# 3.1 Air Quality

This section analyzes the air quality impacts that could result from implementation of the Mobility Element Update (MEU; Project). The analysis in this section is based on the existing and buildout traffic vehicle miles traveled (VMT) in the Planning Area (Appendix E) and the California Air Resources Board (CARB) Emissions Factor model (EMFAC2021; CARB 2021), and construction emissions modeling using the California Emissions Estimator Model (CalEEMod; CAPCOA 2022). Modeling data is provided in Appendix C.

## 3.1.1 Existing Conditions

### 3.1.1.1 Environmental Setting

#### Air Basin/ Geographic Setting

The state of California is divided geographically into 15 air basins for managing the air resources of the state on a regional basis. Areas within each air basin share the same air masses and therefore are expected to have similar ambient air quality. The Planning Area is located within the San Diego Air Basin (SDAB). The eastern portion of the SDAB is surrounded by mountains to the north, east, and south. These mountains tend to restrict airflow and concentrate pollutants in the valleys and low-lying areas below.

#### Climate

The project area, like the rest of San Diego County, has a Mediterranean climate characterized by warm, dry summers and mild winters. Long-term measurements at the Oceanside Marina approximately 10 miles north of the Planning Area indicate that winter low temperatures in the City of Encinitas (City) average about 45 degrees Fahrenheit, and summer high temperatures average about 71 degrees Fahrenheit. The average annual precipitation is 10.5 inches, falling primarily from December to March (Western Regional Climate Center 2024).

The dominant meteorological feature affecting the region is the Pacific High-Pressure Zone, which produces the prevailing westerly to northwesterly winds. These winds tend to blow pollutants away from the coast toward the inland areas. Consequently, air quality near the coast is generally better than that at the base of the coastal mountain range.

Fluctuations in the strength and pattern of winds from the Pacific High-Pressure Zone interacting with the daily local cycle produce periodic temperature inversions that influence the dispersal or containment of air pollutants in the SDAB. Beneath the inversion layer, pollutants become “trapped” as their ability to disperse diminishes. The mixing depth is the area under the inversion layer. Generally, the morning inversion layer is lower than the afternoon inversion layer. The greater the change between the morning and afternoon mixing depths, the greater the ability of the atmosphere to disperse pollutants.

The prevailing westerly wind pattern is sometimes interrupted by regional “Santa Ana” conditions. A Santa Ana occurs when a strong high pressure develops over the Nevada/Utah area and overcomes the

prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea.

Strong Santa Anas tend to blow pollutants out over the ocean, producing clear days inland. However, at the onset or during breakdown of these conditions, or if the Santa Ana is weak, local air quality may be adversely affected. In these cases, emissions from the South Coast Air Basin to the north are blown out over the ocean, and low pressure over Baja California, Mexico, draws this pollutant-laden air mass southward. As the high pressure weakens, prevailing northwesterly winds reassert themselves and send this cloud of contamination ashore in the SDAB. When this event occurs, the combination of transported and locally produced contaminants produces the worst air quality measurements recorded in the SDAB.

### 3.1.1.2 Existing Air Quality

#### National and California Ambient Air Quality Standards

Ambient Air Quality Standards (AAQS) represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. Six criteria pollutants of primary concern have been designated: ozone, carbon monoxide (CO), sulfur dioxide ($SO_2$), nitrogen dioxide ($NO_2$), lead (Pb), and respirable particulate matter (particulate matter less than 10 microns [$PM_{10}$] and particulate matter less than 2.5 microns [$PM_{2.5}$]). The U.S. Environmental Protection Agency (U.S. EPA) developed primary and secondary National AAQS (NAAQS). CARB has developed the California AAQS (CAAQS) and generally has set more stringent limits on the criteria pollutants than the NAAQS. The NAAQS and CAAQS are summarized in **Table 3.1-1** (CARB 2016).

**Table 3.1-1 Ambient Air Quality Standards**

| Pollutant | Averaging Time | California Standards[1] | | National Standards[2] | | |
|---|---|---|---|---|---|---|
| | | Concentration[3] | Method[4] | Primary[3,5] | Secondary[3,6] | Method[7] |
| Ozone[8] | 1 Hour | 0.09 ppm (180 µg/m³) | Ultraviolet Photometry | – | Same as Primary Standard | Ultraviolet Photometry |
| | 8 Hour | 0.07 ppm (137 µg/m³) | | 0.070 ppm (137 µg/m³) | | |
| Respirable Particulate Matter ($PM_{10}$)[9] | 24 Hour | 50 µg/m³ | Gravimetric or Beta Attenuation | 150 µg/m³ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 20 µg/m³ | | – | | |
| Fine Particulate Matter ($PM_{2.5}$)[9] | 24 Hour | No Separate State Standard | | 35 µg/m³ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 12 µg/m³ | Gravimetric or Beta Attenuation | 12 µg/m³ | 15 µg/m³ | |

**Table 3.1-1 Ambient Air Quality Standards**

| Pollutant | Averaging Time | California Standards[1] | | National Standards[2] | | |
|---|---|---|---|---|---|---|
| | | Concentration[3] | Method[4] | Primary[3,5] | Secondary[3,6] | Method[7] |
| Carbon Monoxide (CO) | 1 Hour | 20 ppm (23 mg/m$^3$) | Non-dispersive Infrared Photometry | 35 ppm (40 mg/m$^3$) | – | Non-dispersive Infrared Photometry |
| | 8 Hour | 9.0 ppm (10 mg/m$^3$) | | 9 ppm (10 mg/m$^3$) | – | |
| | 8 Hour (Lake Tahoe) | 6 ppm (7 mg/m$^3$) | | – | – | |
| Nitrogen Dioxide ($NO_2$)[10] | 1 Hour | 0.18 ppm (339 µg/m$^3$) | Gas Phase Chemi-luminescence | 100 ppb (188 µg/m$^3$) | – | Gas Phase Chemi-luminescence |
| | Annual Arithmetic Mean | 0.030 ppm (57 µg/m$^3$) | | 0.053 ppm (100 µg/m$^3$) | Same as Primary Standard | |
| Sulfur Dioxide ($SO_2$)[11] | 1 Hour | 0.25 ppm (655 µg/m$^3$) | Ultraviolet Fluorescence | 75 ppb (196 µg/m$^3$) | – | Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method) |
| | 3 Hour | – | | – | 0.5 ppm (1,300 µg/m$^3$) | |
| | 24 Hour | 0.04 ppm (105 µg/m$^3$) | | 0.14 ppm (for certain areas)[11] | – | |
| | Annual Arithmetic Mean | – | | 0.030 ppm (for certain areas)[11] | – | |
| Lead[12,13] | 30 Day Average | 1.5 µg/m$^3$ | Atomic Absorption | – | – | High Volume Sampler and Atomic Absorption |
| | Calendar Quarter | – | | 1.5 µg/m$^3$ (for certain areas)[12] | Same as Primary Standard | |
| | Rolling 3-Month Average | – | | 0.15 µg/m$^3$ | | |

