

## 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 Element (LUE/UDE) (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, June 2016) (Appendix B).

### 4.2.2 Methodology

Evaluation of air quality impacts associated with the proposed project includes the following:

- Determination of the proposed project's consistency with the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan (AQMP);
- Determination whether the project-related emissions would violate State air quality standards or contribute to an existing air quality violation within the South Coast Air Basin (Basin); and,
- Determination of whether or not the proposed project would have an impact on proximate sensitive receptors.

### 4.2.3 Existing Environmental Setting

**Existing Project Site.** The planning area update 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 year 2040. The project proposes to update the City's current LUE (1989) and adopt an entirely new 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 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.

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, 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.

**Sensitive Land 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.

**Climate and Meteorology.** Air quality in Long Beach is affected by various emission sources (e.g., mobile and industry) as well as atmospheric conditions (i.e., wind speed, wind direction, temperature, and rainfall). The combination of topography, low mixing height, abundant sunshine, and emissions form the second largest urban area in the United States and give the 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.<sup>1</sup> 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 temperatures with increasing altitude) as a result of the Pacific high, which is the semipermanent high-pressure area of the northern 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.<sup>2</sup> 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.

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<sup>1</sup> Western Regional Climate Center, 2015.

<sup>2</sup> Ibid.

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.<sup>1</sup>

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<sub>x</sub>) 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<sub>x</sub> to form photochemical smog or ozone.

**Regional Air Quality.** Both the State and Federal governments have established health-based ambient air quality standards (AAQS) for six criteria air pollutants:<sup>2</sup> carbon monoxide (CO), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), 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 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 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<sub>x</sub>) and reactive organic gases (ROG).

Occupants of facilities including 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.

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<sup>1</sup> Western Regional Climate Center, 2015.

<sup>2</sup> United States Environmental Protection Agency, 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.

**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 (EPA) and the California Air Resources Board (ARB). 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 EPA, the ARB, and the SCAQMD. In 1998, the ARB identified particulate matter from diesel-fueled engines as a TAC. The ARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.<sup>1</sup> 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 (e.g., construction and mining equipment, agricultural equipment, and truck-mounted refrigeration units, as well as trucks and buses traveling on freeways and local roadways).

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

Table 4.2.A summarizes the sources and health effects of criteria air pollutants mentioned above. Table 4.2.B presents a summary of State and Federal AAQS.

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<sup>1</sup> California Air Resources Board, 2000. Stationary Source Division and Mobile Source Control Division. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

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

<b>Pollutants</b>	<b>Sources</b>	<b>Primary Effects</b>
Carbon Monoxide (CO)	<ul style="list-style-type: none"> <li>• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust.</li> <li>• Natural events, such as decomposition of organic matter.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced tolerance for exercise.</li> <li>• Impairment of mental function.</li> <li>• Impairment of fetal development.</li> <li>• Death at high levels of exposure.</li> <li>• Aggravation of some heart diseases (angina).</li> </ul>
Nitrogen Dioxide (NO <sub>2</sub> )	<ul style="list-style-type: none"> <li>• Motor vehicle exhaust.</li> <li>• High temperature stationary combustion.</li> <li>• Atmospheric reactions.</li> </ul>	<ul style="list-style-type: none"> <li>• Aggravation of respiratory illness.</li> <li>• Reduced visibility.</li> <li>• Reduced plant growth.</li> <li>• Formation of acid rain.</li> </ul>
Ozone (O <sub>3</sub> )	<ul style="list-style-type: none"> <li>• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.</li> </ul>	<ul style="list-style-type: none"> <li>• Aggravation of respiratory and cardiovascular diseases.</li> <li>• Irritation of eyes.</li> <li>• Impairment of cardiopulmonary function.</li> <li>• Plant leaf injury.</li> </ul>
Lead (Pb)	<ul style="list-style-type: none"> <li>• Contaminated soil.</li> </ul>	<ul style="list-style-type: none"> <li>• Impairment of blood functions and nerve construction.</li> <li>• Behavioral and hearing problems in children.</li> </ul>
Suspended Particulate Matter (PM <sub>2.5</sub> and PM <sub>10</sub> )	<ul style="list-style-type: none"> <li>• Stationary combustion of solid fuels.</li> <li>• Construction activities.</li> <li>• Industrial processes.</li> <li>• Atmospheric chemical reactions.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced lung function.</li> <li>• Aggravation of the effects of gaseous pollutants.</li> <li>• Aggravation of respiratory and cardiorespiratory diseases.</li> <li>• Increased cough and chest discomfort.</li> <li>• Soiling.</li> <li>• Reduced visibility.</li> </ul>
Sulfur Dioxide (SO <sub>2</sub> )	<ul style="list-style-type: none"> <li>• Combustion of sulfur-containing fossil fuels.</li> <li>• Smelting of sulfur-bearing metal ores.</li> <li>• Industrial processes.</li> </ul>	<ul style="list-style-type: none"> <li>• Aggravation of respiratory diseases (asthma, emphysema).</li> <li>• Reduced lung function.</li> <li>• Irritation of eyes.</li> <li>• Reduced visibility.</li> <li>• Plant injury.</li> <li>• Deterioration of metals, textiles, leather, finishes, coatings, etc.</li> </ul>

Source: California Air Resources Board (ARB) (2015).

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

Pollutant	Averaging Time	California Standards <sup>a</sup>		Federal Standards <sup>b</sup>		
		Concentration <sup>c</sup>	Method <sup>d</sup>	Primary <sup>c,e</sup>	Secondary <sup>c,f</sup>	Method <sup>g</sup>
Ozone <sup>h</sup> (O <sub>3</sub> )	1-Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m <sup>3</sup> )		0.070 ppm (137 µg/m <sup>3</sup> )		
Respirable Particulate Matter (PM <sub>10</sub> ) <sup>i</sup>	24-Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		–		
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>i</sup>	24-Hour	No separate State standard		35 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m <sup>3</sup> )	–	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 mg/m <sup>3</sup> )		9 ppm (10 mg/m <sup>3</sup> )		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		–		
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>j</sup>	1-Hour	0.18 ppm (339 µg/m <sup>3</sup> )	Gas Phase Chemiluminescence	100 ppb (188 µg/m <sup>3</sup> )	–	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.03 ppm (57 µg/m <sup>3</sup> )		53 ppb (100 µg/m <sup>3</sup> )	Same as Primary Standard	
Sulfur Dioxide (SO <sub>2</sub> ) <sup>k</sup>	1-Hour	0.25 ppm (655 µg/m <sup>3</sup> )	Ultraviolet Fluorescence	75 ppb (196 µg/m <sup>3</sup> )	–	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1300 µg/m <sup>3</sup> )	
	24-Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm (for certain areas) <sup>i</sup>	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas) <sup>i</sup>	–	
Lead (Pb) <sup>l,m</sup>	30-Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m <sup>3</sup> (for certain areas) <sup>k</sup>	Same as Primary Standard	
	Rolling 3-Month Average <sup>i</sup>	–		0.15 µg/m <sup>3</sup>		
Visibility-Reducing Particles <sup>n</sup>	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24-Hour	25 µg/m <sup>3</sup>	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence			
Vinyl Chloride <sup>j</sup>	24-Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography			

Source: California Air Resources Board (October 1, 2015).  
 Table notes are provided on the following page.

