under the proposed project was estimated based on SCAG projections for population and housing units in the City. As noted, the additional units would serve the existing population that is currently in overcrowded housing and the LUE simply focuses that projected growth near transit. These demographic trends are incorporated into the RTP/SCS compiled by SCAG to determine priority transportation projects and VMT in the SCAG region. Growth projections of the proposed project assume the anticipated General Plan build out by the year 2040, since there is no schedule for when this development would occur. As a result, the growth projections for the City would be based on SCAG's 2016 RTP/SCS and the associated emissions inventory in SCAQMD's 2016 AQMP. Based on the requirements for consistency with emission control strategies in the AQMP, the project would be consistent with the 2016 AQMP's land use policies aimed at reducing air emissions and would not increase population or employment in the City.

Summary: As described above, although the proposed project would be consistent with the 2016 AQMP because the population is not anticipated to increase with implementation of the project, the additional housing units allowed under the plan would result in VOC and CO emissions that would exceed SCAQMD thresholds. As such, the project would not be consistent with the attainment of the AAQS or emission reductions in the AQMP. The General Plan horizon year 2040 is designed to accommodate the trend of the current population and employment estimates for the City of Long Beach and would not result in increased population or employment. Instead, the LUE focuses the projected growth near transit and accommodates housing supply based on projected housing need by SCAG combined with documentation in the Assessment of Fair Housing of the need for housing units to address overcrowding. The proposed land use diagram (as shown in Figure 2 of the Air Quality Impact Analysis for this project) would increase density and mixed-use development and would, therefore, be consistent with regional goals of improving transportation and land-use planning. In addition, the policies of the proposed project would help minimize air pollutant emissions. While the proposed project would be consistent with the 2016 AQMP's land use policies

aimed at reducing air emissions and would not increase population or employment in the City, the project would result in additional housing units that would generate VOC and CO emissions above established SCAQMD thresholds. Therefore, based on the requirements for consistency with emission control strategies in the AQMP, the project would conflict with or obstruct the implementation of the AQMP and/or applicable portions of the SIP. This impact would be significant and unavoidable.

Threshold 4.2.2: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard?

Construction Emission Impacts: Significant and Unavoidable Impact.

It is important to note that the proposed project is a regulatory document that establishes the framework for growth and development but does not directly result in development projects.

Construction activities associated with development that could occur during implementation of the project would occur through the horizon year 2040, which would cause short-term emissions of criteria air pollutants. The primary source of emissions is the operation of construction equipment. Before development can occur, each discretionary development project is required to be analyzed for conformance with the General Plan, zoning requirements, and other applicable local and State requirements; comply with the requirements of CEQA; and obtain all necessary clearances and permits.

During project construction, the primary sources of particulate matter (PM_{10} and $PM_{2.5}$) emissions are activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. The primary source of VOC emissions is the application of architectural coating and off-gas emissions associated with asphalt paving. A discussion of health impacts associated with air pollutant emissions generated by construction activities is included below under *Air Pollutants and Health Effects*.

Information regarding specific development projects is not yet known; however, due to the scale of development activity associated with the anticipated General Plan horizon year 2040 scenario, this analysis assumes that 28,528 new dwelling units will be constructed over the approximately 17-year horizon. Therefore, this analysis assumes that, on average, approximately 1,640 residential units would be constructed throughout the plan area during a 1-year period. During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, building, and other activities.

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

Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction emissions were estimated using the CalEEMod, version 2016.3.2, and EMFAC2017 (for vehicle emissions) and are summarized in Table 4.2.F. As indicated above, this analysis assumes that on average approximately 1,640 residential units would be constructed within one year. Other specific construction details are not yet known; therefore, default assumptions (e.g., construction fleet activities, Tier 0 construction equipment) from CalEEMod were used. CalEEMod output sheets are included in Appendix A. Results are summarized in Table 4.2.F.

Table 4.2.F: Construction Emissions (in Pounds Per Day)

Project Construction	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Maximum (pounds per day)	60.5	46.5	70.8	0.2	18.2	6.4
SCAQMD Threshold	75.0	100.0	550.0	150	150.0	55.0
Exceeds?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA (March 2019).
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = oxides of sulfur
VOC = volatile organic compounds

As shown in Table 4.2.F, on average, the maximum construction emissions associated with the development activity allowed under the project are not anticipated to exceed the SCAQMD's thresholds for VOC, NO_x, CO, SO_x, $PM_{2.5}$, or PM_{10} emissions. However, because the scale and timing of construction activities has not been determined, maximum daily emissions associated with an individual development project associated with project implementation could potentially be significant, and mitigation would be required.

The proposed LUE/UDE includes goals regarding land use development and identifies policies designed to reduce emissions of criteria pollutants. These policies include requirements for new development design and construction methods to minimize impacts to air quality; encourage future development to reduce vehicular trips by utilizing compact regional and community-level development patterns; encourage new development to reduce air pollution by incorporating a mixture of uses within the City that encourage people to walk, bicycle, or use public transit; minimize land use conflicts that expose people to significant amounts of air pollution; support transportation management programs that reduce the use of single-occupancy vehicles; and encourage the use of low-emission vehicles and equipment to improve air quality and reduce GHG emissions. While existing City policies and regulations and proposed LUE/UDE goals and policies are intended to minimize impacts associated with nonattainment criteria pollutants, a list of potential Best Management Practices (BMP) and compliance measures are outlined in Compliance Measure CM AQ-1. Compliance with these measures will ensure that the intended environmental protections are achieved. These BMP measures are identified for future project developments that may be implemented under the proposed project that would require environmental evaluation under CEQA. Additionally, Mitigation Measure (MM) AQ-1 is identified to require the preparation of project-specific technical assessments evaluating construction-related air quality impacts to further ensure that construction-related emissions are reduced to the maximum extent feasible for projects that require environmental evaluation under CEQA. However, as stated above, since the combination, number, and size of projects that could be under construction at

any one time are unknown, in an abundance of caution, this impact is considered to be significant and unavoidable.

Operational Impacts: Significant and Unavoidable Impact.