**Table 3.1-1 Ambient Air Quality Standards**

| Pollutant | Averaging Time | California Standards[1] | | National Standards[2] | | |
|---|---|---|---|---|---|---|
| | | Concentration[3] | Method[4] | Primary[3,5] | Secondary[3,6] | Method[7] |
| Visibility-Reducing Particles[14] | 8 Hour | See footnote 14 | Beta Attenuation and Transmittance through Filter Tape | No National Standards | | |
| Sulfates | 24 Hour | 25 µg/m$^3$ | Ion Chromatography | | | |
| Hydrogen Sulfide | 1 Hour | 0.03 ppm (42 µg/m$^3$) | Ultraviolet Fluorescence | | | |
| Vinyl Chloride[12] | 24 Hour | 0.01 ppm (26 µg/m$^3$) | Gas Chromatography | | | |

mg/m$^3$; $PM_{10}$ = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 10 microns; ppb = parts per billion; ppm = parts per million; µg/m$^3$ = micrograms per cubic meter; – = not applicable.

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

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

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

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

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

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

7 Reference method as described by the U.S. 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 U.S. EPA.

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

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

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

**Table 3.1-1 Ambient Air Quality Standards**

| Pollutant | Averaging Time | California Standards[1] | | National Standards[2] | | |
|---|---|---|---|---|---|---|
| | | Concentration[3] | Method[4] | Primary[3,5] | Secondary[3,6] | Method[7] |

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

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 standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

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

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

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

Source: CARB 2016.

## Air Quality Measurements

Air quality at a particular location is a function of the kinds, amounts, and dispersal rates of pollutants being emitted into the air locally and throughout the basin. The major factors affecting pollutant dispersion are wind speed and direction, the vertical dispersion of pollutants (which is affected by inversions), and the local topography.

Air quality is commonly expressed as the number of days on which air pollution levels exceed state standards set by CARB or federal standards set by the U.S. EPA. The San Diego Air Pollution Control District (SDAPCD) maintains 10 air quality monitoring stations located throughout the greater San Diego metropolitan region. Air pollutant concentrations and meteorological information are continuously recorded at these stations. Scientists then use these measurements to help forecast daily air pollution levels.

The two closest monitoring stations to the Planning Area are the San Diego – Rancho Carmel Drive monitoring station, located at 11403 Rancho Carmel Drive approximately 9 miles southeast of the Planning Area, and the Camp Pendleton monitoring station located at 21441 West B Street approximately 11 miles north of the Planning Area. The San Diego – Rancho Carmel Drive station measures $NO_2$ and $PM_{2.5}$, and the Camp Pendleton station measures ozone, $NO_2$, and $PM_{2.5}$. **Table 3.1-2** provides a summary of measurements collected at these monitoring stations for the years 2020 through 2022.

**Table 3.1-2 Summary of Air Quality Measurements Recorded at the San Diego – Rancho Carmel Drive and Camp Pendleton Air Quality Monitoring Stations**

| Pollutant/Standard | 2020 | 2021 | 2022 |
|---|---|---|---|
| San Diego – Rancho Carmel Drive Monitoring Station | | | |
| Nitrogen Dioxide | | | |
| Maximum 1-hour (ppm) | 0.054 | 0.054 | 0.056 |
| Days State 1-hour Standard Exceeded (0.18 ppm) | 0 | 0 | 0 |
| Days Federal 1-hour Standard Exceeded (0.100 ppm) | 0 | 0 | 0 |
| Annual Average (ppm) | 0.014 | 0.013 | 0.015 |
| $PM_{2.5}$[1] | | | |
| Federal Max. Daily (µg/m$^3$) | 40.2 | 23.5 | 14.9 |
| Measured Days Federal 24-hour Standard Exceeded (35 µg/m$^3$) | 1 | 0 | 0 |
| Calculated Days Federal 24-hour Standard Exceeded (35 µg/m$^3$) | 3.0 | 0.0 | 0.0 |
| Federal Annual Average (µg/m$^3$) | 9.2 | 8.5 | 7.6 |
| State Max. Daily (µg/m$^3$) | -- | -- | -- |
| State Annual Average (µg/m$^3$) | -- | -- | -- |
| Camp Pendleton Monitoring Station | | | |
| Ozone | | | |
| Federal Maximum 8-hour (ppm) | 0.074 | 0.059 | 0.067 |
| Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm) | 0 | 0 | 0 |
| Days 2015 Federal 8-hour Standard Exceeded (0.070 ppm) | 3 | 0 | 0 |
| State Maximum 8-hour (ppm) | 0.074 | 0.059 | 0.067 |
| Days State 8-hour Standard Exceeded (0.07 ppm) | 3 | 0 | 0 |
| Maximum 1-hour (ppm) | 0.094 | 0.074 | 0.076 |
| Days State 1-hour Standard Exceeded (0.09 ppm) | 0 | 0 | 0 |
| Nitrogen Dioxide | | | |
| Maximum 1-hour (ppm) | 0.058 | 0.059 | 0.0504 |
| Days State 1-hour Standard Exceeded (0.18 ppm) | 0 | 0 | 0 |
| Days Federal 1-hour Standard Exceeded (0.100 ppm) | 0 | 0 | 0 |
| Annual Average (ppm) | 0.006 | -- | 0.005 |
| $PM_{2.5}$[1] | | | |
| Federal Maximum Daily (µg/m$^3$) | -- | -- | 18.0 |
| Measured Days Federal 24-hour Standard Exceeded (35 µg/m$^3$) | -- | -- | -- |
| Calculated Days Federal 24-hour Standard Exceeded (35 µg/m$^3$) | -- | -- | -- |
| Federal Annual Average (µg/m$^3$) | -- | -- | -- |
| State Max. Daily (µg/m$^3$) | 61.1 | 20.7 | 17.7 |
| State Annual Average (µg/m$^3$) | 9.5 | -- | -- |

Source: CARB 2024.

PM2.5 = particulate matter less than 2.5 microns; ppm = parts per million; mg/m3 = micrograms per cubic meter; -- = Not available.

* Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

**Ozone**

Oxides of nitrogen ($NO_X$) and hydrocarbons (reactive organic gases [ROG]) are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone, which is the primary air pollutant problem in the SDAB. Because sunlight plays such an important role in its formation, ozone pollution—or smog—is mainly a concern during the daytime in summer months.

