4.3 AIR QUALITY

This section provides an overview of air quality and evaluates the construction and operational impacts associated with *Mobility Plan 2035* (MP 2035), the proposed project. This analysis focuses on air pollution from two perspectives: daily emissions and pollutant concentrations. "Emissions" refer to the quantity of pollutants released into the air, measured in pounds per day (ppd). "Concentrations" refer to the amount of pollutant material per volumetric unit of air, measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

The section is organized as follows:

- **Regulatory Framework** describes the pertinent federal, state, and local laws and guidelines.
- **Existing Setting** provides a general summary and overview of the exiting air quality environment
- **Thresholds of Significance** lists the thresholds used in identifying significant impacts.
- **Impacts** discusses the methodology used to assess impacts, including an overall discussion of methodology and assumptions, followed by a listing of thresholds and how the MP 2035 is expected to perform for each of them.
- **Mitigation Measures** are identified as necessary and feasible to reduce identified significant adverse impacts.
- **Level of Significance after Mitigation** identifies residual impacts after application of mitigation measures**.**

The following provides background information on the pollutants discussed in this section.

Pollutants and Effects

Criteria air pollutants are defined as pollutants for which the federal and State governments have established ambient air quality standards for outdoor concentrations to protect public health. The federal and State standards have been set at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), particulate matter ten microns or less in diameter (PM_{10}), and lead (Pb). These pollutants are discussed below.

Carbon Monoxide (CO). CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft and trains. In urban areas such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follows the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February.[1] The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

Ozone (O_3). O_3 is a colorless gas that is formed in the atmosphere when reactive organic gases (ROG), which includes volatile organic compounds (VOC) and nitrogen oxides (NO_X) react in the presence of

[1]Inversion is an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth, preventing the normal rising of surface air.

ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of ROG and NO_X, components of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation. Ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures and cloudless skies. The greatest source of smog-producing gases is the automobile. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue and some immunological changes.

Nitrogen Dioxide (NO_2). NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10}. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase of bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 ppm.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Fine particulate matter, or $PM_{2.5}$, is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles, power generation and industrial facilities), residential fireplaces and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_2, NO_X and VOC. Inhalable particulate matter, or PM_{10}, is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

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

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

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

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

Toxic Air Contaminants (TACs). TACs, also referred to as hazardous air pollutants (HAPs), are generally defined as those contaminants that are known or suspected to cause serious health problems, but do not have a corresponding ambient air quality standard. TACs are also defined as an air pollutant that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Other factors, such as the amount of the chemical; its toxicity, and how it is released into the air, the weather, and the terrain, all influence whether the emission could be hazardous to human health. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust and may exist as PM_{10} and $PM_{2.5}$ or as vapors (gases). TACs include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources.

The emission of toxic substances into the air can be damaging to human health and to the environment. Human exposure to these pollutants at sufficient concentrations and durations can result in cancer, poisoning, and rapid onset of sickness, such as nausea or difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory problems. Pollutants deposited onto soil or into lakes and streams affect ecological systems and eventually human health through consumption of contaminated food. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of contracting cancer.

The public's exposure to TACs is a significant public health issue in California. The Air Toxics "Hotspots" Information and Assessment Act is a state law requiring facilities to report emissions of TACs to air districts. The program is designated to quantify the amounts of potentially hazardous air pollutants released, the location of the release, the concentrations to which the public is exposed, and the resulting health risks.

The State Air Toxics Program (AB 2588) identified over 200 TACs, including the 188 TACs identified in the federal Clean Air Act. The United States Environmental Protection Agency (USEPA) has assessed this expansive list of toxics and identified 21 TACs as Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and nonroad equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. USEPA also extracted a subset of these 21 MSAT compounds that it now labels as the six priority MSATs: benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene. While these six MSATs are considered the priority transportation toxics, USEPA stresses that the lists are subject to change and may be adjusted in future rules.[2] USEPA has issued a number of regulations that will dramatically decrease MSATs through cleaner fuels and cleaner engines. According to an FHWA analysis, even if the number of vehicle miles traveled increases by 64 percent, reductions of 57 percent to 87 percent in MSATs are projected from 2000 to 2020.