As previously stated, the proposed project is a regulatory document that establishes the framework for growth and development and does not directly result in development. Before development can occur, each future discretionary development project would be analyzed for conformance with the General Plan, zoning requirements, and other applicable local and State requirements; comply with the requirements of CEQA; and obtain all necessary clearances and permits.

The proposed project guides growth and development within the City of Long Beach by designating land uses in the proposed LUE and through implementation of its goals and policies.

New development would result in air pollutant emissions in the City and contribute to the overall emissions inventory in the Basin. A discussion of health impacts associated with air pollutant emissions generated by operational activities is included in the *Air Pollutants and Health Effects* discussion below.

City of Long Beach Emissions Inventory: Table 4.2.G summarizes the emissions inventory for the City in year 2018 (with and without future year 2040 emission factors), year 2040 without the proposed project, and under the proposed project (horizon year 2040). Table 4.2.H provides a summary of the emissions and a comparison of the various scenarios to the SCAQMD thresholds in order to determine significance. The scenarios evaluated for this analysis included the following:

- **Existing Conditions 2018.** This scenario is considered the CEQA baseline analysis. Data inputs included existing VMT data modeled with emission factors for 2018, current household units and estimated commercial square footage within the City using current building efficiency standards.
- **Existing Conditions 2018 (with 2040 Emission Factors).** This scenario was evaluated using existing VMT and demographic data, with emission factors and building standards for 2040. Because the future decrease in emissions is associated with the overall decrease in VMT and reduction in vehicle emission rates that would occur with or without the project, this scenario holds the emission factors constant for the year 2040 to account for regulatory changes such as Title 24 building code standards and vehicle fuel efficiency standards. Applying the 2040 emission factors to year 2018 conditions allows the existing conditions scenario, as well as the Proposed Project Anticipated Buildout Year 2040 scenario, to both reflect efficiency standards equally. This is the No Project scenario for purposes of determining CEQA significance.
- **Future Year 2040 No Project.** This scenario evaluated the change in VMT and demographics that would occur under the existing General Plan for year 2040 conditions. This data is presented for disclosure purposes only and was not used in the assessment of project impacts under CEQA.
- **Proposed Project Anticipated Buildout Year 2040.** This scenario evaluated the anticipated buildout of the proposed project, including 2040 with project VMT data, and reflects the increase in housing units anticipated under the plan.

Table 4.2.G: City of Long Beach Regional Criteria Air Pollutant Emissions Inventory

Sector	Criteria Air Pollutant Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Existing Conditions Year 2018						
Transportation (2018 emission factors)[1]	4,123	38,622	8,474	85	1,827	541
Energy: Residential[2]	83	838	357	7	58	58
Energy: Commercial + Industrial[2]	24	106	89	1	7	7
Energy: Public Facilities/Institutional[2]	7	65	55	0	5	5
Area Source: Residential[3]	8,837	2,990	46,580	82	5,478	5,478
Area Source: Commercial + Industrial[3]	952	1	1	0	1	1
Area Source: Public Facilities/Institutional[3]	295	0	1	0	0	0
Total Emissions for Existing Year 2018 Land Uses	**14,321**	**42,621**	**55,556**	**174**	**7,377**	**6,091**
Existing Conditions Year 2018 with Future Year 2040 Emission Factors (CEQA No Project Scenario)						
Transportation (2040 emission factors)[1]	1,614	17,538	3,555	34	1,757	136
Energy: Residential[2]	69	838	357	8	49	49
Energy: Commercial + Industrial[2]	11	107	90	1	7	7
Energy: Public Facilities/Institutional[2]	7	65	55	0	5	5
Area Source: Residential[3]	4,859	2,359	12,278	13	211	211
Area Source: Commercial + Industrial[3]	952	1	1	0	1	1
Area Source: Public Facilities/Institutional[3]	295	0	1	0	0	0
Total Emissions for Existing Year 2018 Land Uses with 2040 Emission Factors	**7,808**	**20,908**	**16,337**	**56**	**2,030**	**409**
Future Year 2040 No Project (Provided for Informational Purposes Only)						
Transportation (2040 emission factors)[1]	1,516	16,473	3,340	32	1,651	127
Energy: Residential [2]	72	888	378	8	51	51
Energy: Commercial + Industrial[2]	30	163	137	1	10	10
Energy: Public Facilities/Institutional[2]	7	68	57	0	5	5
Area Source: Residential[3]	5,135	2,524	13,085	13	224	224
Area Source: Commercial + Industrial[3]	1,219	1	1	0	1	1
Area Source: Public Facilities/Institutional[3]	307	0	1	0	0	0
Total Emissions for Future Year 2040 Existing General Plan (No Project)	**8,287**	**20,117**	**16,998**	**56**	**1,943**	**420**
Proposed Project Anticipated Buildout Year 2040						
Transportation (2040 emission factors)[1]	1,537	16,698	3,385	33	1,673	129
Energy: Residential [2]	75	954	406	9	53	53
Energy: Commercial + Industrial[2]	30	163	137	1	10	10
Energy: Public Facilities/Institutional[2]	7	68	57	0	5	5
Area Source: Residential[3]	5,493	2,759	14,203	15	242	242
Area Source: Commercial + Industrial[3]	1,219	1	1	0	1	1
Area Source: Public Facilities/Institutional[3]	307	0	1	0	0	0
Total Emissions for Proposed Project Anticipated Buildout Year 2040	**8,668**	**20,644**	**18,190**	**58**	**1,986**	**442**

Source: Compiled by LSA (2019).

[1] EMFAC2017 based on daily vehicle miles traveled (VMT) provided by LSA.

[2] Electricity and Natural gas usage data estimated using CalEEMod version 2016.3.2.

[3] Estimated using CalEEMod. Area source emissions include emissions from consumer products and landscaping. Various industrial and commercial processes (e.g., manufacturing, dry cleaning) allowed under the Land Use Element would require permitting and would be subject to further study pursuant to SCAQMD Regulation XIII, New Source Review. Because the nature of those emissions cannot be determined at this time and are subject to further regulation and permitting, they are not considered for purposes of this analysis.