- <sup>a</sup> California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, 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.
- <sup>b</sup> National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per 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<sub>10</sub>, 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<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, 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 EPA for further clarification and current federal policies.
- <sup>c</sup> 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.
- <sup>d</sup> Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- <sup>e</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- <sup>f</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- <sup>g</sup> Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
- <sup>h</sup> On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 ppm to 0.070 ppm.
- <sup>i</sup> On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- <sup>j</sup> To attain the 1-hour national standard, the 3-year average of the annual 98<sup>th</sup> percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of ppb. California standards are in units of ppm. To directly compare the national standards 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.
- <sup>k</sup> The ARB 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.
- <sup>l</sup> 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<sup>3</sup> as a quarterly average) remains in effect until 1 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.
- <sup>m</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> 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 99<sup>th</sup> percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until 1 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 ppb. California standards are in units of ppm. To directly compare the 1-hour national standards 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.
- <sup>n</sup> In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius

ARB = California Air Resources Board

EPA = United States Environmental Protection Agency

ppb = parts per billion

ppm = parts per million

mg/m<sup>3</sup> = milligrams per cubic meter

µg/m<sup>3</sup> = micrograms per cubic meter

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

The EPA designates areas for O<sub>3</sub>, CO, and NO<sub>2</sub> as not meeting the primary standards, or cannot be classified, or better than national standards. For SO<sub>2</sub>, areas are designated as not meeting the primary standards, not meeting 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 Federal and State AAQS.

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

Pollutant	State	Federal
O <sub>3</sub> 1-hour	Nonattainment	N/A
O <sub>3</sub> 8-hour	Nonattainment	Extreme Nonattainment
PM <sub>10</sub>	Nonattainment	Attainment/Maintenance
PM <sub>2.5</sub>	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO <sub>2</sub>	Nonattainment	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Lead	Attainment	Attainment <sup>1</sup>
All others	Attainment/Unclassified	Attainment/Unclassified

Source: California Air Resources Board (2014).

<sup>1</sup> Except in Los Angeles County.

ARB = California Air Resources Board

CO = carbon monoxide

N/A = not applicable

NO<sub>2</sub> = nitrogen dioxide

O<sub>3</sub> = ozone

PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size

PM<sub>10</sub> = particulate matter less than 10 microns in size

SO<sub>2</sub> = sulfur dioxide

**Local Air Quality.** Air quality monitoring stations are located throughout the nation and are maintained by the local air pollution control district and State air quality regulating agencies. The SCAQMD, together with the ARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the monitoring station in Long Beach located at 2425 Webster Street. The air quality data from this station are used to represent the ambient air quality in Long Beach.

Pollutant monitoring results for the years 2012 to 2014 at the 2425 Webster Street ambient air quality monitoring station in Long Beach are shown in Table 4.2.D. As indicated in the monitoring data, no violations of the State and Federal PM<sub>10</sub> standard occurred during the 3-year period. PM<sub>2.5</sub> levels exceeded the Federal standard twice in 2014, twice in 2013, and four times in 2012. Neither State nor

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

Pollutant	Standard	2012	2013	2014
<b>Carbon Monoxide (CO)</b>				
Maximum 1-hour concentration (ppm)		4.2	4.1	3.7
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		2.6	2.6	2.6
Number of days exceeded:	State: > 9 ppm	0	0	0
	Federal: > 9 ppm	0	0	0
<b>Ozone (O<sub>3</sub>)</b>				
Maximum 1-hour concentration (ppm)		0.080	0.090	0.087
Number of days exceeded:	State: > 0.09 ppm	0	0	0
Maximum 8-hour concentration (ppm)		0.067	0.070	0.072
Number of days exceeded:	State: > 0.070 ppm	0	0	1
	Federal: > 0.075 ppm	0	0	0
<b>Coarse Particulates (PM<sub>10</sub>)</b>				
Maximum 24-hour concentration (µg/m <sup>3</sup> )		45.0 <sup>1</sup>	37.0 <sup>1</sup>	84.0
Number of days exceeded:	State: > 50 µg/m <sup>3</sup>	0	0	ND
	Federal: > 150 µg/m <sup>3</sup>	0	0	0
Annual arithmetic average concentration (µg/m <sup>3</sup> )		23.2 <sup>1</sup>	24 <sup>1</sup>	ND
Exceeded for the year:	State: > 20 µg/m <sup>3</sup>	Yes	Yes	ND
	Federal: > 50 µg/m <sup>3</sup>	No	No	ND
<b>Fine Particulates (PM<sub>2.5</sub>)</b>				
Maximum 24-hour concentration (µg/m <sup>3</sup> )		58.6 <sup>1</sup>	51.7 <sup>1</sup>	51.5 <sup>1</sup>
Number of days exceeded:	Federal: > 35 µg/m <sup>3</sup>	4	2	2
Annual arithmetic average concentration (µg/m <sup>3</sup> )		10.4 <sup>1</sup>	11.3 <sup>1</sup>	11.4 <sup>1</sup>
Exceeded for the year:	State: > 12 µg/m <sup>3</sup>	No	No	No
	Federal: > 15 µg/m <sup>3</sup>	No	No	No
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>				
Maximum 1-hour concentration (ppm)		0.098	0.081	0.136
Number of days exceeded:	State: > 0.25 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.025	0.021	0.020
Exceeded for the year:	Federal/State: > 0.053 ppm	No	No	No
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>				
Maximum 24-hour concentration (ppm)		0.004	0.004	ND
Number of days exceeded:	State: > 0.04 ppm	0	0	ND
	Federal: > 0.14 ppm	0	0	ND
Annual arithmetic average concentration (ppm)		ND	ND	ND
Exceeded for the year:	Federal: > 0.030 ppm	ND	ND	ND

Source: ARB (2015) and EPA (2015).

<sup>1</sup> Data from the 3648 Long Beach Boulevard monitoring site.

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

ppm = parts per million

µg/m<sup>3</sup> = micrograms per cubic meter

ARB = California Air Resources Board

EPA = United States Environmental Protection Agency

Federal 1-hour ozone standards were exceeded in the 3-year period. The State 8-hour ozone standard was exceeded in 2014, but not in 2013 or 2012. The State and Federal CO, SO<sub>2</sub>, and NO<sub>2</sub> standards were also not exceeded in this area during the 3-year period.

**Existing City of Long Beach Criteria Air 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 2012 (existing conditions) and year 2040 (future conditions without the proposed project). The inventories are based on existing land uses that occur within the proposed LUE/UDE Areas of Change. The year 2012 inventory represents the estimated emissions generated by the existing land uses using the baseline year 2012 emission factors for on-road vehicles. The year 2040 inventory represents the projected emissions that the existing land uses would generate in the future utilizing year 2040 emission factors for on-road vehicles.

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

Sector	Criteria Air Pollutant Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Existing Condition Year 2012						
Transportation (2012 emission factors) <sup>1</sup>	4,265.95	9,090.11	36,209.28	52.23	188.98	179.54
Energy, Residential (natural gas use)	0.12	10.48	4.46	0.07	0.85	0.85
Energy, Commercial + Industrial (natural gas use)	1.05	9.59	8.06	0.06	0.73	0.73
Area, Landscaping/Consumer Products <sup>2</sup>	0.51	0.31	8.08	0.00	0.04	0.04
Existing Land Uses Total	4,267.64	9,110.50	36,229.88	52.36	190.60	181.16
Existing General Plan Year 2040						
Transportation (2040 emission factors) <sup>1</sup>	932.54	1,707.34	6,564.44	33.75	16.03	14.91
Energy, Residential (natural gas use)	1.54	13.19	5.61	0.08	1.07	1.07
Energy, Commercial + Industrial (natural gas use)	1.06	9.65	8.11	0.06	0.73	0.73
Area, Landscaping/Consumer Products <sup>2</sup>	0.55	0.36	8.82	0.00	0.04	0.04
Existing General Plan Year 2040 Emission Total	935.69	1,730.53	6,586.98	33.89	17.87	16.75

Source:

<sup>1</sup> EMFAC2014 based on daily vehicle miles traveled (VMT) provided by LSA. Transportation sector includes the full trip length for internal-internal trips and 50 percent trip length for external-internal/internal-external trips. VMT per year based on a conversion of VMT × 347 days per year to account for less travel on weekend, consistent with ARB statewide GHG emissions inventory methodology (ARB 2008).