The California-specific transportation air quality analysis model, EMFAC, is designed to model MSATs at the project-level. Health effects from MSATs/TACs, i.e., cancer risks and chronic non-cancer risks from on-road traffic, have been associated primarily with diesel PM, benzene, and 1,3-butadiene. EMFAC can be

[2]FHWA, *Memorandum. Information: Interim Guidance Update on Air Toxic Analysis in NEPA Documents*, December 6, 2012.

used to estimate diesel particulate matter, benzene, and 1,3-butadiene emissions. In addition to diesel particulate matter (diesel PM), benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, paradichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient TAC risk, for which data are available, in California. Diesel PM poses the greatest health risk among these ten TACs mentioned. Based on receptor modeling techniques, SCAQMD estimated that diesel PM accounts for 84 percent of the total regional risk.[3]

To date, the most comprehensive regional study of air toxics is the Multiple Air Toxics Exposure Study (MATES-III), conducted by Southern California Air Quality Management District (SCAQMD). The monitoring program measured more than 30 air pollutants, including both gases and particulates. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region based on emissions and weather data. MATES-III found that the cancer risk in the region from carcinogenic air pollutants ranges from about 870 in a million to 1,400 in a million, with an average regional risk of about 1,200 in a million.

Diesel Particulate Matter (Diesel PM). According to the 2006 California Almanac of Emissions and Air Quality, the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from the exhaust of diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances.

Diesel exhaust is composed of two phases, gas and particle, and both phases contribute to the health risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine and ultra fine diesel particulates are of the greatest health concern, and may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines; the on road diesel engines of trucks, buses and cars and the off road diesel engines that include locomotives, marine vessels and heavy duty equipment. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

The most common exposure to diesel PM is breathing the air that contains diesel PM. The fine and ultra-fine particles arerespirable (similar to $PM_{2.5}$), which means that they can avoid many of the human respiratory system defense mechanisms and enter deeply into the lung. Exposure to diesel PM comes from both on-road and off-road engine exhaust that is either directly emitted from the engines or lingering in the atmosphere.

Diesel exhaust causes health effects from both short-term or acute exposures, and long-term chronic exposures. The type and severity of health effects depends upon several factors including the amount of chemical exposure and the duration of exposure. Individuals also react differently to different levels of exposure. There is limited information on exposure to just diesel PM but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects.

Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat and lungs, some neurological effects such as lightheadedness. Acute exposure may also elicit a cough or nausea as well as exacerbate asthma. Chronic exposure to diesel PM in experimental animal inhalation studies have shown a range of dose-dependent lung inflammation and cellular changes in the lung and immunological effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen.

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[3]SCAQMD, *Multiple Air Toxics Exposure Study in the South Coast Air Basin*, September 2008.

Human epidemiological studies demonstrate an association between diesel exhaust exposure and increased lung cancer rates in occupational settings.[4]

USEPA's National Scale Assessment uses several types of health hazard information to provide a quantitative "threshold of concern" or a health benchmark concentration at which it is expected that no adverse health effects occur at exposures to that level. Health effects information on carcinogenic, short- and long-term non-carcinogenic end points are used to establish selective protective health levels to compare to the modeled exposures levels. Unfortunately the exposure response data in human studies are considered too uncertain to develop a carcinogenic unit risk for USEPA's use. There is a Reference Concentration (RFC) that is used as a health benchmark protective of chronic non-carcinogenic health effects but it is for diesel exhaust and not specifically set for diesel PM. The RFC for diesel exhaust, which includes diesel PM, is 5 $\mu g/m^3$.[5] This value is similar to the National Ambient Air Quality Standard (NAAQS) established for fine particulate matter ($PM_{2.5}$), which is 15 $\mu g/m^3$.

Unlike other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, California Air Resources Board (CARB) has made preliminary concentration estimates based on a PM exposure method. This method uses the Air Resources Board emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM.

REGULATORY FRAMEWORK

The federal Clean Air Act (CAA) governs air quality in the United States. In addition to being subject to the requirements of CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). At the federal level, CAA is administered by USEPA. In California, the CCAA is administered by the CARB at the State level and by the air quality management districts and air pollution control districts at the regional and local levels.

Federal

United States Environmental Protection Agency (USEPA). CAA governs air quality in USEPA is responsible for enforcing the CAA. USEPA is also responsible for establishing the NAAQS. NAAQS are required under the 1977 CAA and subsequent amendments. USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. USEPA has jurisdiction over emission sources outside State waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet stricter emission standards established by CARB.

As required by the CAA, NAAQS have been established for seven major air pollutants: CO, NO_2, O_3, $PM_{2.5}$, PM_{10}, SO_2, and Pb. The CAA requires USEPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The federal standards are summarized in **Table 4.3-1**. The USEPA has classified the South Coast Air Basin (Basin) as a nonattainment area for O_3, $PM_{2.5}$, and PM_{10}.