CalEEMOD = California Emissions Estimator Model
CARB = California Air Resources Board
CO = carbon monoxide
lbs/day = pounds per day
LUE/UDE = Land Use Element/Urban Design Element
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOC = volatile organic compound

Table 4.2.H: City of Long Beach Regional Criteria Air Pollutant Emissions Summary and Comparison

Scenario	Criteria Air Pollutant Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Total Existing Year 2018	14,321	42,621	55,556	174	7,377	6,091
Total Existing Year 2018 (with Future Year 2040 Emission Factors)	7,808	20,908	16,337	56	2,030	409
Total Future Year 2040 No Project	8,287	20,117	16,998	56	1,943	420
Total Proposed Project Anticipated Buildout Year 2040	8,668	20,644	18,190	58	1,986	442
Project Comparison to Existing Year 2018 Baseline Conditions						
Change in Emissions for Proposed Project Anticipated Buildout Year 2040 from Existing Year 2018	-5,653	-21,977	-37,366	-116	-5,391	-5,649
SCAQMD Regional Significance Threshold	55	55	550	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Comparison to Future Year 2040 No Project (2040 No Project- For Disclosure Purposes only)						
Change in Emissions for Proposed Project Anticipated Buildout Year 2040 from Future Year 2040 No Project	381	527	1,193	2	43	22
SCAQMD Regional Significance Threshold	55	55	550	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Project Comparison to Baseline Conditions using 2040 Emission Factors (Basis for CEQA Significance Determination)						
Change in Emissions for Proposed Project Anticipated Buildout Year 2040 from Existing Year 2018 (with Future Year 2040 Emission Factors)	860	-264	1,853	2	-44	33
SCAQMD Regional Significance Threshold	55	55	550	150	150	55
Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**

Source: Compiled by LSA (2019).

[1] EMFAC2017 based on daily vehicle miles traveled (VMT) provided by LSA.

[2] Electricity and Natural gas usage data estimated using CalEEMod version 2016.3.2.

[3] Estimated using CalEEMod. Area source emissions include emissions from consumer products and landscaping. Various industrial and commercial processes (e.g., manufacturing, dry cleaning) allowed under the Land Use Element would require permitting and would be subject to further study pursuant to SCAQMD Regulation XIII, New Source Review. Because the nature of those emissions cannot be determined at this time and are subject to further regulation and permitting, they are not considered for purposes of this analysis.

CalEEMOD = California Emissions Estimator Model
CARB = California Air Resources Board
CO = carbon monoxide
lbs/day = pounds per day
LUE/UDE = Land Use Element/Urban Design Element
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOC = volatile organic compound

The analysis findings indicate that implementation of the proposed project would result in an overall decrease in criteria air pollutant emissions with the project as compared to existing conditions (year 2018). This decrease is primarily attributed to the change in vehicle emissions between existing conditions and future land uses development associated with the anticipated General Plan buildout scenario (year 2040). VMT is expected to decrease substantially by the year 2040, and at the same time, vehicle emissions per mile would also decrease.

The SCAQMD regional operational emission thresholds are evaluated based on the total emissions that may result from development that may occur with implementation of the anticipated General Plan build out scenario (year 2040).

As identified in Table 4.2.H, emissions associated with the anticipated General Plan build out scenario would not exceed the daily SCAQMD regional thresholds for VOC, NO_X, PM_{10}, and $PM_{2.5}$, and CO in 2040 when compared to the existing conditions 2018 scenario. However, as noted above, the decrease in emissions is associated with the overall decrease in VMT and reduction in vehicle emission rates that would occur with or without the project. Therefore, an analysis was conducted to evaluate the change in emissions associated with the project holding the emission factors constant for the year 2040 (Existing Conditions 2018 with 2040 Emission Factors). This analysis indicates that VOC (an O_3 precursor emission) and CO emissions would exceed the SCAQMD thresholds under this scenario as a result of the additional housing anticipated to be constructed under the project.

Implementation of the proposed LUE policies would help to reduce air pollutant emissions, as many of the policies included in the plan promote an increase in concepts and designs that would increase walking, bicycling, and use of public transit that would contribute to reduced VMT (e.g., Policies AQ 2.1.1, 2.1.2, 2.3.1, and 2.4.1). In addition, Policy 2.6.2 of the Air Quality Element encourages the installation of alternative fueling facilities such as electric chargers for vehicles. Furthermore, Policy Mobility of People (MOP) 5-2 of the Mobility Element calls for the continued active enforcement of the City's trip reduction through the use of alternative modes of transportation and Transportation Demand Management. As listed in Section 4.2.7.1 above, the proposed LUE also includes the following Strategies and Policies that would result in a reduction in air emissions: Strategy No. 1, LU Policies 1-1 through 1-7; and Strategy No. 11, LU Policies 11-2 and 11-5.

As shown in Table 4.2.H, the change in emissions for Year 2040 with Proposed Project conditions would decrease from Existing Year 2018. Therefore, despite the additional population and employment growth in the City, citywide emissions would decrease and would not exceed the SCAQMD thresholds. Therefore, regional dispersion modeling would not be warranted. The decrease in emissions is primarily associated with the decrease in emissions associated with mobile source emissions, which would decrease due to vehicle emission standards. It should also be noted that overall VMT in the future will decrease when compared to existing conditions. An analysis of 2018 VMT and demographic data was evaluated using 2040 emission factors. Results of the analysis outlined in Table 4.2.H show the difference in emissions from the 2040 with Proposed Project conditions to the Existing 2018 with 2040 Emission Factors conditions. Results of the analysis indicate that emissions of criteria pollutants associated with future development under the LUE/UDE would result in a cumulatively considerable significant impact associated with emissions of VOCs and CO as shown in this table. Emissions of SO_x, NO_x, $PM_{10,}$ and $PM_{2.5}$ would be below the SCAQMD regional significance threshold and would not be significant.

As shown in Table 4.2.H, regional emissions of VOC and CO associated with anticipated buildout of project implementation would exceed the SCAQMD project level VOC and CO emission thresholds. The scale of individual project level emissions that would be result under implementation of the LUE has not been determined. Therefore, in order to present conservative assumptions, the air quality impacts associated with future operation of individual projects that may occur with implementation of the proposed project, when measured against daily regional thresholds, are assumed to be potentially significant. Therefore, MM AQ-2 is identified and requires the preparation of project-specific technical assessments evaluating operational-related air quality impacts to further ensure that

operational-related emissions are reduced to the maximum extent feasible for projects that require environmental evaluation under CEQA. Despite implementation of MM AQ-2, and in an abundance of caution, the potential regional criteria pollutant emissions impact associated with the operation of the proposed project would remain significant and unavoidable.