The SDAB is currently designated a federal and state non-attainment area for ozone. During the past 25 years, San Diego experienced a decline in the number of days with unhealthy levels of ozone despite the region's growth in population and vehicle miles traveled. About half of smog-forming emissions in San Diego come from automobiles. Population growth in San Diego has resulted in a large increase in the number of automobiles expelling ozone-forming pollutants. In addition, the occasional transport of smog-filled air from the South Coast Air Basin only adds to the SDAB's ozone problem. During the past 25 years, however, San Diego has experienced a decline in the number of days with unhealthy levels of ozone despite the region's growth in population and vehicle miles traveled. This decrease is largely due to stricter automobile emission controls, including more efficient automobile engines.

To address adverse health effects due to prolonged ozone exposure, the U.S. EPA phased out the national 1-hour ozone standard and replaced it with the more protective 8-hour ozone standard. The SDAB is currently a non-attainment area for the previous (1997) national 8-hour standard and is recommended as a non-attainment area for the revised (2008) national 8-hour standard of 0.075 parts per million.

Not all ozone within the SDAB is derived from local sources. As explained above, under certain meteorological conditions, such as during Santa Ana wind events, ozone and other pollutants are transported from the Los Angeles Basin and combine with ozone formed from local emission sources to produce elevated ozone levels in the SDAB.

Local agencies can control neither the source nor the transportation of pollutants from outside the air basin. Therefore, the SDAPCD's policy has been to control local sources effectively enough to reduce locally produced contamination to clean air standards. Through the use of air pollution control measures outlined in the Regional Air Quality Standards (RAQS), the SDAPCD has effectively reduced ozone levels in the SDAB.

Actions that have been taken in the SDAB to reduce ozone concentrations include:

- **Transportation Control Measures (TCMs) if vehicle travel and emissions exceed attainment demonstration levels.** TCMs are strategies that will reduce transportation-related emissions by reducing vehicle use or improving traffic flow.
- **Enhanced motor vehicle inspection and maintenance program.** The smog check program is overseen by the Bureau of Automotive Repair. The program requires most vehicles to pass a smog test once every two years before registering in the state of California. The smog check program monitors the amount of pollutants that automobiles produce. One focus of the program is identifying "gross polluters," or vehicles that exceed twice the allowable emissions for a particular model. Regular maintenance and tune-ups, changing the oil, and checking tire

inflation can improve gas mileage and lower air pollutant emissions. It can also reduce traffic congestion due to preventable breakdowns, further lowering emissions.

- **Air Quality Improvement Program.** This program, established by Assembly Bill (AB) 118, is a voluntary incentive program administered by CARB to fund clean vehicle and equipment projects, research on biofuels production and the air quality impacts of alternative fuels, and workforce training.

**Carbon Monoxide**

The SDAB is classified as a state attainment area and as a federal maintenance area for CO. Until 2003, no violations of the state standard for CO had been recorded in the SDAB since 1991, and no violations of the national standard had been recorded in the SDAB since 1989. The violations that took place in 2003 were likely the result of massive wildfires that occurred throughout the county. No violations of the state or federal CO standards have occurred since 2003.

Small-scale, localized concentrations of CO above the state and national standards have the potential to occur at intersections with stagnation points such as those that occur on major highways and heavily traveled and congested roadways. Localized high concentrations of CO are referred to as "CO hot spots" and are a concern at congested intersections, where automobile engines burn fuel less efficiently and their exhaust contains more CO.

**Particulate Matter**

Particulate matter is a complex mixture of microscopic solid or liquid particles, including chemicals, soot, and dust. Anthropogenic sources of direct particulate emissions include crushing or grinding operations, dust stirred up by vehicle traffic, and combustion sources such as motor vehicles, power plants, wood burning, forest fires, agricultural burning, and industrial processes. Additionally, indirect emissions may be formed when aerosols react with compounds found in the atmosphere.

Health studies have shown a significant association between exposure to particulate matter and premature death in people with heart or lung diseases. Other important effects include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and irregular heartbeat (U.S. EPA 2024).

As its properties vary based on the size of suspended particles, particulate matter is generally categorized as $PM_{10}$ or $PM_{2.5}$. $PM_{10}$, occasionally referred to as "inhalable coarse particles," has an aerodynamic diameter of about one-seventh of the diameter of a human hair. High concentrations of $PM_{10}$ are often found near roadways, construction, mining, or agricultural operations. $PM_{2.5}$, occasionally referred to as "inhalable fine particles" has an aerodynamic diameter of about one-thirtieth of the diameter of a human hair. $PM_{2.5}$ is the main cause of haze in many parts of the United Staes. Federal standards applicable to $PM_{2.5}$ were first adopted in 1997.

**Other Criteria Pollutants**
The national and state standards for $NO_2$, oxides of sulfur ($SO_X$), and the previous standard for lead are being met in the SDAB, and the latest pollutant trends suggest that these standards will not be exceeded in the foreseeable future. As discussed above, new standards for these pollutants have been adopted, and new designations for the SDAB will be determined in the future. The SDAB is also in attainment of the state standards for vinyl chloride, hydrogen sulfides, sulfates, and visibility-reducing particulates.

## 3.1.2 Regulatory Framework

### 3.1.2.1 Federal

The federal Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 United States Code (USC) 7401] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, to achieve the purposes of Section 109 of the CAA [42 USC 7409], the U.S. EPA developed primary and secondary NAAQS. The primary NAAQS ". . . in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health . . . " and the secondary standards ". . . protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" [42 USC 7409(b)(2)]. The primary NAAQS were established, with a margin of safety, considering long-term exposure for the most sensitive groups in the general population (i.e., children, senior citizens, and people with breathing difficulties).

An air basin is designated as either attainment or non-attainment for a particular pollutant. Once a non-attainment area has achieved the AAQS for a particular pollutant, it is redesignated as an attainment area for that pollutant. To be redesignated, the area must meet air quality standards for three consecutive years. After redesignation to attainment, the area is known as a maintenance area and must develop a 10-year plan for continuing to meet and maintain air quality standards, as well as satisfy other requirements of the federal CAA. The SDAB is a non-attainment area for the federal ozone standard.

### 3.1.2.2 State

#### Criteria Pollutants

As discussed, CARB has developed the CAAQS and generally has set more stringent limits on the criteria pollutants than the NAAQS. In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride (see Table 3.1-1). Similar to the federal CAA, the state classifies as either "attainment" or "non-attainment" areas for each pollutant based on the comparison of measured data with the CAAQS. The SDAB is a non-attainment area for the state ozone standards, the state $PM_{10}$ standard, and the state $PM_{2.5}$ standard.