[4] USEPA, Diesel Particulate Matter. Available at *http://www.epa.gov/region1/eco/airtox/diesel.html*.
[5] *Ibid.*

TABLE 4.3-1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR THE SOUTH COAST AIR BASIN

Pollutant	Averaging Period	California		Federal	
		Standards	Attainment Status	Standards	Attainment Status
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	Nonattainment	--	--
	8-hour	0.070 ppm (137 µg/m^3)	n/a	0.075 ppm (147 µg/m^3)	Nonattainment
Respirable Particulate Matter (PM_{10})	24-hour	50 µg/m^3	Nonattainment	150 µg/m^3	Nonattainment
	Annual Arithmetic Mean	20 µg/m^3	Nonattainment	--	--
Fine Particulate Matter ($PM_{2.5}$)	24-hour	--	--	35 µg/m^3	Nonattainment
	Annual Arithmetic Mean	12 µg/m^3	Nonattainment	12.0 µg/m^3	Nonattainment
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Maintenance
	8-hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Maintenance
Nitrogen Dioxide (NO_2)	1-hour	0.18 ppm (338 µg/m^3)	Nonattainment	100 ppb (190 µg/m^3)	Maintenance
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Nonattainment	53 ppb (100 µg/m^3)	Maintenance
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm (655 µg/m^3)	Attainment	75 ppb (196 µg/m^3)	Attainment
	24-hour	0.04 ppm (105 µg/m^3)	Attainment	--	--
Lead (Pb)	30-day average	1.5 µg/m^3	Nonattainment	--	--
	Calendar Quarter	--	--	0.15 µg/m^3	Attainment

n/a = not available
SOURCE: CARB, *Ambient Air Quality Standards*, June 4, 2013

State

California Air Resources Board (CARB). In addition to being subject to the requirements of CAA, air quality in California is also governed by more stringent regulations under the CCAA. In California, the CCAA is administered by CARB at the State level and by the air quality management districts and air pollution control districts at the regional and local levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the State requirements of the CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS. CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. CARB regulates mobile air pollution sources, such as motor vehicles. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective in March 1996. CARB oversees the functions of local air pollution control districts and air quality management districts, which, in turn, administer air quality activities at the regional and county levels. The State standards are summarized in **Table 4.3-1**.

The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the Los Angeles County portion of the Basin is designated as a nonattainment area for O_3, $PM_{2.5}$, PM_{10}, NO_2, and PB.[6]

Toxic Air Contaminants (TACs). CARB's Statewide comprehensive air toxics program was established in the early 1980s. The Toxic Air Contaminant Identification and Control Act created California's program to reduce exposure to air toxics. Under the Toxic Air Contaminant Identification and Control Act, CARB is required to use certain criteria in the prioritization for the identification and control of air toxics. In selecting substances for review, CARB must consider criteria relating to "the risk of harm to public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community" [Health and Safety Code Section 39666(f)]. The Toxic Air Contaminant Identification and Control Act also requires CARB to use available information gathered from the Air Toxics "Hot Spots" Information and Assessment Act program to include in the prioritization of compounds.

California has established a two-step process of risk identification and risk management to address the potential health effects from air toxic substances and protect the public health of Californians. In the first step (identification), CARB and the Office of Environmental Health Hazard Assessment (OEHHA) determine if a substance should be formally identified as a TAC in California. During this process, CARB and the OEHHA staff draft a report that serves as the basis for this determination. CARB staff assesses the potential for human exposure to a substance and the OEHHA staff evaluates the health effects. After CARB and the OEHHA staff hold several comment periods and workshops, the report is then submitted to an independent, nine-member Scientific Review Panel (SRP), who reviews the report for its scientific accuracy. If the SRP approves the report, they develop specific scientific findings, which are officially submitted to CARB. CARB staff then prepares a hearing notice and draft regulation to formally identify the substance as a TAC. Based on the input from the public and the information gathered from the report, the CARB decides whether to identify a substance as a TAC. In 1993, the California Legislature amended the Toxic Air Contaminant Identification and Control Act by requiring CARB to identify 189 federal hazardous air pollutants as State TACs.

In the second step (risk management), CARB reviews the emission sources of an identified TAC to determine if any regulatory action is necessary to reduce the risk. The analysis includes a review of controls already in place, the available technologies and associated costs for reducing emissions, and the associated risk.