Future development under the proposed project would also be required to demonstrate compliance with the AQMP, the SIP, CARB motor vehicle standards, SCAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and the proposed LUE/UDE goals and policies. Because implementation of the proposed project would result in an increase in overall criteria air pollutant emissions from Existing 2018 conditions (assuming 2040 Emission Factors), even with implementation of mitigation, the operational air quality impacts associated with the proposed project would be significant.

Construction During Project Operation. It is possible that construction of residential units allowed under the plan would be underway while other units constructed under the plan are operational. Since the project is a programmatic level document and specific projects that would be developed under the plan are unknown at this time, the precise combination of emissions that would occur is unknown. However, in order to disclose a worst-case scenario, the Air Quality Impact Analysis (LSA 2019) included an analysis of average construction emissions along with the horizon year 2040 project emissions (see Table L in Appendix B). It was determined that combined emissions would be below the significance threshold established by the SCAQMD for daily project emissions.

CO Hot Spots: Less than Significant Impact.

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the State 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. Localized air quality effects would occur when emissions from vehicular traffic increase in local areas as a result of the proposed project. Vehicular trips associated with the proposed project could contribute to congestion at intersections and along roadway segments in the project vicinity. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle idling time and thus, traffic flow conditions. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthful levels affecting local sensitive receptors (residents, schoolchildren, the elderly, and hospital patients, etc.). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentration, modeling is recommended to determine a project's effect on local CO levels.

At the time that the 1993 Handbook was published, the Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Basin and in the State have steadily declined. In 2007, the SCAQMD was designated in attainment for CO under both the CAAQS and NAAQS. As identified within SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the Basin were a result of unusual meteorological and topographical conditions and not a result of

congestion at a particular intersection. A CO hot spot analysis was conducted at four busy intersections in Los Angeles County at the peak morning and afternoon periods and did not predict a violation of CO standards.[14] Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact. One of the top four worst intersections analyzed for a CO hot spot analysis in Los Angeles County (i.e., Long Beach Boulevard/Imperial Highway)[15] is located approximately 4 miles north of the proposed project. Since the SCAQMD modeled intersections, including this intersection, do not exceed the CO standards, all intersections within the proposed project with less volume of traffic and under less extreme conditions would not exceed the CO standards. The anticipated General Plan build out scenario would not produce the volume of traffic, as described above, required to generate a CO hot spot. Therefore, implementation of the project would not be expected to result in CO hot spots, and impacts would be less than significant. No mitigation is required.

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

Significant and Unavoidable Impact.

The analysis below determines the impact related to localized criteria pollutants to be less than significant with mitigation, while TAC emissions are found to be significant and unavoidable, even with mitigation.

It is important to note that CEQA generally does not require analysis or mitigation of the impact of existing environmental conditions on a project, including a project's future users or residents. However, as with other laws and regulations enforced by other agencies that protect public health and safety, the City, as the lead agency, has authority other than CEQA to institute policies that aim to protect public health and safety. Policies that aim to address the impact of existing environmental conditions on future projects have been included in the LUE plan and will be implemented on a case-by-case basis through the discretionary review process.

Localized Criteria Pollutants: Less than Significant Impact with Mitigation.

Localized Construction Emissions under the Localized Significance Thresholds. The SCAQMD recommends the evaluation of localized air quality impacts to sensitive receptors such as residential

[14] The four intersections were Long Beach Boulevard/Imperial Highway; Wilshire Boulevard/Veteran Avenue; Sunset Boulevard/Highland Avenue; and La Cienega Boulevard/Century Boulevard. The busiest intersection evaluated (Wilshire Boulevard/Veteran Avenue) had a daily traffic volume of approximately 100,000 vehicles and LOS E in the morning peak hour and LOS F in the evening peak hour.

[15] The intersection of Long Beach Boulevard/Imperial Highway is not within the City limits but is used to represent a condition where there is a high volume of traffic during the a.m. and p.m. peak hours to demonstrate that intersections that are below the volume of traffic at this particular intersection, under less severe atmospheric conditions (i.e., where vertical and horizontal air does not mix), would not result in a CO hot spot.

land uses in the immediate vicinity of the project site as a result of construction activities. The thresholds are based on standards established by the SCAQMD in the LST Methodology and are measured against construction emissions that occur on a specific project site. These emissions are primarily generated from heavy-duty construction equipment and demolition, grading, and trenching activities. However, the LSTs are applicable to projects at the project-specific level and are not applicable to programmatic documents, such as the proposed LUE/UDE. Construction emissions associated with future individual projects developed under the LUE/UDE, would however, have the potential to cause or contribute to significant localized air quality impacts to nearby residential land uses within the planning area. Localized construction impacts of future LUE/UDE projects could potentially exceed the LSTs, particularly for construction of areas larger than 5 acres or areas with more intense construction activities. To address this, regulatory measures (e.g., SCAQMD Rule 201 for a permit to operate, Rule 403 for fugitive dust control, Rule 1113 for architectural coatings, Rule 1403 for new source review, and CARB's Airborne Toxic Control Measures) are currently in place, and mitigation would be imposed at the project level, which may include use of special equipment.

Air Pollutants and Health Effects. It should be noted that the amount of emissions from a project does not necessarily correspond to the concentrations of air pollutants. A dispersion modeling analysis would be necessary to calculate health risk from project implementation. However, since it is not possible to translate the amount of an unknown future specific project's emissions to a particular concentration, it is not possible to calculate the risk factor for a particular health effect at the time of this analysis.

Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Particulate matter can also lead to a variety of health effects in people. These include premature death of people with heart or lung disease, heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Regional emissions of criteria pollutants contribute to these known health effects. The SCAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals and that they are not exposed to elevated concentrations of criteria pollutants in the Basin. To achieve the health-based standards established by the USEPA, the SCAQMD prepares an AQMP that details regional programs to attain the AAQS.