#### State Implementation Plan

The State Implementation Plan (SIP) is a collection of documents that set forth the state's strategies for achieving the NAAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (such as air quality management plans, monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. CARB is the lead agency for all purposes related to the SIP under

state law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. All the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

The SDAPCD is responsible for preparing and implementing the portion of the SIP that applies to the SDAB. The SIP plans for San Diego County specifically include the Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County (2012), and the 2004 Revision to the California State Implementation Plan for Carbon Monoxide – Updated Maintenance Plan for Ten Federal Planning Areas.

### Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. Diesel-exhaust particulate matter (DPM) emissions have been established as TACs. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (AB 1807: Health and Safety Code Sections 39650–39674). The Legislature established a two-step process to address the potential health effects of TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California Air Toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air.

The goals of the Air Toxics "Hot Spots" Act are to collect emission data, identify facilities having localized impacts, to ascertain health risks, notify nearby residents of significant risks, and reduce those significant risks to acceptable levels.

The Children's Environmental Health Protection Act, California Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air monitoring network, and develop any additional air toxic control measures needed to protect children's health. Locally, toxic air pollutants are regulated through the SDAPCD's Regulation XII. Of particular concern statewide are DPM emissions. DPM was established as a TAC in 1998 and is estimated to represent a majority of the cancer risk from TACs statewide (based on the statewide average). Diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants program.

Following the identification of DPM as a TAC in 1998, CARB has worked on developing strategies and regulations aimed at reducing the risk from DPM. The overall strategy for achieving these reductions is found in the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (CARB 2000). A stated goal of the plan is to reduce the statewide cancer risk arising from exposure to DPM by 85 percent by 2020. To monitor the effectiveness of these efforts, CARB has supported field campaigns that measure real-world emissions from heavy-duty vehicles, and results indicate that regulations aimed at reducing emissions of DPM have been successful.

In April 2005, CARB published the Air Quality and Land Use Handbook: A Community Health Perspective (CARB 2005). The handbook makes recommendations directed at protecting sensitive land uses from air pollutant emissions while balancing a myriad of other land use issues (housing, transportation needs, economics, etc.). It notes that the CARB Handbook is not regulatory or binding on local agencies and recognizes that application takes a qualitative approach. As reflected in the CARB Handbook, there is currently no adopted standard for the significance of health effects from mobile sources. Therefore, CARB has provided guidelines for the siting of land uses near heavily traveled roadways. Of pertinence to this study, the CARB guidelines indicate that siting new sensitive land uses within 500 feet of a freeway or urban roads with 100,000 or more vehicles per day should be avoided when possible.

As an ongoing process, CARB will continue to establish new programs and regulations for the control of diesel particulate and other air-toxics emissions as appropriate. The continued development and implementation of these programs and policies will ensure that the public's exposure to DPM will continue to decline.

### 3.1.2.3 Local

#### San Diego Air Pollution Control District

The SDAPCD is the agency that regulates air quality in the SDAB. The SDAPCD prepared the RAQS in response to the requirements set forth in the California CAA AB 2595 (SDAPCD 1992) and the federal CAA. Motor vehicles are San Diego County's leading source of air pollution. In addition to these sources, other mobile sources include construction equipment, trains, and airplanes. Reducing mobile-source emissions requires the technological improvement of existing mobile sources and the examination of future mobile sources, such as those associated with new or modification projects (e.g., retrofitting older vehicles with cleaner emission technologies). In addition to mobile sources, stationary sources also contribute to air pollution in the SDAB. Stationary sources include gasoline stations, power plants, dry cleaners, and other commercial and industrial uses. Stationary sources of air pollution are regulated by the local air pollution control or management district—in this case, the SDAPCD.

The SDAPCD is responsible for preparing and implementing the RAQS. As part of the RAQS, the SDAPCD developed TCMs for the air quality plan prepared by the San Diego Association of Governments (SANDAG) in accordance with AB 2595 and adopted by SANDAG on March 27, 1992, as Resolution Number 92-49 and Addendum. The RAQS and TCM set forth the steps needed to accomplish attainment of NAAQS and CAAQS. The RAQS and corresponding TCM are updated periodically. The most recent 2022 RAQS was adopted in 2023.

## General Plan/ Local Coastal Program

The General Plan is the primary source of long-range planning and policy direction used to guide growth and preserve the quality of life in the City. The General Plan states that a goal of the City is to analyze proposed land uses to ensure that the designations would contribute to a proper balance of land uses within the community. The relevant goals and policies of the General Plan are included in the existing Circulation Element and Resource Management Element. As the MEU would replace the existing Circulation Element, only the greenhouse-gas-related goal and policies provided in the Resource Management Element are discussed. They include the following (City of Encinitas 1989):

Resource Management Element

- Goal 1: The City will conserve, protect, and enhance the water resources in the Planning Area.
    - Policy 1.1: Require new development to utilize measures designed to conserve water in their construction.
    - Policy 1.10: Promote the use of water efficient sprinkling and gardening systems to include ordinances and technology to encourage drought tolerant plants.
- Goal 6: The City will make every effort to reduce the amount of solid and liquid waste generated in the Planning Area and will identify ways to responsibly deal with these wastes.
    - Policy 6.1: The City will phase in all practical forms of mandatory recycling as soon as possible.
    - Policy 6.2: The City will contract only with waste haulers who will willingly cooperate with the City's recycling effort.
- Goal 9: The City will encourage the abundant use of natural and drought tolerant landscaping in new development and preserve natural vegetation, as much as possible, in undeveloped areas.
    - Policy 9.4: Encourage and adopt standards for the use of drought tolerant and/ or natural landscaping and efficient irrigation systems throughout the City.
- Goal 15: The City will make every effort to conserve energy in the City thus reducing our dependence on fossil fuels.
    - Policy 15.1: The City will encourage the use of alternate energy systems, including passive solar and architectural and mechanical systems, in both commercial and residential development.
    - Policy 15.2: The patterns of proposed subdivisions and the orientation and design of structures on lots shall be designed with the objective of maximizing the opportunities for solar energy use and energy conservation.
    - Policy 15.3: Energy conserving construction standards and requirements shall be enforced in the field inspection of new construction.

The City has also adopted a Local Coastal Program that consists of a Land Use Plan and an Implementation Plan (City of Encinitas 1995). The Land Use Plan includes issues and policies related to the requirements of the Coastal Act. The Implementation plan consists of portions of the City's Municipal Code and the City's various Specific Plan areas, including the Cardiff-by-the-Sea Specific

Plan, Encinitas Downtown Specific Plan, Encinitas North 101 Corridor Specific Plan, and Encinitas Ranch Specific Plan. The Specific Plans refer to the General Plan goals and policies.