<sup>2</sup> Electricity and natural gas usage data provided by Southern California Edison and City of Long Beach Oil and Gas, respectively.

<sup>3</sup> NONROAD emissions estimated based on population for landscaping emissions and employment estimates for light commercial equipment. Estimates were based on population and employment data calculated using a percentage reflective of the City of Long Beach included in the Los Angeles County data included in the SCAG 2016 RTP/SCS. Excludes fugitive emissions from paved and unpaved surfaces and wood-burning fireplaces. 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 because they are subject to further regulation and permitting, they are not considered for purposes of this analysis.

ARB = California Air Resources Board

CO = carbon monoxide

NO<sub>x</sub> = nitrogen oxides

PM<sub>10</sub> = particulate matter less than 10 microns in size

PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size

RTP/SCS = Regional Transportation Plan/Sustainable Communities Strategy

SCAG = Southern California Association of Governments

SO<sub>x</sub> = oxides of sulfur

VOC = volatile organic compounds

Criteria air pollutant emissions generated within the proposed LUE/UDE Areas of Change were estimated using EMFAC2014, NONROAD, and data provided by Southern California Gas Company (SoCal Gas) for natural gas use. Emissions within the City of Long Beach come from the following sources:

- **Transportation:** Based on the Traffic Impact Analysis (TIA) (LSA 2016) prepared for the proposed project, the existing 2012 vehicle traffic within the identified Areas of Change is approximately 321,662 average daily trips (ADT). These trips are associated with the existing residential development, commercial facilities, and industrial facilities within the Areas of Change. Based on the information in the existing General Plan and 2012 Southern California Association of Governments' (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) transportation forecast, the traffic is estimated to increase to a total of 345,672 ADTs in year 2040 (i.e., without the proposed project).
- **Area Sources:** Emissions from lawn and garden equipment use, and commercial equipment use.
- **Energy:** Emissions generated from natural gas consumption used for cooking and heating in the City.

#### 4.2.4 Regulatory Setting

##### Federal Regulations.

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

##### State Regulations.

**California Clean Air Act.** In 1988, the CCAA required that all air districts in the State endeavor to achieve and maintain California AAQS for carbon monoxide, ozone, sulfur dioxide, and nitrogen dioxide by the earliest practical date. The CCAA provides air 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 air 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 an air 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 Handbook.** The California ARB has developed an *Air Quality and Land Use Handbook* (Handbook) (2005), which is intended to serve as a general reference

guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. According to the ARB Handbook, recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high-traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. The ARB Handbook recommends that 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.

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 ARB Handbook include taking steps to avoid siting new, sensitive land uses:

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

The ARB 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.

## **Local and Regional Policies and Regulations.**

**South Coast Air Quality Management District.** The SCAQMD has jurisdiction over most air quality matters in the 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 CAA and the CCAA. The SCAQMD prepares plans to attain State and national ambient air quality standards. 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 through 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.
  - **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. The proposed project does not plan on discharging any contaminants in quantities that would cause injury to the public or property. Future development resulting from approval of the project will comply with Rule 402.
  - **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<sub>10</sub> emissions to less than 50 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) 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). Mitigation measures may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers, and/or ceasing all activities. Finally, Rule 403 requires that a contingency plan be prepared if so determined by the EPA. Future development resulting from approval of the project will comply with Rule 403.
- **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.

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 the ARB, the 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 California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The SCAQMD and the SCAG are responsible for formulating and implementing the AQMP, which has a 20-year horizon for the Basin. The SCAQMD and SCAG must update the AQMP every 3 years. The current regional air quality plan is the Final 2012 AQMP adopted by the SCAQMD on December 7, 2012.

The AQMP is the region's Clean Air Plan, which guides the region's air quality planning efforts to attain the CAAQS. The SCAQMD's 2012 AQMP contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO<sub>x</sub>), particulate matter, and greenhouse gas (GHG) emissions. At the end of the 2012 AQMP process, the SCAQMD initiated the 2016 AQMP shortly after the adoption of the 2012 AQMP. The SCAQMD has developed the 2016 AQMP (SCAQMD 2016), which incorporates the latest scientific and technological information

and planning assumptions, including the 2016 RTP/SCS, and updated emission inventory methodologies for various source categories.

The upcoming 2016 AQMP will develop integrated strategies and measures to meet the following NAAQS:

- 8-hour Ozone (O<sub>3</sub>) (75 parts per billion [ppb]) by 2032;
- Annual PM<sub>2.5</sub> (12 µg/m<sup>3</sup>) by 2021–2025;
- 8-hour O<sub>3</sub> (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs);
- 1-hour O<sub>3</sub> (120 ppb) by 2023 (updated from the 2012 AQMP); and
- 24-hour PM<sub>2.5</sub> (35 µg/m<sup>3</sup>) by 2019 (updated from the 2012 AQMP).

The 2016 AQMP will also take an initial look at the new 2015 Federal 8-hour ozone standard (70 ppb), as well as incorporate energy, climate, transportation, goods movement, infrastructure, and other planning efforts that affect future air quality. The most significant air quality challenge in the Basin is to reduce NO<sub>x</sub> emissions sufficiently to meet the upcoming ozone standard deadlines. Based on preliminary analyses, the approximately 580 tons per day (tpd) of total Basin NO<sub>x</sub> emissions are projected to drop to approximately 300 tpd and 250 tpd in the attainment years of 2023 and 2031 respectively, due to continued implementation of already adopted control measures.

The primary challenge is that mobile sources currently contribute about 88 percent of the region's total NO<sub>x</sub> emissions, and SCAQMD has limited authority to regulate mobile sources. SCAQMD is working closely with the California ARB and EPA, which have primary authority over mobile sources to ensure mobile sources do their fair share of pollution reduction.

Since NO<sub>x</sub> emissions also lead to the formation of PM<sub>2.5</sub>, the NO<sub>x</sub> reductions needed to meet the ozone standards will lead to significant improvements in PM<sub>2.5</sub> levels. The 2016 AQMP will include PM<sub>2.5</sub> control strategies as needed to ensure that the PM<sub>2.5</sub> NAAQS will also be met on time.

The SCAQMD adopted land use planning guidelines in the May 2005 *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning* which, like the Handbook, also consider impacts to sensitive receptors from facilities that emit TACs. The SCAQMD's distance recommendations are the same as those provided by the ARB (e.g., the same siting criteria for distribution centers and dry cleaning facilities). The SCAQMD's document introduces land use-related policies that rely on design and distance parameters to manage potential health risk. These guidelines are voluntary initiatives recommended for consideration by local planning agencies.

**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 RTP and Regional Transportation Improvement Program (RTIP), which address regional development and growth forecasts, form the basis for the land use and transportation control portions of the AQMP, and are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP. The RTP, RTIP, and AQMP are based on projections originating within local jurisdictions.