Although the analysis for this project identifies that construction emissions associated with the project would not exceed the SCAQMD's thresholds for VOC, NO_x, CO, SO_x, $PM_{2.5}$, or PM_{10} emissions, it should be noted that not exceeding the SCAQMD's numeric regional mass daily thresholds does not necessarily correspond to less than significant health risk impacts to sensitive receptors. This is because the mass daily thresholds are in pounds per day emitted into the air, whereas health effects are determined based on the concentration of emissions in the air at a particular receptor (e.g., parts per million by volume of air, or micrograms per cubic meter of air). State and federal ambient air quality standards were developed to protect the most susceptible population groups from adverse health effects and were established in terms of parts per million or micrograms per cubic meter for the applicable emissions.

For this reason, the SCAQMD developed the LST Methodology. The LST methodology is based on the amount of emissions that could be generated from a project in order for a project to not cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality

standard, and are based on the ambient concentrations of the pollutant and the relative distance to the nearest sensitive receptor. However, as noted above, the LSTs are applicable to projects at the project-specific level and are not applicable to this programmatic planning level document. Localized construction impacts of future LUE/UDE projects could potentially exceed the LSTs, particularly for construction of areas larger than 5 acres or areas with more intense construction activities. Therefore, without mitigation, exceedances of the LSTs could have the potential to cause or exacerbate an exceedance of the AAQS. It should be noted that the AAQS are developed and represent levels at which the most susceptible persons (children and the elderly) are protected. Therefore, the ambient air quality standards are purposefully set low to protect children, elderly, and those with existing respiratory problems.

However, the SCAQMD acknowledges that they have only been able to correlate potential health outcomes for very large emissions sources; specifically, 6,620 pounds per day of NO_X, and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone.[16] It is not expected that any future LUE/UDE projects would generate 6,620 pounds per day of NO_x or 89,180 pounds per day of VOC emissions. As identified in Table 4.2.F above, based on the scale of development associated with the anticipated General Plan build out scenario, construction projects would generate an average maximum of 46.5 pounds per day of NO_x and 60.5 pounds per day of VOC.

Therefore, emissions associated with future LUE/UDE projects are not sufficiently high enough to use a regional modeling program to correlate health effects on a Basin-wide level.

Current scientific, technological, and modeling limitations prevent the relation of expected adverse air quality impacts to likely health consequences. For this reason, this discussion explains why it is not feasible to provide such an analysis. However, individual projects would still be required to conduct a site-specific localized impact analysis that evaluates potential project health impacts at a project level to immediately adjacent land uses.

Additionally, refer to the analysis provided under Threshold 4.2.2 for a discussion of potential construction and operational impacts relating to criteria air pollutants. With implementation of Compliance Measure CM AQ-1 and Mitigation Measure MM AQ-1, the potential health impacts associated with the construction of the proposed project would be less than significant.

Operation of new land uses consistent with the Land Use Plan of the proposed project would generate fewer criteria air pollutants in the City from area/stationary sources and mobile sources when compared to existing conditions as shown in Table 4.2.H; therefore, the health effects of the operational criteria air pollutant impacts associated with the proposed project would be less than significant.

[16] Supreme Court of California, 2015. *Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno, Plaintiffs and Appellants, v. County of Fresno, Defendant and Despondent, and Friant Ranch, L.P., Real Part in Interest and Despondent.* April.

TAC Emissions: Significant and Unavoidable Impact.

Various industrial and commercial processes (e.g., manufacturing and dry cleaning) allowed under the proposed project would be expected to release TACs. Industrial land uses, such as chemical processing facilities, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities, have the potential to be substantial stationary sources that would require a permit from SCAQMD for emissions of TACs. Emissions of TACs would be controlled through permitting issued by SCAQMD and would be subject to further study and health risk assessment prior to the issuance of any necessary air quality permits under SCAQMD Rule 1401. Since it is not possible to determine the amount of TAC concentrations at the time of this analysis, it is not possible to calculate the risks for a particular health effect within the proposed planning area. The proposed project is a programmatic project and until specific future projects are proposed, the associated TAC emissions cannot be determined or modeled at this time. Future development projects subject to environmental review under CEQA would be required to analyze potential TAC emissions and include mitigation as appropriate.

In addition to stationary/area sources of TACs, commercial and industrial operations could generate a substantial amount of diesel particulate matter emissions from off-road equipment use and truck idling. Diesel particulate matter (DPM) accounts for approximately 84 percent of the excess cancer risk in the Basin.[17] New land uses in the City that use diesel trucks, including trucks with transport refrigeration units, could generate an increase in DPM that would contribute to cancer and noncancer health risk in the Basin. Furthermore, trucks would travel on regional transportation routes throughout the Basin, contributing to near-roadway DPM concentrations. Land use projects are required to comply with AB 2588, SCAQMD Rule 1401, and CARB standards for diesel engines. As stated above, until specific future projects are proposed, the associated emissions cannot be determined or modeled at this time. Future projects would be subject to environmental review under CEQA and would be required to analyze potential emissions and include mitigation as appropriate.

Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Particulate matter can also lead to a variety of health effects in people. These include premature death of people with heart or lung disease, heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms.

Because placement of sensitive land uses falls outside CARB's jurisdiction, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* to address the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources.

17 SCAQMD. 2008. *Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES III)*. September.

CARB's recommendations for the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases both exposure and the potential for adverse health effects. Respiratory and cardiovascular problems including asthma, lung cancer, and premature death have been associated with living near major roadways and freeways.[18] Children who live near major roadways and freeways have been found to have higher asthma rates and reduced lung function.[19] There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic: DPM from trucks and benzene and butadiene from passenger vehicles. Exposure to DPM accounts for more than 80 percent of the total carcinogenic risk in the Basin.[20] It has been found that outdoor concentrations are highest near the roadway and decrease with increasing distance downwind of the source.[21] CARB recommends avoiding siting new sensitive land uses within 500 feet of urban roads with more than 100,000 vehicles per day or rural roads with more than 50,000 vehicles per day.[22]

Table 4.2.I shows a summary of the other CARB recommendations for siting new sensitive land uses within the vicinity of air pollutant sources. Recommendations in the table are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

Stationary sources of TACs within the City of Long Beach include the stationary sources permitted by the SCAQMD. Various permitted uses are dispersed throughout the City with a high concentration along the Interstate 710 (I-710) corridor.[23] The other sources of TACs within the City are I-710, State Route 91 (SR-91), Interstate 605 (I-605), and Interstate 405 (I-405), which have annual average daily traffic volumes exceeding 100,000. Based on the information in the TIA, there are no local roadways with more than 100,000 average daily vehicle trips in the City (LSA 2019).