## 3.1.3 Significance Determination Thresholds

Thresholds used to evaluate impacts to air quality are based on applicable criteria in the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations [CCR] Sections 15000-15387), Appendix G.

A significant impact to air quality would occur if the project would:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
3. Expose sensitive receptors to substantial pollutant concentrations; or
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The City has not adopted air quality significance thresholds. The SDAPCD also does not provide specific numeric thresholds for determining the significance of air quality impacts under CEQA. However, the SDAPCD does specify Air Quality Impact Analysis (AQIA) trigger levels for new or modified stationary sources (SDAPCD Rules 20.1, 20.2, and 20.3). The SDAPCD does not consider these trigger levels to represent adverse air quality impacts, rather, if these trigger levels are exceeded by a project, the SDAPCD requires an air quality analysis to determine if a significant air quality impact would occur. While, these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels are used to evaluate the increased emissions that would be discharged to the SDAB if the project were approved. The air quality impact screening levels used in this analysis are shown in **Table 3.1-3**.

**Table 3.1-3 Air Quality Impact Screening Levels**

| Pollutant | Emission Rate | | |
|---|---|---|---|
| | Pounds/Hour | Pounds/Day | Tons/Year |
| $NO_X$ | 25 | 250 | 40 |
| $SO_X$ | 25 | 250 | 40 |
| CO | 100 | 550 | 100 |
| $PM_{10}$ | -- | 100 | 15 |
| Lead | -- | 3.2 | 0.6 |
| VOC, ROG[1] | -- | 250 | -- |
| $PM_{2.5}$ | -- | 67 | 10 |

CO = carbon monoxide; NOX = oxides of nitrogen; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns; ROG = reactive organic gases; SOX = oxides of sulfur; VOC = volatile organic compounds;
Source: SDAPCD, Rules 20.1, 20.2, 20.3.

[1] ROG threshold based on federal General Conformity de minimis levels for ozone precursors.

## 3.1.4 Methodology

### 3.1.4.1 Construction Emissions

Construction-related activities are temporary, short-term sources of air emissions. Sources of construction-related air emissions include the following:

- Fugitive dust from earth moving/excavation activities
- Construction equipment exhaust
- Construction-related trips by workers, delivery trucks, and material-hauling trucks
- Construction-related power consumption

The Project would provide a long-term blueprint that guides transportation decision making, plans for diverse modes and mobility options, envisions future mobility improvements, and includes updated goals, policies, and multimodal networks. The Project would revise the City's existing Circulation Element policies to account for changes made to state law with the recent development of several mode-specific, strategic, community and neighborhood plans to create one, cohesive mobility framework. As the Project is a planning-level document, no specific construction activities are proposed at this time. Construction activities that could occur to implement the mobility network proposed as part of the MEU could include, but are not limited to:

- Roadway improvements such as paving and restriping
- Facilities to support public transit (such as bus lanes, transit priority signal systems, managed curb space, passenger shelters, and transportation kiosks)
- Facilities to support bicycle and micromobility (such as multi-use paths, lanes, signals, loop detectors, parking, and other infrastructure and operational accommodations),
- Facilities to support pedestrian travel such as crossings, signals, sidewalks, paths, plazas, furniture, signage, and landscaping
- Other mobility-related improvement projects

Air pollutants generated by future mobility projects within the Planning Area would vary depending on the number of projects occurring simultaneously and the size of each project.

The exact number and timing of all mobility projects that could occur under buildout of the MEU are unknown. Therefore, construction-related emissions cannot be accurately determined at the program level of analysis. However, construction-related criteria pollutant emissions are dependent on the type and amount of construction equipment; the number of worker, hauling, and delivery trips; and the amount of land disturbed per day. General construction emissions from these sources were calculated to illustrate the potential construction-related air quality impacts that could occur. Based on emissions estimates for similar types of mobility projects, it was assumed that a maximum construction envelope associated with the MEU could include a 5-acre project area with up to eight pieces of heavy-duty construction equipment operating simultaneously for 8 hours per day, 25 hauling and delivery truck

trips, and 15 worker commute trips. For general excavation/construction/installation activities, two excavators, three tractors/loaders/backhoes, one dozer, and one grader were modeled. This is based on CalEEMod default equipment for grading of a 5-acre site with the addition of two excavators. For general paving activities, two cement and mortar mixers, a paver, two rollers, a tractor/loader/backhoe, and two pieces of paving equipment were modeled. This is based on CalEEMod default equipment for the paving of a 5-acre site. Potential construction emissions were calculated using the CalEEMod Version 2022.1 (CAPCOA 2022). CalEEMod output is provided in Appendix C. Although the exact type of construction activity is not known at this level of analysis, this modeled construction scenario is representative of a wide range of construction activities that could occur if the Project were implemented.

### 3.1.4.2 Mobile Emissions

Vehicle traffic is the main source of emissions in the Planning Area. Regional mobile-source emissions were estimated based on EMFAC2021 (CARB 2021, Appendix C) and the VMT for the Planning Area (Appendix D). The existing year 2016 baseline condition is 1,441,692 VMT. The future year 2050 condition without adoption of the MEU is 1,730,272 VMT. The future year 2050 condition with adoption of the MEU is 1,727,015 VMT. Mobile-source emissions were calculated using EMFAC2021 year 2016 emission factors for the existing baseline condition and year 2050 emission factors for the year 2050 buildout conditions. EMFAC2021 calculation data as well as VMT data used in preparation of the Traffic Impact Analysis Report is provided in Appendix B.

### 3.1.4.3 Other Sources of Emissions

The Project would not result in the development of any new or altered land uses in the Planning Area. Therefore, other sources of operational emissions that are typically associated with land use development projects, including consumer products, architectural coatings, and energy sources, such as the combustion of natural gas, are not considered in the analysis. Any emissions associated with landscaping equipment from additional tree planting or from pavement restriping during implementation of mobility projects would be negligible and would not be significantly different than existing landscaping and roadway work in the Planning Area and are therefore not included in this analysis.