Although SCAG is not an air quality management agency, it is responsible for developing transportation, land use, and energy conservation measures that affect air quality. SCAG's Regional Comprehensive Plan (RCP) provides growth forecasts that are used in the development of air quality-related land use and transportation control strategies by the SCAQMD. The RCP is a framework for decision-making for local governments, assisting them in meeting Federal and State mandates for growth management, mobility, and environmental standards, while maintaining consistency with regional goals regarding growth and changes through the year 2015, and beyond. 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 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 ARB emissions reduction targets. The inclusion of the SCS is required by Senate Bill 375 (SB 375), which was enacted to reduce 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 the ARB 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 EPA.

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<sub>3</sub> standards require further NO<sub>x</sub> emission reductions in the SCAG region. In the Basin, for example, it is estimated that NO<sub>x</sub> emissions will need to be reduced by approximately 50 percent in 2023 and an additional 15 percent NO<sub>x</sub> reduction beyond 2023 levels by 2031. Most sources of NO<sub>x</sub> 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<sub>3</sub> levels near the Federal standard. To accomplish the reduction required to meet O<sub>3</sub> 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 timeframe and clear steps to move toward this objective.

#### 4.2.5 City of Long Beach General Plan

**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<sup>1</sup> 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.

**City of Long Beach General Plan Mobility Element.** The Mobility Element<sup>2</sup> 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 goals and policies of the City's Air Quality Element and Mobility Element organized by topic that are applicable to the proposed project are identified below in Table 4.2.F.

**City of Long Beach Sustainable City Action Plan.** The City of Long Beach's Sustainable City Action Plan (SCAP) was adopted in February 2010.<sup>3</sup> 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 Proposed Land Use Element Strategies and Policies

The following proposed Goals, Strategies, and Policies are applicable to the analysis of Air Quality:

##### Land Use Element.

- **Strategy No. 15:** Protect neighborhoods from adverse environmental conditions.
- **LU Policy 15-1:** 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.

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<sup>1</sup> City of Long Beach. 1996. *Long Beach General Plan*. December.

<sup>2</sup> Long Beach, City of, 2013. *Long Beach General Plan*. October.

<sup>3</sup> Long Beach, City of, 2010. *City of Long Beach Sustainably City Action Plan*. February.

**Table 4.2.F: City of Long Beach General Plan Goals and Policies Applicable to the Project**

<b>Air Quality Element</b>
<b>Governmental Organization, Roles, and Responsibility</b>
<b>Goal 1:</b> 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.
<b>Policy 1.1:</b> 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.
<b>Policy 1.2:</b> 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.
<b>Ground Transportation</b>
<b>Goal 2:</b> A diverse and efficient ground transportation system that minimizes air pollutant emissions.
<b>Policy 2.1.1:</b> 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.
<b>Policy 2.1.2:</b> 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.
<b>Policy 2.1.3:</b> 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.
<b>Policy 2.2.1:</b> Modify Work Schedules. Promote and establish modified work schedules that reduce peak period auto travel.
<b>Policy 2.3.1:</b> 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.
<b>Policy 2.4.1:</b> Promote Non-Motorized Transportation. Promote convenient and continuous bicycle paths and pleasant pedestrian environments that will encourage non-motorized travel within the City.
<b>Policy 2.5.1:</b> Manage the Parking Supply. Manage the City’s parking supply to inhibit auto use, while ensuring that economic development goals are not sacrificed.
<b>Policy 2.6.1:</b> 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.
<b>Policy 2.6.2:</b> 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.
<b>Air Transportation</b>
<b>Goal 3:</b> Minimum feasible emissions from Long Beach Airport.
<b>Policy 3.1:</b> Promote Improved Technology. Promote the use of the best available technology to reduce emissions from aircraft frequenting the Long Beach Airport.
<b>The Port of Long Beach</b>
<b>Goal 4:</b> Minimum feasible emissions from the Ports of Long Beach and Los Angeles.
<b>Policy 4.1:</b> Minimize emissions from ships.
<b>Policy 4.2:</b> Reduce the impacts of rail-related emissions on Long Beach neighborhoods and the downtown.
<b>Policy 4.3:</b> Monitor particulate pollution at the Ports and locations downwind, and pursue methods of reducing emissions while accommodating needed growth.
<b>Policy 4.3:</b> Monitor particulate pollution at the Ports and locations downwind, and pursue methods of reducing emissions while accommodating needed growth.
<b>Land Use</b>
<b>Goal 5:</b> A pattern of land uses that can be efficiently served by a diversified transportation system and that directly and indirectly minimizes air pollutants.
<b>Policy 5.1:</b> Manage Growth. Regulate land use and promote development in a manner that will support established transit services and reduce the need for the automobile.

**Table 4.2.F: City of Long Beach General Plan Goals and Policies Applicable to the Project**

<b>Policy 5.2:</b> Balance Growth. Improve the balance between jobs and housing to create a more efficient urban form.
<b>Particulate Emissions</b>
<b>Goal 6:</b> Minimize particulate emissions from the construction and operation of roads and buildings, from mobile sources, and from the transportation, handling and storage of materials.
<b>Policy 6.1:</b> Control Dust. Further reduce particulate emissions from roads, parking lots, construction sites, unpaved alleys, and port operations and related uses.
<b>Energy Conservation</b>
<b>Goal 7:</b> Reduce emissions through reduced energy consumption.
<b>Policy 7.1:</b> Energy Conservation. Reduce energy consumption through conservation improvements and requirements.
<b>Policy 7.2:</b> Recycle Wastes. Promote local recycling of wastes and the use of recycled materials.
<b>Education</b>
<b>Goal 8:</b> Education of City residents concerning air quality, energy, and congestion issues, and the need to modify present travel behavior and energy consumption patterns.
<b>Policy 8.1:</b> 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.
<b>Mobility Element</b>
<b>Mobility of People</b>
<b>Goal 1:</b> Create a safe, efficient, balanced, and multimodal mobility network.
<b>Strategy 1:</b> Establish a network of complete streets that complements the related street type.
<b>Policy 1-9:</b> Increase mode shift of transit, pedestrians, and bicycles.
<b>Policy 1-12:</b> 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.
<b>Policy 1-17:</b> Develop land use policies that focus development potential in locations best served by transit.
<b>Strategy 2:</b> Reconfigure streets to emphasize their modal priorities.
<b>Policy 2-17:</b> Ensure safe, convenient, and adequate, on- and off-street bicycle parking facilities to accommodate and encourage residents to cycle for commuting and daily needs.
<b>Strategy 3:</b> Strategically improve congested intersections and corridors.
<b>Policy 4-3:</b> Develop a new Multimodal Level of Service (MMLOS) methodology that includes the following components:
<ul style="list-style-type: none"> <li>• Emphasis on pedestrian and bicycle access and circulation.</li> <li>• Maintenance of appropriate emergency vehicle access and response time.</li> <li>• Support for reduced vehicle miles traveled.</li> <li>• Considers, but does not deem, auto congestion in Downtown or Long Beach Boulevard TOD district to be an impact.</li> </ul>
<b>Strategy 5:</b> Reduce the environmental impacts of the transportation system.
<b>Policy 5-2:</b> Reduce vehicle miles traveled (VMT) and vehicle trips through the use of alternative modes of transportation and Transportation Demand Management.
<b>Policy 5-3:</b> Encourage the use of low- or no-emission vehicles to reduce pollution.
<b>Policy 5-4:</b> Promote car-sharing and Neighborhood Electric Vehicle ownership as an important means to reduce traffic congestion.
<b>Policy 5-5:</b> Sustain the recent improvements in air quality and achieve further significant progress in such improvements to meet State and federal mandates.