If new sensitive receptors were sited within 500 feet of I-710 or I-405 or within CARB's minimum siting recommendations of other stationary sources, such as the Port of Long Beach, they may be exposed to significant concentrations of air pollutants. As shown in Figure 2 of the Air Quality Impact Analysis for this project, Project PlaceTypes, residential land uses would be permitted along I-710; however, the project would not result in any major areas of change to residential uses proximate to I-405 and I-710. Residential land uses would also be near or adjacent to areas designated for commercial and industrial uses and in proximity to existing permitted TAC sources.

---

18 Balmes, J.R., Earnest, G., Katz, P.P., Yelin, E.E., Eisner, M.D., Chen, H., Trupin, L., Lurmann, F., and Blanc, P.D. 2009. *Exposure to traffic: Lung function and health status of adults with asthma. The Journal of Allergy and Clinical Immunology*, 123(3):626–631.

19 CARB. 2013. Overview of the Children's Health Study. Website: http://www.arb.ca.gov/research/chs/over.htm (accessed March 2019).

20 SCAQMD. 2008. *Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES III).* September.

21 Zhu, Y., Hinds, W.C., Kim, S., Shen, S., and Sioutas, C. 2002. *Study of ultrafine particles near a major roadway with heavy-duty diesel traffic*. Atmospheric Environment, 36(27):4323-4335.

22 CARB. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* April.

23 SCAQMD. 2014. *Facility Information Details Maps. Pinpoints Locations of Permitted Facilities.*

Table 4.2.I: CARB Recommendations for Siting New Sensitive Land Uses

Source/Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units [TRUs] per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within 1 mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily affected zones. Consult local air districts or CARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Source: CARB (2005).
CARB = California Air Resources Board

Thus, new residential and other sensitive developments could be sited within the buffer distances (shown in Table 4.2.I) to TAC sources. CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. However, as with other laws and regulations enforced by other agencies that protect public health and safety, the City, as the lead agency, has authority other than CEQA to require measures to protect public health and safety.

As listed in Section 4.2.7.1 above, the proposed LUE includes the following Strategies and Policies that would allow for buffers and other provisions for reducing exposure of sensitive receptors to TAC emissions: Strategy No. 16, LU Policies 16-1 through 16-4; LU-M-55; and North Long Beach Strategy Nos. 1 through 10.

Goals and policies are included in the proposed LUE/UDE that would reduce concentrations of criteria air pollutant emissions and air toxics generated by construction and operation of new developments on nearby residences. Review of projects by SCAQMD for permitted sources of air toxics would ensure that health risks are minimized.

It is important to note that the proposed Neo-Industrial PlaceType would be used as a buffer between existing industrial and residential neighborhoods. Future industrial developments pursuant to the proposed project are part of larger planning areas designated as Neo-Industrial PlaceTypes with future zoning that would allow a mix of light industrial and commercial uses and residential use

limited to adaptive reuse of existing buildings. Specifically, no heavy industrial, warehousing, and distribution facilities are permitted in this land use category near Cherry Boulevard. Instead, the future industrial uses would likely be linked to and serve more of a supporting role to the office land uses. Fulfillment centers or light manufacturing would be allowed; however, this PlaceType is a clean industrial zone.[24] Based on this supportive role and role as a buffer, the industrial uses would likely be below-average truck trip generators. Thus, no future projects or uses that would generate the level of truck trips expected for heavy industrial and/or warehouses are proposed as part of the proposed project. However, since it is not possible to determine the amount of TAC concentrations at the time of this analysis, it is not possible to calculate the risks for a particular health effect within the planning area.

Future development consistent with the proposed project would not result in significant emissions of diesel particulate matter. Land development projects are required to comply with AB 2588, SCAQMD Rule 1401, and CARB standards for diesel engines. While existing City policies and regulations and proposed LUE/UDE goals and policies are intended to minimize impacts associated with sensitive receptors, specific measures for future project developments that implement these policies and regulations are proposed to ensure that the intended environmental protections are achieved. Compliance with Policy 16-13, and Mitigation Measure MM AQ-3 would ensure that mobile sources of TACs not covered under SCAQMD permits are considered during subsequent project-level environmental review. Policy 16-13 and Mitigation Measure MM AQ-3 would also require the preparation of project-specific technical health risk assessments evaluating operational-related health risk impacts to ensure that operational-related emissions are reduced to the maximum extent feasible for projects that require environmental evaluation under CEQA. In addition, Policy 16-14 identifies the use of the discretionary review process for residential and other sensitive land uses near freeways or the Port to impose site plan and design features aimed at minimizing exposure to environmental pollution. Therefore, compliance with Policy 16-13, Policy 16-14, and Mitigation Measure MM AQ-3 would ensure the potential TAC health risk impact associated with the operation of the proposed project would be less than significant.

As previously identified, the amount of emissions from a project does not necessarily correspond to the concentrations of air pollutants. A dispersion modeling analysis is necessary in order to calculate health risk from project implementation. Because the scale of operational activities has not been determined or estimated and in order to present conservative assumptions, the TAC health risk impacts associated with future operation of individual projects that may occur with implementation of the proposed project are assumed to be potentially significant.

Mitigation Measure MM AQ-3 would require the preparation of project-specific technical health risk assessments for certain discretionary large industrial or warehousing uses to evaluate operational-related health risk impacts to further ensure that operational-related emissions are reduced to a less than significant level. However, information regarding operational characteristics of future specific development projects and the associated emissions cannot be determined at the time of this analysis; therefore, cumulative growth within the City could result in potential TAC health risks exceeding 10 in

[24] A clean industrial zone refers to manufacturing and industrial uses that generate minimal waste and air emissions.

one million and could cumulatively contribute to elevated health risks in the Basin, as identified in the Multiple Air Toxics Exposure Study (MATES). Therefore, in an abundance of caution, potential TAC health risks are considered a significant impact.