## 3.1.5 Issue 1: Plan Consistency

### 3.1.5.1 Impacts

Project consistency with applicable plans is based on whether a project would conflict with or obstruct implementation of the RAQS and/or applicable portions of the SIP, which would lead to increases in the frequency or severity of existing air quality violations. The RAQS are the applicable regional air quality plan that sets forth the SDAPCD's strategies for achieving the NAAQS and CAAQS. The SDAB is designated a non-attainment area for the federal and state ozone standard. Accordingly, the RAQS were developed to identify feasible emission control measures and provide expeditious progress toward attaining the standards for ozone. The two pollutants addressed in the RAQS are ROG and $NO_X$, which are precursors to the formation of ozone. Projected increases in motor vehicle usage, population, and growth create challenges in controlling emissions and, by extension, in maintaining and improving air quality. The RAQS were most recently updated in 2022.

The growth projections used by the SDAPCD to develop the RAQS emissions budgets are based on the population, vehicle trends, and land use plans developed in general plans and used by the SANDAG in developing the regional transportation plans and sustainable communities' strategy. As such, projects that propose development that is consistent with the growth anticipated by SANDAG's and/or the General Plan would not conflict with the RAQS. If a project would propose development that is less dense than anticipated by the growth projections, the project would likewise be consistent with the RAQS. In the event a project proposes development that is greater than anticipated in the growth projections, further analysis would be warranted to determine if the project would exceed the growth projections used in the RAQS for the specific subregional area.

The MEU would provide a long-term blueprint that guides transportation decision making, plans for diverse modes and mobility options, envisions future mobility improvements, and includes updated goals, policies, and multimodal networks. Development that could occur as a result of Project implementation could include roadway improvements such as paving and restriping; facilities to support public transit (such as bus lanes, transit priority signal systems, managed curb space, passenger shelters, and transportation kiosks); facilities to support bicycle and micromobility (such as multi-use paths, lanes, signals, loop detectors, parking, and other infrastructure and operational accommodations); and facilities to support pedestrian travel such as crossings, signals, sidewalks, paths, plazas, furniture, signage, and landscaping. The Project would not change any of the land use or zoning designations within the Planning Area to allow for increased density or unplanned development and thus would not result in an increase in SANDAG's growth projections. Additionally, the MEU contains goals and policies to reduce congestion, thereby improving air quality, and would result in a decrease in VMT. Therefore, the Project would not obstruct or conflict with implementation of the RAQS, and impacts would be less than significant.

### 3.1.5.2 Significance of Impacts

The Project would be consistent with the SANDAG growth projections used to develop the RAQS. Additionally, the MEU contains goals and policies to reduce congestion, thereby improving air quality, and would result in a decrease in VMT. Therefore, the Project would not obstruct or conflict with implementation of the RAQS, and impacts would be less than significant.

### 3.1.5.3 Mitigation Measures

Impacts would be less than significant. No mitigation is required.

## 3.1.6 Issue 2: Criteria Pollutants

### 3.1.6.1 Impacts

The region is classified as an attainment area for all criterion pollutants except ozone, $PM_{10}$, and $PM_{2.5}$. The SDAB is a non-attainment area for the 8-hour federal and state ozone standards. Ozone is not emitted directly but is a result of atmospheric activity on precursors. $NO_X$ and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. $PM_{2.5}$ includes fine particles that are found in smoke and haze and are emitted from all types of combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes. $PM_{10}$ includes both fine and coarse dust particles, and sources include crushing or grinding operations and dust from paved or unpaved roads.

Air quality impacts can result from the construction and operation of a project, which results in emissions above air quality standards. Construction impacts are short term and result from fugitive dust, equipment exhaust, and indirect effects associated with construction workers and deliveries. Operational impacts can occur on two levels: regional impacts resulting from development, or local effects stemming from sensitive receivers being placed close to roadways or stationary sources.

Development that could occur as a result of Project implementation could include roadway improvements such as paving and restriping; facilities to support public transit (such as bus lanes, transit priority signal systems, managed curb space, passenger shelters, and transportation kiosks); facilities to support bicycle and micromobility (such as multi-use paths, lanes, signals, loop detectors, parking, and other infrastructure and operational accommodations); and facilities to support pedestrian travel such as crossings, signals, sidewalks, paths, plazas, furniture, signage, and landscaping.

### Construction

Potential construction-related emissions were calculated using the parameters discussed in Section 3.1.4.1. Construction emissions associated with general excavation/construction/installation activities and with paving activities are summarized in **Table 3.1-4**. CalEEMod output is provided in Appendix C. As discussed in Section 3.1.4.1, this modeled construction scenario is representative of a wide range of construction activities that could occur under project implementation.

As shown in **Table 3.1-4**, maximum representative construction emissions associated with mobility network–related improvements would be less than the applicable thresholds for all criteria pollutants, and impacts would be less than significant.

**Table 3.1-4 Summary of Maximum Construction Emissions (pounds per day)**

| | Pollutant | | | | | |
|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Excavation/Construction/Installation | 2.01 | 18.94 | 20.94 | 0.04 | 4.10 | 2.19 |
| Paving | 1.63 | 9.55 | 12.63 | 0.02 | 0.93 | 0.48 |
| Significance Threshold (pounds/day) | 250 | 250 | 550 | 250 | 100 | 67 |
| Significant Impact? | No | No | No | No | No | No |

CO = carbon monoxide; $NO_X$ = oxides of nitrogen;; $PM_{10}$ = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; ROG = reactive organic gases; $SO_2$ = sulfur dioxide

Source: Appendix C

As shown in **Table 3.1-4**, maximum representative construction emissions associated with mobility network–related improvements would be less than the applicable thresholds for all criteria pollutants, and impacts would be less than significant.

The significance thresholds are based on the SDAPCD AQIA trigger level thresholds to align with attainment of the NAAQS and be protective of public health. Thus, air quality emissions below the significance thresholds would meet the NAAQS. The NAAQS were developed to protect public health,

specifically the health of "sensitive" populations, including asthmatics, children, and the elderly. These standards are continuously updated based on evolving research, including research which relates air quality impacts with health effects (City of Los Angeles 2019). Consequently, as construction emissions would be less than the applicable thresholds, construction activities would not impact any sensitive populations.