**Table 4.2.F: City of Long Beach General Plan Goals and Policies Applicable to the Project**

<b>Strategy 6:</b> Manage the supply of parking.
<b>Policy 6-3:</b> Where appropriate, encourage the conversion of on-street parking space for expanded sidewalk widths or landscaping.
<b>Policy 6-7:</b> Support using parking supply and pricing as a strategy to encourage use of non-automobile modes where feasible.
<b>Policy 6-8:</b> Where applicable, encourage users to park once to meet all of their travel needs within the City.
<b>Policy 6-11:</b> Encourage the use of transit, carpooling, and walking to reduce the need for parking.
<b>Policy 6-12:</b> Promote transit-oriented development with reduced parking requirements around appropriate transit hubs and stations to facilitate the use of available transit services.
<b>Policy 6-13:</b> Consider reducing parking requirements for mixed-use developments, for developments providing shared parking or a comprehensive Transportation Demand Management (TDM) Program, or developments located near major transit hubs.
<b>Policy 6-15:</b> Encourage and provide incentives for commercial, office, and industrial development to provide preferred parking for carpools, vanpools, electric vehicles, and flex cars.
<b>Mobility of Goods</b>
<b>Goal 3:</b> Lead the region by example with innovative and experimental practices.
<b>Strategy 10:</b> Be a leader in regional cooperation on transportation issues.
<b>Strategy 11:</b> Adapt mobility strategies and programs based on new concepts and technologies that reduce environmental impacts and increase quality of life.
<b>Strategy 12:</b> Develop freight-related improvements consistent with the regional transportation network.
<b>Policy 13-2:</b> Reduce truck congestion and parking impacts on city streets.
<b>Strategy 14:</b> Reduce the air quality impacts of freight transportation and Port-related traffic.
<b>Policy 14-1:</b> Provide for the efficient, clean, and safe movement of goods to support commerce and industry.
<b>Policy 14-2:</b> Adopt and enforce truck routes to minimize the impacts of truck emissions on the community.
<b>Policy 14-3:</b> Reduce congestion on freeways and designated truck routes.
<b>Policy 14-4:</b> 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.

Source: City of Long Beach, General Plan Air Quality Element (1996); General Plan Mobility Element (2013).

- **LU Policy 15-2:** 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 15-3:** Continue to be an advocate for residential neighborhoods that will be adversely affected by major port-related facility expansion projects.
- **LU Policy 15-4:** 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-M-48:** 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.

#### 4.2.7 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the *State California Environmental Quality Act (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:** Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Threshold 4.2.3:** Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

**Threshold 4.2.4:** Expose sensitive receptors to substantial pollutant concentrations; or

**Threshold 4.2.5:** Create objectionable odors affecting a substantial number of people.

#### 4.2.8 Standard Conditions and Project Design Features

Standard Conditions (SCs) are specific standards 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, they do not constitute mitigation measures. The following Standard Condition would apply to the proposed project with respect to air quality.

**SC 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 these sources.

- Install temporary construction power supply meters on site and use this 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 [ARB] 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.

#### 4.2.9 Project Impacts

As described in Chapter 3.0, Project Description, of this Draft EIR, major land use changes proposed as part of the LUE/UDE are identified as Major Areas of Change, and include eight primary change areas associated with the updated LUE.

- The first Major Area of Change involves the creation of more open space throughout the City. Areas targeted for the establishment of the Open Space PlaceType include small pockets of land along the Los Angeles River, two strips of land along State Route 103 and an abandoned railroad in the northern area of the City, a large portion of the Southeast Area Development and Improvement Plan (SEADIP) area, and pockets of land scattered throughout the City.
- The second Major Area of Change proposes to buffer industrial activities from existing neighborhoods by encouraging the conversion of some industrial uses to Neo Industrial uses. Areas targeted for the establishment of the Neo-Industrial PlaceType include existing industrial areas in the northern portion of the City and a larger industrial area along the Los Angeles River, just north of the City's Downtown.
- The third Major Area of Change aims to promote Regional-Serving Uses by maintaining existing regional-serving facilities throughout the City.
- The fourth Major Area of Change proposes to provide land use transitions from industrial to commercial uses in small areas in the northern portion of the City and in the area directly east of the Long Beach Airport.
- The fifth Major Area of Change aims to promote transit-oriented development along Long Beach Boulevard as part of a larger Citywide effort to reduce automobile dependence in the City.
- The sixth Major Area of Change aims to continue development in the Downtown area.
- The seventh Major Area of Change aims to promote infill and redevelopment to support transit along Redondo and Cherry Avenues and near the Traffic Circle.
- The eighth Major Area of Change aims to redevelop sites within the City to their "highest and best use." The sites targeted for redevelopment are located within the SEADIP area, in the southeastern portion of the City.

In total, the LUE proposes changes to approximately 13 percent of the land area (or the equivalent of 4,180 acres) in the City. Construction associated with implementation of the LUE would occur over a period of approximately 15 to 24 years.

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

##### **Less than Significant 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 2012 *Final Air Quality Management Plan*<sup>1</sup> adopted by the SCAQMD on December 7, 2012. The 2012 *Final Air Quality Management Plan* proposes attainment demonstration of the Federal particulate matter less than 2.5 microns in size (PM<sub>2.5</sub>) standards through a more focused control of sulfur oxides (SO<sub>x</sub>), directly-emitted PM<sub>2.5</sub>, and nitrogen oxides (NO<sub>x</sub>) supplemented with reactive organic gases (ROG) by 2015. The 8-hour ozone control strategy builds upon the PM<sub>2.5</sub> strategy, augmented with additional NO<sub>x</sub> and ROG reductions to meet the standard by 2024 assuming a bump-up<sup>2</sup> is obtained.

As previously identified, at the end of the 2012 AQMP process, the SCAQMD initiated the 2016 AQMP shortly after the adoption of the 2012 AQMP. The upcoming 2016 AQMP will develop integrated strategies and measures to meet the following NAAQS:

- 8-hour O<sub>3</sub> (75 ppb) by 2032
- Annual PM<sub>2.5</sub> (12 µg/m<sup>3</sup>) by 2021–2025
- 8-hour O<sub>3</sub> (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)
- 1-hour O<sub>3</sub> (120 ppb) by 2023 (updated from the 2012 AQMP)
- 24-hour PM<sub>2.5</sub> (35 µg/m<sup>3</sup>) by 2019 (updated from the 2012 AQMP)

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. Only new or amended general plan elements, specific plans, and major projects need to undergo a consistency review. Projects that are consistent with the local general plan are considered consistent 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 interim 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 Basin is designated nonattainment for O<sub>3</sub> and PM<sub>2.5</sub> under the CAAQS and NAAQS, nonattainment for lead (Los Angeles County only) under the NAAQS, and nonattainment for PM<sub>10</sub>

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<sup>1</sup> South Coast Air Quality Management District, *Final 2012 Air Quality Management Plan*, December 7, 2012.