The Air Toxics "Hot Spots" Information and Assessment Act (Health and Safety Code Section 44360) supplements the Toxic Air Contaminant Identification and Control Act by requiring a Statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. The "Hot Spots" Act also requires facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

California's Diesel Risk Reduction Program. CARB identified particulate emissions from diesel-fueled engines (diesel PM) TACs in August 1998. Following the identification process, the CARB was required by law to determine if there is a need for further control, which led to the risk management phase of the program.

For the risk management phase, CARB formed the Diesel Advisory Committee to assist in the development of a risk management guidance document and a risk reduction plan. With the assistance of the Advisory Committee and its subcommittees, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. The Diesel Advisory Committee approved these documents on September 28, 2000, paving the way for the next step in the regulatory process: the control measure phase.

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[6] CARB, Area Designation Maps, available at http://www.arb.ca.gov/desig/adm/adm.htm, accessed on November 6, 2013.

During the control measure phase, specific Statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles have and continue to be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions.

Regional

2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). While Southern California is a leader in reducing emissions, and ambient levels of air pollutants are improving, the Southern California Association of Governments (SCAG) region continues to have the worst air quality in the nation. SCAG completed the RTP/SCS, which includes a strong commitment to reduce emissions from transportation sources to comply with Senate Bill 375 (see discussion of GHGs below). One of the goals listed in the RTP/SCS to reduce air pollution is to encourage active transportation (i.e., non-motorized transportation such as bicycling). SCAG promotes the following policies and actions related to active transportation to help the region confront congestion and mobility issues and consequently improve air quality:

- Implement Transportation Demand Management (TDM) strategies including integrating bicycling through folding bikes on buses programs, triple racks on buses, and dedicated racks on light and heavy rail vehicles;
- Encourage and support local jurisdictions to develop "Active Transportation Plans" for their jurisdiction if they do not already have one;
- Expand Compass Blueprint program to support member cities in the development of bicycle plans;
- Expand the Toolbox Tuesday’s program to encourage local jurisdictions to direct enforcement agencies to focus on bicycling and walking safety to reduce multimodal conflicts;
- Support local advocacy groups and bicycle-related businesses to provide bicycle-safety curricula to the general public;
- Encourage children, including those with disabilities, to walk and bicycle to school;
- Encourage local jurisdictions to adopt and implement the proposed SCAG Regional Bikeway Network; and
- Support local jurisdictions to connect all of the cities within the SCAG region via bicycle facilities.

Local

South Coast Air Quality Management District (SCAQMD). The 1977 Lewis Air Quality Management Act created the SCAQMD to coordinate air quality planning efforts throughout Southern California. This Act merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in Southern California. Under this Act, renamed the Lewis-Presley Air Quality Management Act in 1988, the SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, the SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. The SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

The SCAQMD monitors air quality within the project area. The SCAQMD has jurisdiction over an area of 10,743 square miles, consisting of Orange County; the non-desert portions of Los Angeles, Riverside, and San Bernardino counties; and the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a subregion of the SCAQMD and covers an area of 6,745 square miles. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east; and the San Diego County line to the south (**Figure 4.3-1**).

LEGEND:

South Coast Air Basin

State of California

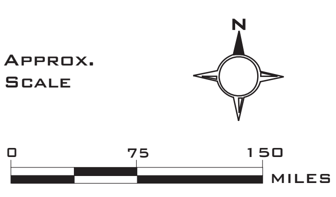

FIGURE 4.3-1

Source: California Air Resources Board, State and Local Air Monitoring Network Plan, October 1998.

Air Quality Management Plan (AQMP). All areas designated as nonattainment under the CCAA are required to prepare plans showing how the area would meet the State air quality standards by its attainment dates. AQMP is the SCAQMD plan for improving regional air quality. It addresses CAA and CCAA requirements and demonstrates attainment with State and federal ambient air quality standards. The AQMP is prepared by SCAQMD and SCAG. The AQMP provides policies and control measures that reduce emissions to attain both State and federal ambient air quality standards by their applicable deadlines. Environmental review of individual projects within the Basin must demonstrate that daily construction and operational emissions thresholds, as established by the SCAQMD, would not be exceeded. The environmental review must also demonstrate that individual projects would not increase the number or severity of existing air quality violations.

The 2012 AQMP was adopted in December 2012 and continues the progression toward clean air and compliance with State and federal requirements. It includes a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on- and off-road mobile sources and area sources. The 2012 AQMP includes demonstration of attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 in the Basin through adoption of all feasible measures while incorporating current scientific information and meteorological air quality models. It also updates the USEPA approved 8-hour O_3 control plan with new commitments for short-term NO_X and VOC reductions. The 2012 AQMP also addresses several State and federal planning requirements. The 2012 AQMP builds upon the approach taken in the 2007 AQMP,, for the attainment of federal PM and O_3 standards, and highlights the significant amount of reductions needed and the urgent need to engage in interagency coordinated planning to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the CAA.