All projects would be required to adhere to all existing regulations during construction to protect air quality, including both SDAPCD rules and regulations and existing state regulations. These include, but are not limited to, the following:

- The California Airborne Toxics Control Measure (CCR Title 13, Section 2485) requires that construction contractors minimize equipment idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes.
- SDAPCD Rule 50 (Visible Emissions) prohibits the discharge of any air contaminant other than uncombined water vapor for a period aggregating more than 3 minutes in any 60-minute period that is of a certain opacity specified in the rule. This regulation addresses diesel emissions associated with diesel pile driving, asphalt paving, and other activities that can result in visible emissions.
- SDAPCD Rule 51 (Nuisance) prohibits discharge of air contaminants or other materials that cause injury, detriment, nuisance, or annoyance to a considerable number of persons or that endanger the comfort, repose, health, or safety of such persons or cause injury or damage to business or property.
- SDAPCD Rule 52 (Particulate Matter) prohibits discharge of particulate matter in excess of 0.10 grain per dry standard cubic foot (0.23 grams per dry standard cubic meter) of gas.
- SDAPCD Rule 54 (Dust and Fumes) prohibits discharge of specified quantities of pollutants into the atmosphere within any single hour, including lead and lead compounds, as specified in the regulation.
- SDAPCD Rule 55 (Fugitive Dust Control) prohibits airborne dust beyond the property line for a period aggregating more than 3 minutes in any 60-minute period. This is typically achieved by watering during grading activities, installing erosion control measures and track-out grates or gravel beds and egress points to prevent dirt "track out" onto streets, using soil stabilizers, mulching, or seeding, in addition to other measures.
- SDAPCD Rule 67.0.1 (Architectural Coatings) establishes volatile organic compounds limits for architectural coatings that are produced, sold, or applied within San Diego County.

The exact number and timing of projects that could occur simultaneous with other development within the City is unknown. Air quality impacts are basin-wide, and air quality is affected by all pollutant sources in the basin. As the individual project thresholds are designed to help achieve attainment with cumulative basin-wide standards, they are also appropriate for assessing the project's contribution to cumulative impacts. Therefore, because emissions for a typical network improvement would be less than the individual project-level thresholds, and because all projects are required to adhere to existing regulations, construction of a typical mobility element improvement project would not result in a

cumulatively considerable net increase of any non-attainment criteria pollutant, and impacts related to construction emissions would be less than significant.

### Operation

Mobile-source emissions associated with the baseline year 2016 condition and the future year 2050 condition without and with project implementation were calculated using EMFAC2021. Model inputs assumed year 2016 and year 2050 vehicle emission factors and the VMT associated with each scenario as discussed in Section 3.1.4.2. The model results are summarized in **Table 3.1-5** and EMFAC2021 calculations are provided in Appendix C.

**Table 3.1-5 Mobile-Source Emissions (pounds per day)**

| Modeled Scenario | VMT | Pollutant | | | | | |
|---|---|---|---|---|---|---|---|
| | | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Baseline Year 2016 | 1,441,692 | 218.28 | 1,396.02 | 5,782.84 | 13.60 | 25.18 | 23.87 |
| Future Year 2050 without Project | 1,730,272 | 30.75 | 227.47 | 1,791.83 | 10.41 | 5.69 | 5.37 |
| Future Year 2050 with Project | 1,727,015 | 30.69 | 227.04 | 1,788.46 | 10.39 | 5.68 | 5.36 |
| Future Year 2050 Project Change Over Baseline Year 2016 Emissions | +285,323 | -187.59 | -1,168.98 | -3,993.38 | -3.21 | -19.50 | -18.50 |
| Future Year 2050 Project Change Over Future No Project Emissions | -3,257 | -0.06 | -0.43 | -3.37 | -0.02 | -0.01 | -0.01 |

CO = carbon monoxide; $NO_X$ = oxides of nitrogen; ROG = reactive organic gases; $PM_{10}$ = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; $SO_2$ = sulfur dioxide

Source: Appendix C

One main goal of the Project is to reduce automobile VMT and related impacts to air quality and congestion by providing time-competitive alternatives to automobile travel, including public transit, cycling, micromobility, walking, and on-demand mobility services. The MEU contains goals and policies to reduce congestion, thereby improving air quality. It is not possible to quantify the complete level of VMT reductions associated with implementation of the MEU at this level of analysis (such as implementation of micro transit and bike facilities); therefore, the VMT and mobile-source emissions modeling only includes network changes that can be accounted for in the regional traffic model. Thus, it is likely that additional VMT and associated mobile-source emissions reductions would occur under implementation of the MEU policy framework that would not occur under the no project condition. The Project would not introduce new land uses and therefore would not increase trip generation in the Planning Area. As shown in **Table 3.1-5**, both future year 2050 conditions would decrease emissions compared to the baseline year 2016 condition. This is due to regulations that result in cleaner mobile sources over time. When compared to buildout of the no project condition, the Project would result in a decrease in VMT which would lead to slightly reduced emissions. Therefore, the Project would not result in a cumulatively considerable net increase of any non-attainment criteria pollutant during operation, and impacts related to operational emissions would be less than significant.

Additionally, as the Project would result in a decrease in emissions, it would not result in an increase in adverse health effects. At the regional level, plans such as the RAQS and the Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) (see Section 3.2) work to ensure that the SDAB

reaches and maintains attainment of federal and state criteria pollutant standards which, as discussion previously, were developed to protect public health, specifically the health of "sensitive" populations. As discussed in Section 3.1.5 and Section 3.2.6.1, the Project would not obstruct or conflict with implementation of the RAQS or San Diego Forward, the region's RTP/SCS.

### 3.1.6.2 Significance of Impacts

#### Construction

Maximum representative construction emissions associated with mobility facility improvements would be less than the applicable thresholds for all criteria pollutants; therefore, impacts would be less than significant.

#### Operation

The Project would result in a decrease in VMT and associated operational air quality emissions when compared to the no project condition due to a mobility network that supports multimodal transportation. Therefore, the Project would not result in a cumulatively considerable net increase of any non-attainment criteria pollutant during operation, and impacts would be less than significant.

### 3.1.6.3 Mitigation Measures

Impacts would be less than significant. No mitigation is required.

## 3.1.7 Issue 3: Sensitive Receptors

### 3.1.7.1 Impacts

Air quality regulators typically define sensitive receptors as schools (preschool through 12th grade), hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Residential uses can also be considered sensitive receptors. Sensitive receptors are located throughout the Planning Area. The two primary emissions of concern regarding health effects are DPM and CO.

#### Construction DPM

Construction activities associated with mobility improvements would result in short-term DPM emissions from the use of off-road diesel equipment and on-road diesel equipment used to bring materials to and from future construction sites throughout the City where roadway and mobility improvements would be implemented. Generation of DPM from construction projects typically occurs in a single area for a short period. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level. The risks are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Although there are sensitive receptors located within and adjacent to the Planning Area, construction equipment would only be located adjacent to a particular sensitive receptor for a short

period of time. Thus, the duration of proposed construction activities near any specific sensitive receptor would be minimal and would be significantly less than the 30-year exposure period used in health risk assessments.