<sup>2</sup> A “bump-up” is a voluntary reclassification of a nonattainment area to a higher classification allowing for an extension of an attainment deadline.

under the CAAQS.<sup>1</sup> Because the proposed project involves long-term growth associated with build out of the City of Long Beach, emissions of criteria pollutants associated with future development allowed under the LUE/UDE would occur. Future development under the proposed project would be required to comply with ARB motor vehicle standards, SCAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and the proposed LUE/UDE project goals and policies. While the existing City policies and proposed LUE/UDE 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 to ensure that the intended environmental protections are achieved. Consequently, emissions generated by development projects in addition to existing sources within the City are not considered to cumulatively contribute to the nonattainment designations of the Basin (refer to the discussion under Threshold 4.2.3 below). Implementation of the LUE/UDE would not 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, and emissions generated from the proposed LUE/UDE would not result in a significant cumulative air quality impact as demonstrated below in the discussion. Therefore, the proposed project is concluded to result in a less than significant impact associated with consistency with the applicable air quality management plan. The proposed project would 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 Major Areas of Change are partially based on the current adopted General Plan. It is expected that implementation of the proposed General Plan LUE and UDE would result in a higher population and generate more employment for the City compared to SCAG forecasts given that the growth expected under the proposed project was unknown at the time SCAG developed the forecasts. It should be noted that the growth projected by SCAG is based on demographic trends in the region. 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 LUE/UDE assume full build out of the proposed Major Areas of Change by the year 2040, since there is no schedule for when this development would occur. As a result, the growth projections for the Major Areas of Change would be based on SCAG's 2016 RTP/SCS and the associated emissions inventory in SCAQMD's 2012 AQMP do not include the additional growth forecast in the LUE/UDE because at the time of preparation of the 2012 AQMP, the available data was from SCAG's 2012 RTP/SCS. Therefore, the 2012 AQMP does not consider emissions associated with the proposed LUE/UDE. However, once the proposed LUE/UDE is adopted and the AQMP is revised (currently in process), SCAG and SCAQMD will incorporate the growth projections associated with build out of the proposed LUE/UDE in their regional planning projections, and the proposed LUE/UDE would become consistent with the upcoming 2016 AQMP. Based on the requirements for consistency with emission control strategies in the AQMP, the LUE/UDE would not conflict with or obstruct the implementation of the AQMP and/or applicable portions of the State Implementation Plan (SIP). Implementation of the proposed project would result in a less than significant impact associated with conflicts with applicable air quality plans. No mitigation is required.

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<sup>1</sup> California Air Resources Board. 2014. Proposed First Update to the Climate Change Scoping Plan: Building on the Framework. Website: <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>, May 15, 2014.

**Threshold 4.2.2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation**

It is important to note that, per the requirements of CEQA, this analysis is based on a comparison of the proposed LUE/UDE to existing land uses and not to the changes in population and employment associated with the potential developments under the current General Plan. It is also important to note that the proposed LUE/UDE is a regulatory document that establishes the framework for growth and development and does not directly result in development. Before development can occur, the 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.

**Construction Impacts: Less than Significant Impact With Mitigation.** Construction activities associated with the proposed project would occur over the build-out horizon of the LUE/UDE, which would cause short-term emissions of criteria air pollutants. The primary source of NO<sub>x</sub>, CO, and sulfur oxide (SO<sub>x</sub>) emissions is the operation of construction equipment. The primary sources of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) 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 summary of health impacts associated with air pollutant emissions of criteria pollutants is provided in Table 4.2.A.

For this broad-based policy LUE/UDE, it is not possible to determine whether the scale and phasing of future individual projects would exceed the SCAQMD's short-term regional or localized construction emissions thresholds. The SCAQMD recommends the evaluation of localized air quality impacts to sensitive receptors 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 the project site. However, the LSTs are applicable to projects at the project-specific level and are not applicable to regional projects. In addition, the LSTs do not apply to emissions occurring off the project site, such as emissions from motor vehicles. These emissions are primarily generated from heavy-duty construction equipment and demolition, grading, and trenching activities. This suggests that on-site construction emissions from future development pursuant to the proposed LUE/UDE could potentially cause or contribute to locally significant air quality impacts. However, it should be noted that roughly 21, 25, and 85 percent of regional VOC, NO<sub>x</sub>, and PM<sub>10</sub>, emissions, respectively, from the worst-day case construction are on-road mobile-source emissions associated with hauling and worker commutes. Nevertheless, localized construction impacts of future LUE/UDE projects could potentially exceed the LSTs, particularly for construction of planning areas larger than 5 acres or planning 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 the ARB's Airborne Toxic Control Measures) are currently in place, and mitigation imposed at the project level may include extension of construction schedules and/or use of special equipment.

Because the scale of construction activities has not been determined or estimated and in order to present conservative assumptions, the air quality impacts associated with future construction of

individual projects that may occur with implementation of the proposed project are assumed to be potentially significant. 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 is required to calculate health risk from project implementation. However, since it is not possible to translate the amount of 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.

The proposed LUE/UDE includes goals regarding land use development and identifies policies designed to reduce emissions of criteria pollutants while protecting public health. 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, specific best management practice (BMP) measures are included as Standard Conditions imposed by the City, 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, Mitigation Measure AQ-1 is identified requiring 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. With implementation of Standard Condition AQ-1 and Mitigation Measure AQ-1, the potential construction emissions impact associated with future development facilitated by the proposed project would be less than significant.

**Operational Impacts: Potentially Significant Impact.** 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 EPA, the SCAQMD prepares an AQMP that details regional programs to attain the AAQS.

Because the scale of operational activities has not been determined or estimated and 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 are assumed to be potentially significant. Mitigation Measure AQ-2 is identified requiring 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. Unlike construction activities where the extension of construction schedules and/or use of special equipment can be reasonably assumed to be implemented,

operational characteristics and the associated emissions cannot be determined at the time of this analysis. Therefore, despite implementation of Mitigation Measure AQ-2, and in an abundance of caution, the potential emissions impact associated with the operation of the proposed project would remain significant and unavoidable.

**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.<sup>1</sup> 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 (BAAQMD 2011). One of the top four worst intersections in Los Angeles County (i.e., Long Beach Boulevard/Imperial Highway)<sup>2</sup> is located approximately 4 miles north of the proposed LUE/UDE project. Since the SCAQMD-modeled intersections do not exceed the CO standards, all intersections within the proposed project with less volumes of traffic and under less extreme conditions would not exceed the CO standards. Build out of the proposed General Plan LUE and

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<sup>1</sup> 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.

<sup>2</sup> 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.

UDE would not produce the volume of traffic, as described above, required to generate a CO hot spot. Therefore, implementation of the LUE/UDE 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: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)**

**Less than Significant Impact.**

As previously identified, per the requirements of CEQA, this analysis is based on a comparison of the proposed LUE/UDE to existing land uses and not to the changes in population and employment associated with the potential developments under the current General Plan. It is also important to note that the proposed LUE/UDE is a regulatory document that establishes the framework for growth and development and does not directly result in development. Before development can occur, the 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.

*City of Long Beach Emissions Inventory:* Table 4.2.G summarizes the emissions inventory for the City under the proposed LUE/UDE for the Major Areas of Change. As shown in Table 4.2.G, implementation of the proposed LUE/UDE would result in a decrease in criteria air pollutant emissions from existing conditions. This decrease is based on the difference in vehicle emissions between existing land uses and land uses associated with build out of the proposed LUE/UDE, as well as an estimate of service population in the City in year 2040.

As identified above, emissions associated with the build out of the proposed LUE/UDE may exceed the daily SCAQMD thresholds for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. However, in a cumulative context, emissions would be lower under the Future with Project scenario (refer to Table 4.2.G below) because of the stringent EPA and State of California vehicle emissions standards aimed at reducing vehicle emissions that would be phased in over the life of the project.