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

Less than Significant Impact.

Growth within the City of Long Beach could generate new sources of odors and place sensitive receptors near existing sources of odors. Nuisance odors from land uses in the Basin are regulated under SCAQMD Rule 402, Nuisance, which states:

> *A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.*

Industrial land uses have the potential to generate objectionable odors. Examples of odor-generating industrial projects are wastewater treatment plants, compost facilities, landfills, solid-waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. While industrial land uses associated with the proposed project would be required to comply with SCAQMD Rule 402.

Residential and commercial land uses could result in generation of odors such as exhaust from landscaping equipment. However, unlike industrial land uses, these are not considered potential generators of odor that could affect a substantial number of people. Therefore, impacts from potential odors generated from residential and commercial land uses associated with the project are considered less than significant.

During construction activities, construction equipment exhaust and application of asphalt and architectural coatings would temporarily generate odors. Any construction-related odor emissions would be temporary and intermittent. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment and unlikely to affect a substantial number of people. In addition, by the time such emissions reached any sensitive receptor sites, they would be diluted to well below any level of air quality concern. Furthermore, short-term construction-related odors are expected to cease upon the drying or hardening of the odor-producing materials. Therefore, impacts associated with construction-generated odors are considered less than significant.

While odor sources are present within the City, the odor policies enforced by the SCAQMD, including Rule 402, and City of Long Beach Municipal Code Section 8.64.040, prohibit nuisance odors and identify enforcement measures to reduce odor impacts to nearby receptors. Development of land uses consistent with the proposed project that would have the potential to result in nuisance odors would be required to comply with these regulations. Therefore, impacts associated with objectionable odors would be less than significant.

4.2.9 Mitigation Measures

MM AQ-1 Prior to issuance of any construction permits, future development projects subject to discretionary review under the California Environmental Quality Act (CEQA) shall prepare and submit to the Director of the City of Long Beach (City) Department of Development Services, or designee, a technical assessment evaluating potential project construction-related air quality impacts. The evaluation shall be prepared in conformance with South Coast Air Quality Management District (SCAQMD) methodology for assessing air quality impacts. If construction-related criteria air pollutants are determined to have the potential to exceed the SCAQMD-adopted thresholds of significance, the Department of Development Services shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during construction activities. These identified measures shall be incorporated into all appropriate construction documents (e.g., construction management plans) submitted to the City and shall be verified by the Department of Development Services. Mitigation measures to reduce construction-related emissions include, but are not limited to, the following:

- Require the following fugitive-dust control measures:
  - Use nontoxic soil stabilizers to reduce wind erosion.
  - Apply water every 4 hours to active soil-disturbing activities.
  - Tarp and/or maintain a minimum of 24 inches of freeboard on trucks hauling dirt, sand, soil, or other loose materials.
- Use construction equipment rated by the United States Environmental Protection Agency (USEPA) as having Tier 4 (model year 2008 or newer) emission limits (when available), or Tier 3 (model year 2006 or newer), applicable for engines between 50 and 750 horsepower.
- Ensure that construction equipment is properly serviced and maintained to the manufacturers' standards.
- Limit nonessential idling of construction equipment to no more than 5 consecutive minutes.
- Using Super-Compliant volatile organic compound (VOC) paints for coating of architectural surfaces whenever possible. (A list of Super-Compliant

architectural coating manufactures can be found on the SCAQMD website at http://www.aqmd.gov/prdas/brochures/Super-Compliant_AIM.pdf.)

- Suspend all soil disturbance activities when winds exceed 25 miles per hour (mph) as instantaneous gusts or when visible plumes emanate from the site and stabilize all disturbed areas.

- Post a publicly visible sign with the telephone number and person to contact at the City of Long Beach regarding dust complaints. The SCAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

- Sweep all streets at least once a day using SCAQMD Rule 1186, 1186.1 certified street sweepers or roadway washing trucks if visible soil materials are carried to adjacent streets. The use of water sweepers with reclaimed water is recommended.

- Apply water three times daily or non-toxic soil stabilizers according to manufactures' specifications to all unpaved parking or staging areas, unpaved road surfaces, or to areas where soil is disturbed. Reclaimed water should be used when available.

- Construction vendors, contractors, and/or haul truck operators shall utilize 2010 model year trucks (e.g., material delivery trucks and soil import/export) that meet the California Air Resources Board's (CARB) 2010 engine emission standards at 0.01 grams per brake horsepower-hour (g/bhp-hr) of particulate (PM) and 0.20 g/bhp-hr of nitrogen oxides (NO_x) emissions or newer, cleaner trucks. Operators shall maintain records of all trucks associated with the project construction to document that each truck used meets these emission standards, and shall make the records available for inspection.

MM AQ-2 Prior to future discretionary project approval, development project applicants shall prepare and submit to the Director of the City Department of Development Services, or designee, a technical assessment evaluating potential project operation phase-related air quality impacts. The evaluation shall be prepared in conformance with SCAQMD methodology in assessing air quality impacts. If operation-related air pollutants are determined to have the potential to exceed the SCAQMD-adopted thresholds of significance, the Department of Development Services shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during operational activities. The identified measures shall be included as part of the Project Conditions of Approval. Possible mitigation measures to reduce long-term emissions include but are not limited to:

- For site-specific development that requires refrigerated vehicles, the construction documents shall demonstrate an adequate number of electrical service connections at loading docks for plugging in the anticipated number of refrigerated trailers to reduce idling time and emissions.

- Applicants for manufacturing and light industrial uses shall consider energy storage and combined heat and power in appropriate applications to optimize renewable energy generation systems and avoid peak energy use.
- Site-specific developments with truck delivery and loading areas and truck parking spaces shall include signage as a reminder to limit idling of vehicles while parked for loading/unloading in accordance with CARB Rule 2845 (13 California Code of Regulations [CCR] Chapter 10, Section 2485).
- Require that 240-volt electrical outlets or Level 3 chargers be installed in parking lots that would enable charging of neighborhood electric vehicles (NEVs) and/or battery powered vehicles.
- Maximize use of solar energy including solar panels; installing the maximum possible number of solar energy arrays on the building roofs throughout the City to generate solar energy.
- Maximize the planting of trees in landscaping and parking lots.
- Use light-colored paving and roofing materials.
- Require use of electric or alternatively fueled street-sweepers with HEPA filters.
- Require use of electric lawn mowers and leaf blowers.
- Utilize only Energy Star heating, cooling, and lighting devices, and appliances.
- Use of water-based or low volatile organic compound (VOC) cleaning products.