Additionally, with ongoing implementation of U.S. EPA and CARB requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be reduced over time. All construction equipment is subject to the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation, which limits unnecessary idling to 5 minutes, requires all construction fleets to be labeled and reported to CARB, bans Tier 0 equipment and phases out Tier 1 and 2 equipment (thereby replacing fleets with cleaner equipment), and requires that fleets comply with best available control technology requirements. Engine tier refers to the emissions certification level of an engine as defined in In-Use Off-Road Diesel-Fueled Fleets Regulation 2449(c). The higher the tier, the cleaner the equipment. Implementation of these regulations results in the use of cleaner construction equipment.

DPM generated by potential construction activities is not expected to create conditions where the probability is greater than 10 in 1 million of contracting cancer, or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual. This is due to the limited scope and duration of construction activities required for mobility improvements, the limited amount of time equipment would be located adjacent to any specific sensitive receptor, and implementation of the In-Use Off-Road Diesel-Fueled Fleets Regulation. Therefore, potential construction activities associated with Project implementation would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

### Operational DPM

The Project would not change any of the land use or zoning designations within the Planning Area to allow for increased density or unplanned development; therefore, would not result in the generation of additional diesel-fueled vehicles to the Planning Area. Additionally, the project would not include the construction of any sensitive receptors in the vicinity of heavily traveled roadways. Thus, impacts associated with the exposure of sensitive receptors to significant levels of operational DPM would be less than significant.

### CO Hotspots

Localized CO concentration is a direct function of motor vehicle activity at signalized intersections (e.g., idling time and traffic flow conditions), particularly during peak commute hours and meteorological conditions. Under specific meteorological conditions, CO concentrations may reach unhealthy levels with respect to local sensitive land uses. Projects that would site sensitive receptors near potential CO hotspots or would contribute vehicle traffic to local intersections where a CO hotspot could occur would be considered as having a potentially significant impact.

The SDAB is a CO maintenance area under the federal CAA. This means that SDAB was previously a non-attainment area and is currently implementing a 10-year plan for continuing to meet and maintain air quality standards. According to the California Department of Transportation's Project-Level Carbon Monoxide Protocol (CO Protocol), in maintenance areas, only projects that are likely to worsen air quality necessitate further analysis. The CO Protocol indicates projects may worsen air quality if they worsen traffic flow, defined as increasing average delay at signalized intersections operating at level of

service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project to operate at LOS E or F. Accordingly, the CO Protocol recommends detailed air quality dispersion modeling for projects that may worsen traffic flow at any signalized intersections operating at LOS E or F.

Due to increased requirements for cleaner vehicles, equipment, and fuels, CO levels in the state have dropped substantially. All air basins are attainment or maintenance areas for CO. Therefore, more recent screening procedures based on more current methodologies have been developed. The Bay Area Air Quality Management District (BAAQMD) developed a screening threshold in their 2022 CEQA Guidelines (BAAQMD 2022). If all the following screening criteria are met, operation of a project would result in a less than significant impact related to CO (BAAQMD 2022):

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.
- Project-generated traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- Project-generated traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The Bay Area and San Diego have the same federal and state CO attainment designations and therefore, experience similar CO concentrations. Thus, these screening volumes are appropriate for evaluating CO impacts in the SDAB.

One main goal of the Project is to reduce automobile VMT and related impacts to air quality and congestion by providing time-competitive alternatives to automobile travel, including public transit, cycling, micromobility, walking, and on-demand mobility services. The MEU contains goals and policies to reduce congestion, thereby improving CO concentrations at local intersections. The Project would not introduce new land uses and thus would not result in an increase in trip generation in the Planning Area. Roadway reclassification would result in shift in volumes at intersections; however, these shifts in traffic volumes would not result in an intersection that exceeds 44,000 vehicles per hour. Baseline year 2016 and buildout year 2050 roadway segment volumes without and with implementation of the Project were obtained from the transportation analysis prepared for the project (Appendix E). Based on this analysis, daily traffic volumes on the roadway network would be less than 40,000 average daily trips. A peak hour volume is typically considered to be 10 percent of the average daily volume (Caltrans 2021). Therefore, peak hour volumes on a particular roadway segment would be less than 4,000 vehicles per hour, and the volume at the intersection of two roadways would be less than 8,000 vehicles per hour. Thus, based on BAAQMD screening criteria, the Project would result in a less than significant impact related to CO.

### 3.1.7.2 Significance of Impacts

#### Construction DPM

Due to the limited scope and duration of construction activities required for mobility improvements, the limited amount of time equipment would be located adjacent to any specific sensitive receptor, and implementation of the In-Use Off-Road Diesel-Fueled Fleets Regulation, potential construction activities associated with Project implementation would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

#### CO Hotspots

The Project is not anticipated to result in a CO hotspot because it will not exceed applicable screening criteria for CO hotspots and due to the project overall supporting reductions in VMT. Impacts would be less than significant.

### 3.1.7.3 Mitigation Measures

Impacts would be less than significant. No mitigation is required.

## 3.1.8 Issue 4: Odors

### 3.1.8.1 Impacts

Individual responses to odors are highly variable and can result in various effects, including psychological (i.e., irritation, anger, or anxiety) and physiological (i.e., circulatory and respiratory effects, nausea, vomiting, and headache). Generally, the impact of an odor results from a variety of interacting factors such as frequency, duration, offensiveness, location, and sensory perception. The project does not include heavy industrial or agricultural uses that are typically associated with odor complaints. During construction of transportation facility improvements, diesel equipment may generate some nuisance odors. However, exposure to odors associated with project construction would be short term and temporary in nature and would disperse quickly as it leaves the construction area. Further, per CARB's Airborne Toxic Control Measures 13 (CCR Chapter 10 Section 2485), idling time shall not exceed five minutes unless more time is required per engine manufacturers' specifications or for safety reasons. Compliance with this regulation would reduce odors from equipment exhaust. Impacts associated with odors would be less than significant.

### 3.1.8.2 Significance of Impacts

Odors generated during potential construction activities would be short term, temporary in nature, and would disperse quickly as they leave the construction area and would therefore be less than significant. The project would not result in any operational source of odors.

### 3.1.8.3 Mitigation Measures

Impacts would be less than significant. No mitigation is required.

## 3.1.9 Conclusion

The Project would be consistent with the SANDAG growth projections used to develop the RAQS. Additionally, the MEU contains goals and policies to reduce congestion, thereby improving air quality, and would result in a decrease in VMT. Therefore, the Project would not obstruct or conflict with implementation of the RAQS, and impacts would be less than significant. The Project would not result in a cumulatively considerable net increase of any non-attainment criteria pollutant during construction or operation. The Project would not expose sensitive receptors to substantial pollutant concentrations. Lastly, the Project would not result in odors that would affect a substantial number of people. All impacts associated with air quality would be less than significant.