Implementation of the proposed LUE/UDE policies would help further reduce air pollutant emissions. Many of these policies 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.

The proposed LUE includes the following Strategies and Policies that would result in a reduction in air emissions:

- **Strategy No. 1:** Support sustainable urban development patterns.

**Table 4.2.G: Build-out Year 2040 City of Long Beach Major Areas of Change Regional Criteria Air Pollutant Emissions Inventory**

Sector	Criteria Air Pollutant Emissions (lbs/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Existing Year 2012</b>						
Transportation (2012 emission factors) <sup>1</sup>	4,265.95	9,090.11	36,209.28	52.23	188.98	179.54
Energy, Residential (natural gas use) <sup>2</sup>	0.12	10.48	4.46	0.07	0.85	0.85
Energy, Commercial + Industrial (natural gas use) <sup>2</sup>	1.05	9.59	8.06	0.06	0.73	0.73
Area, Landscaping/Consumer Products <sup>3</sup>	0.51	0.31	8.08	0.00	0.04	0.04
<b>Existing Forecast Land Uses Total</b>	<b>4,267.64</b>	<b>9,110.50</b>	<b>36,229.88</b>	<b>52.36</b>	<b>190.60</b>	<b>181.16</b>
<b>LUE/UDE Year 2040</b>						
Transportation (2040 emission factors) <sup>1</sup>	1,168.77	2,139.83	8,227.32	42.30	20.09	18.68
Energy, Residential (natural gas use) <sup>2</sup>	1.41	15.67	6.67	0.10	1.27	1.27
Energy, Commercial + Industrial (natural gas use) <sup>2</sup>	0.96	10.45	8.78	0.06	0.79	0.79
Area, Landscaping/Consumer Products <sup>3</sup>	0.55	0.36	8.82	0.00	0.04	0.04
<b>Future with Project Total</b>	<b>1,171.68</b>	<b>2,166.31</b>	<b>8,251.58</b>	<b>42.46</b>	<b>22.19</b>	<b>20.78</b>
<b>Differences in Emissions</b>	<b>-3,096</b>	<b>-6,944</b>	<b>-27,978</b>	<b>-9.90</b>	<b>-168</b>	<b>-160</b>
<b>SCAQMD Regional Significance Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Compiled by LSA Associates, Inc. (2016).

<sup>1</sup> EMFAC2014 based on daily vehicle miles traveled (VMT) provided by LSA Associates, Inc. Transportation sector includes the full trip length for internal-internal trips and 50 percent trip length for external-internal/internal-external trips. VMT per year based on a conversion of VMT × 347 days per year to account for less travel on weekend, consistent with ARB statewide GHG emissions inventory methodology (ARB 2008).

<sup>2</sup> Natural gas usage data provided by City of Long Beach Oil and Gas.

<sup>3</sup> NONROAD emissions estimated based on population for landscaping emissions and employment estimates for light commercial equipment. Estimates were based on population and employment data calculated using a percentage reflective of the City of Long Beach included in the Los Angeles County data included in the SCAG 2016 RTP/SCS. Excludes fugitive emissions from paved and unpaved surfaces and wood-burning fireplaces. 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 because they are subject to further regulation and permitting, they are not considered for purposes of this analysis.

ARB = California Air Resources Board

CO = carbon monoxide

GHG = greenhouse gas

lbs/day = pounds per day

LUE/UDE = Land Use Element/Urban Design Element

NO<sub>x</sub> = nitrogen oxides

PM<sub>10</sub> = particulate matter less than 10 microns in size

PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size

RTP/SCS = Regional Transportation Plan/Sustainable Communities Strategy

SCAG = Southern California Association of Governments

SCAQMD = South Coast Air Quality Management District

SO<sub>x</sub> = sulfur oxides

VOC = volatile organic compound

- **LU Policy 1-1:** Promote sustainable development patterns and development intensities that use land efficiently and accommodate and encourage walking.
- **Strategy No. 10:** Create healthy and sustainable neighborhoods.
- **LU Policy 10-2:** 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 10-5:** Ensure neighborhoods are accessible to open spaces, parks, trails, and recreational programs that encourage physical activity and walkability.

Emissions of criteria pollutants associated with future development consistent with the proposed project would not result in a cumulatively considerable significant impact associated with emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, and O<sub>3</sub> precursors (VOCs, NO<sub>x</sub>, and CO) under the CAAQS as shown in Table 4.2.G.

Future development under the proposed project would also be required to demonstrate compliance with the AQMP, SIP, ARB motor vehicle standards, SCAQMD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and the proposed LUE/UDE project goals and policies. Because implementation of the proposed LUE/UDE would result in a decrease in criteria air pollutant emissions from existing conditions, the cumulative air quality impact associated with the proposed project would be less than significant. No mitigation is required.

**Threshold 4.2.4: Expose sensitive receptors to substantial pollutant concentrations**

**Criteria Pollutants: Less than Significant Impact with Mitigation.** Refer to the analysis provided under Thresholds 4.2.2 and 4.2.3 above for a discussion of potential construction and operational impacts relating to criteria air pollutants. With implementation of Standard Condition AQ-1 and Mitigation Measure AQ-1, the potential emissions impact 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 LUE/UDE would generate fewer criteria air pollutants in the City from area/stationary sources and mobile sources as shown in Table 4.2.G; therefore, the cumulative air quality impact associated with the proposed project would be less than significant.

**TAC Emissions: Potentially Significant Impact.** Despite implementation of Mitigation Measure AQ-2, the potential emissions impact associated with the operation of the proposed project would remain significant and unavoidable.

Various industrial and commercial processes (e.g., manufacturing and dry cleaning) allowed under the proposed LUE/UDE would be expected to release TACs. Industrial land uses (e.g., 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 Major Areas of Change. 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 would be subject to environmental review under CEQA and 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 (SCAQMD 2008a). 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 development projects are required to comply with Assembly Bill (AB) 2588, SCAQMD Rule 1401, and ARB

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.

Because placement of sensitive land uses falls outside ARB jurisdiction, the ARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) 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.

The ARB'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 (Balmes et al. 2009). Children who live near major roadways and freeways have been found to have higher asthma rates and reduced lung function (ARB 2013c). 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 (SCAQMD 2008a). It has been found that outdoor concentrations are highest near roadways and decrease with increasing distance downwind of the source (Zhu et al. 2002). The ARB recommends avoiding siting new sensitive land uses within 500 ft of urban roads with more than 100,000 vehicles per day (ARB 2005).

Table 4.2.H shows a summary of the other ARB 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 ARB 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 (SCAQMD 2014). The other sources of TAC within the City are I-710 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 2016).

If new sensitive receptors were sited within 500 ft of I-710 or I-405 or within the ARB's minimum siting recommendations of other stationary sources, they may be exposed to significant concentrations of air pollutants. As shown in Figure 3.3, Proposed PlaceTypes Map, (Chapter 3.0, Project Description of the Draft EIR) residential land uses would be permitted along I-710; however, the LUE/UDE would not result in any change to residential uses proximate to I-710. Consequently, residential land uses would also be near or adjacent to areas designated for commercial and industrial uses and to existing permitted TAC sources. Thus, new residential and other sensitive developments could be sited within the buffer distances to TAC sources (shown in Table 4.2.H). This is a potentially significant impact, and mitigation measures would be required.