MM AQ-3 Prior to future discretionary approval for projects that require environmental evaluation under CEQA, the City of Long Beach shall evaluate new development proposals for new industrial or warehousing land uses that (1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered transport refrigeration units, and (2) are within 1,000 feet of a sensitive land use (e.g., residential, schools, hospitals, or nursing homes), as measured from the property line of the project to the property line of the nearest sensitive use. Such projects shall submit a Health Risk Assessment (HRA) to the City Department of Development Services. The HRA shall be prepared in accordance with policies and procedures of the most current State Office of Environmental Health Hazard Assessment (OEHHA) and the SCAQMD. If the HRA shows that the incremental health risks exceed their respective thresholds, as established by the SCAQMD at the time a project is considered, the Applicant will be required to identify and demonstrate that best available control technologies for toxics (T-BACTs), including appropriate enforcement mechanisms to reduce risks to an acceptable level. T-BACTs may include, but are not limited to, restricting idling on site or electrifying warehousing docks to reduce diesel particulate matter, or

requiring use of newer equipment and/or vehicles. T-BACTs identified in the HRA shall be identified as mitigation measures in the environmental document and/or incorporated into the site plan.

4.2.10 Cumulative Impacts

As defined in Section 15130 of the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probably future projects within the cumulative impact area for air quality. The cumulative study area analyzed for potential air quality impacts is the Basin. Each project in the Basin is required to comply with SCAQMD rules and regulations and is subject to independent review.

The Basin is currently designated as a nonattainment area for the Federal ozone standard and $PM_{2.5}$ standard and as a nonattainment area for the State ozone, PM_{10}, and $PM_{2.5}$ standard. Thus, the Basin has not met the federal and State standards for these air pollutants. Future development that may occur with implementation of the project would contribute criteria pollutants to the area during project construction and operation. However, future development under the proposed project would be required to comply with CARB motor vehicle standards, SCAQMD regulations from stationary sources and architectural coatings, Title 24 energy efficiency standards, and the proposed LUE/UDE goals and policies. While existing City policies and regulations and proposed LUE/UDE goals and policies are intended to reduce impacts associated with air quality violations, specific standard conditions for future project developments that implement these policies and regulations are identified (Compliance Measure CM AQ-1) to ensure that the intended environmental protections are achieved. Consequently, emissions generated by development projects in addition to existing sources within the City would be considered to cumulatively contribute to the nonattainment designations of the Basin. Implementation of the LUE/UDE could contribute to an increase in frequency or severity of air quality violations and delay attainment of the AAQS or interim emission reductions in the AQMP due to the increase in VMT associated with implementation of the project. Therefore, emissions generated from the proposed project would result in a significant cumulative air quality impact.

Since the combination, number, and size of projects that could be under construction at any one time are unknown, even with implementation of MM AQ-1, the proposed project would result in significant cumulative construction emissions from criteria pollutants. Additionally, even with implementation of Mitigation Measure MM AQ-2, operational impacts from criteria pollutant emissions would contribute to an O_3 exceedance, which could hinder the attainment of air quality standards. Further, cumulative growth within the City could result in potential TAC health risks exceeding 10 in one million and could cumulatively contribute to elevated health risks in the Basin, as identified in the MATES study. Therefore, air quality emissions associated with future development that may occur under the proposed project could result in cumulatively considerable impacts, even with implementation of mitigation.

4.2.11 Level of Significance after Mitigation

While the proposed project would be consistent with the 2016 AQMP's land use policies aimed at reducing air emissions and would not increase population or employment in the City, the project would result in additional housing units that would generate VOC and CO emissions above

established SCAQMD thresholds. Therefore, based on the requirements for consistency with emission control strategies in the AQMP, the project would conflict with or obstruct the implementation of the AQMP and/or applicable portions of the SIP. This impact would be significant and unavoidable.

Mitigation Measures MMs AQ-1, AQ-2, and AQ-3 would significantly reduce criteria air pollutant emissions generated during construction activities, operational activities, and the emission of TACs. While implementation of MMs AQ-1, AQ-2, and AQ-3 would reduce criteria pollutant emissions and emissions of TACs, there currently is not enough information available to quantify emissions during operation of future project-specific development that may occur under the proposed project. Without quantification to guarantee a less than significant finding, future development projects may still exceed the SCAQMD regional significance or risk level thresholds, and in an abundance of caution, potential impacts related to construction emissions (Threshold 4.2.2), operational activities (Threshold 4.2.2), toxic air contaminants (Threshold 4.2.3), and cumulative impacts would be considered to remain significant and unavoidable.

As concluded above under the discussion of construction emissions (Threshold 4.2.2), specific BMP measures are included as compliance measures, and are identified to ensure that the intended environmental protections are achieved. These BMP measures are identified for future project developments that may be implemented under the proposed project that require environmental evaluation under CEQA. Additionally, MM AQ-1 is identified requiring the preparation of project-specific technical assessments evaluating construction-related air quality impacts to ensure that construction-related emissions are reduced to the maximum extent feasible for projects that require environmental evaluation under CEQA. With implementation of compliance measures and Mitigation Measure MM AQ-1, the potential construction emissions impacts associated with future development facilitated by the proposed project would be reduced to the extent feasible. However, since the combination, number, and size of projects that could be under construction at any one time are unknown, this impact is considered significant and unavoidable.

Policy 16-13 would require new sensitive land uses to be evaluated for potential health risks, consistent with CARB and SCAQMD guidance. Compliance with MM AQ-3 would ensure that the potential exposure of sensitive receptors to substantial concentrations of criteria air pollutants and TACs (Threshold 4.2.3) from development of new sources of TACs would be reduced to the extent feasible; however, this impact would remain significant and unavoidable.