**Table 4.2.H: ARB 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 the ARB 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: ARB (2005).  
 ARB = California Air Resources Board

The proposed LUE includes the following measures that would allow for buffers and other provisions for reducing exposure of sensitive receptors to TAC emissions:

- **Strategy No. 15:** Protect neighborhoods from adverse environmental conditions.
- **LU Policy 15-1:** 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 15-2:** 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 15-3:** Continue to be an advocate for residential neighborhoods that will be adversely affected by major port-related facility expansion projects.
- **LU Policy 15-4:** 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-M-48:** 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 Place Type 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

Goals and policies are included in the proposed General Plan 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 Place Type in the Areas of Change would be used as a buffer between existing industrial and residential neighborhoods. Future industrial developments pursuant to the proposed LUE/UDE are part of larger planning areas designated as Neo-Industrial Place Types with the zoning code of mixed-use development. Specifically, no heavy industrial, warehousing, and distribution facilities are permitted in this land use category within the Major Areas of Change 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. Based on this supportive role, 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 LUE/UDE Areas of Change. 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 proposed Areas of Change.

Future development consistent with the proposed LUE/UDE 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 ARB 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.

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 required to calculate health risk from project implementation. However, since it is not possible to translate the amount of 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. 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 AQ-3 has been identified to ensure that mobile sources of TACs not covered under SCAQMD permits are considered during subsequent project-level environmental review. Mitigation Measure AQ-3 requires the preparation of project-specific technical health risk assessments evaluating operational-related health risk impacts to further ensure that operational-related emissions are reduced to the maximum extent feasible for projects that require environmental evaluation under CEQA. However, unlike construction activities where the extension of construction schedules and/or use of special equipment can be reasonably assumed to be implemented, operational characteristics and the associated emissions cannot be determined at the time of this analysis. With implementation of Mitigation Measure AQ-3, the potential TAC health risk impact associated with the operation of the proposed project would be remain significant and unavoidable.

**Threshold 4.2.5: Create objectionable odors 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 General Plan LUE and UDE would be required to comply with SCAQMD Rule 402, additional measures may be necessary to prevent an odor nuisance.

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 LUE/UDE 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. 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 LUE/UDE that would have the potential to result in nuisance odors, such as new industrial facilities, would be required to comply with these regulations. Therefore, impacts associated with objectionable odors would be less than significant.

#### **4.2.10 Mitigation Measures**

**MM AQ-1** Prior to issuance of any construction permits, future development projects subject to discretionary review shall prepare and submit to the City of Long Beach (City) Department of Development Services Planning Bureau 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:

- 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 (EPA) as having Tier 3 (model year 2006 or newer) or Tier 4 (model year 2008 or newer) emission limits, 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 five consecutive minutes.
- Using Super-Compliant volatile organic compound (VOC) paints for coating of architectural surfaces whenever possible.<sup>1</sup>

#### **MM AQ-2**

Prior to future discretionary project approval, development project applicants shall prepare and submit to the City of Long Beach Department of Development Services 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 Standard Conditions of Approval. Below are possible mitigation measures to reduce long-term emissions:

- 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

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<sup>1</sup> A list of Super-Compliant architectural coating manufacturers can be found on the SCAQMD website at [http://www.aqmd.gov/prdas/brochures/Super-Compliant\\_AIM.pdf](http://www.aqmd.gov/prdas/brochures/Super-Compliant_AIM.pdf).

while parked for loading/unloading in accordance with California Air Resources Board (ARB) Rule 2845 (13 California Code of Regulations [CCR] Chapter 10, Section 2485).

- Site-specific development shall demonstrate that an adequate number of electrical vehicle Level 2 charging stations are provided on site. The location of the electrical outlets shall be specified on building plans, and proper installation shall be verified by the Department of Development Services prior to issuance of a Certificate of Occupancy.

### MM AQ-3

Prior to future discretionary approval for projects that require environmental evaluation under the California Environmental Quality Act (CEQA), the City of Long Beach would evaluate new development proposals for sensitive land uses (e.g., residences, schools, and daycare centers) within the City for potential incompatibilities with regard to the ARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (April 2005). In addition, applicants for siting or expanding sensitive land uses that are within the recommended buffer distances listed in Table 1-1 of the CARB Handbook would submit a Health Risk Assessment (HRA) to the City of Long Beach. The HRA shall be prepared in accordance with the policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the South Coast Air Quality Management District (SCAQMD). The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children. If the HRA shows that the incremental cancer risk and/or non-cancer hazard index exceeds the respective thresholds, as established by the SCAQMD at the time a project is considered, the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and non-cancer risks to an acceptable level (i.e., below the aforementioned thresholds as established by the SCAQMD), including appropriate enforcement mechanisms. Measures to reduce risk may include, but are not limited to, the following:

- Air intakes oriented away from high-volume roadways and/or truck loading zones; and.
- Heating, ventilation, and air conditioning systems of the buildings provided with appropriately sized maximum efficiency rating value filters.

Prior to future discretionary project approval, applicants 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, shall submit an HRA to the Department of Development Services. The HRA shall be prepared in accordance with policies and procedures of the State OEHHA and the SCAQMD. If the HRA shows that the incremental cancer risk and/or non-cancer hazard index exceeds the respective thresholds, as established by the SCAQMD at the time a project is considered, the applicant will be required to identify and demonstrate whether best available control technologies for toxics (T-BACTs), including appropriate enforcement mechanisms, are capable of reducing potential cancer and non-cancer

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.

#### **4.2.11 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<sub>2.5</sub> standard and as a nonattainment area for the State ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> 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 ARB motor vehicle standards, SCAQMD regulations from stationary sources and architectural coatings, Title 24 energy efficiency standards, and the proposed LUE/UDE project 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 (Standard Condition 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 are not considered to cumulatively contribute to the nonattainment designations of the Basin. Implementation of the LUE/UDE would not 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, and emissions generated from the proposed LUE/UDE would not result in a significant cumulative air quality impact.

The proposed project would not result in significant construction or operational impacts from criteria pollutant emissions, contribute to an O<sub>3</sub> or particulate matter exceedance, cause the area to be in noncompliance with the AQMP, or result in a significant health risk to any sensitive receptor. Air quality emissions associated with future development that may occur under the proposed project would be incremental and would not result in cumulatively considerable impacts.

#### **4.2.12 Level of Significance after Mitigation**

The 2012 AQMP does not consider emissions associated with the proposed LUE/UDE. However, once the proposed LUE/UDE is adopted and the AQMP is revised (currently in process), SCAG and SCAQMD will incorporate the growth projections associated with build out of the proposed LUE/UDE in their regional planning projections, and the proposed LUE/UDE would become consistent with the next AQMP. Based on the requirements for consistency with emission control strategies in the AQMP, the LUE/UDE would not conflict with or obstruct the implementation of the AQMP and/or applicable portions of the SIP (Threshold 4.2.1).

While existing City policies and regulations and proposed LUE/UDE goals and policies are intended to minimize impacts associated with nonattainment criteria pollutants, specific BMP measures are included as Standard Conditions imposed by the City, 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. With implementation of Standard Condition AQ-1 and Mitigation Measure AQ-1, the potential construction emissions impact associated with future development facilitated by the proposed project would be less than significant (Threshold 4.2.2).

Because operational characteristics of potential future projects that may be undertaken with implementation of the proposed project and the associated emissions cannot be determined at the time of this analysis, in an abundance of caution, the potential emissions impacts associated with the operation of the proposed project, including the potential health risks to sensitive receptors, would remain significant and unavoidable despite implementation of Mitigation Measures AQ-2 and AQ-3 (Thresholds 4.2.2 and 4.2.4).

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