California's Diesel Risk Reduction Program. The CARB identified particulate emissions from diesel-fueled engines (diesel PM) as TACs in August 1998. Following the identification process, the CARB was required by law to determine if there is a need for further control, which led to the risk management phase of the program.

For the risk management phase, the CARB directed staff to form the Diesel Advisory Committee to assist in the development of a risk management guidance document and a risk reduction plan. With the assistance of the Advisory Committee and its subcommittees, the ARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. The Board approved these documents on September 28, 2000, paving the way for the next step in the regulatory process: the control measure phase.

During the control measure phase, specific Statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles have and continue to be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions.

EXISTING SETTING

Air Pollution Climatology

The proposed project encompasses the City of Los Angeles. The local climate varies within each Area Planning Commission (APC), although each APC is located within the Los Angeles County portion of the Basin. Ambient pollution concentrations recorded in Los Angeles County are among the highest in the four counties comprising the Basin.

The Basin is in an area of high air pollution potential due to its climate and topography. The general region lies in the semi-permanent high pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The Basin experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of its perimeter. The mountains and hills within the area contribute to the variation of rainfall, temperature, and winds throughout the region.

The Basin experiences frequent temperature inversions. Temperature typically decreases with height. However, under inversion conditions, temperature increases as altitude increases, thereby preventing air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, air quality problems are created due to the interaction between the ocean surface and the lower layer of the atmosphere. This interaction creates a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons and NO_2 react under strong sunlight, creating smog. Light, daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to CO and NO_2 emissions. CO concentrations are generally worse in the morning and late evening (around 10:00 p.m.). In the morning, CO levels are relatively high due to cold temperatures and the large number of cars traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO emissions are produced almost entirely from automobiles, the highest CO concentrations in the Basin are associated with heavy traffic. NO_2 concentrations are also generally higher during fall and winter days.

Local Climate

The mountains and hills within the Basin contribute to the variation of rainfall, temperature, and winds throughout the City. With this wide variation in consideration, meteorological conditions recorded in downtown Los Angeles have been used to broadly represent regional conditions. The average wind speed, as recorded at the Downtown Wind Monitoring Station, is approximately five miles per hour, with calm winds occurring 7.9 percent of the time. Wind predominately blows from the southwest.[7]

The annual average temperature recorded near downtown Los Angeles is 74.1°F.[8] The average winter temperature is 67.1°F and the average summer temperature is 80.9°F. Total precipitation averages approximately 14.9 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer. Precipitation averages 9.0 inches during the winter, 3.8 inches during the spring, 2.0 inches during the fall, and less than one inch during the summer.[9]

Air Monitoring Data

The SCAQMD monitors air quality conditions at 38 locations throughout the Basin. Typical air quality conditions in Los Angeles are represented by the Los Angeles-North Main Street Monitoring Station located on 1630 North Main Street. As shown in **Table 4.3-2**, CO, NO_2, PM_{10}, and $PM_{2.5}$ standards were exceeded at various times during this three-year period.

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. CARB has identified the following groups who are most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers and retirement homes. The study area encompasses the entire City of Los Angeles, which includes all of the sensitive receptors described above.

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[7] SCAQMD, Meteorological Data, available at http://www.aqmd.gov/smog/metdata/MeteorologicalData.html, accessed on November 21, 2013.

[8] Western Regional Climate Center, Historical Climate Information, available at http://www.wrcc.dri.edu, accessed on November 21, 2013.

[9] *Ibid*.

TABLE 4.3-2: AMBIENT AIR QUALITY DATA				
Pollutant	**Pollutant Concentration & Standards**	**2010**	**2011**	**2012**
Ozone (O_3)	Maximum 1-hr Concentration (ppm) Days > 0.09 ppm (State 1-hr standard) Maximum 8-hr Concentration (ppm) Days > 0.070 ppm (State 8-hr standard) Days > 0.075 ppm (National 8-hr standard)	0.098 1 0.080 1 1	0.087 0 0.065 0 0	0.093 0 0.077 2 1
Carbon Monoxide (CO)	Maximum 1-hr concentration (ppm) Days > 20 ppm (State1-hr standard) Days > 35 ppm (National 1-hr standard) Maximum 8-hr concentration (ppm) Days > 9.0 ppm (State 8-hr standard) Days > 9 ppm (National 8-hr standard)	3 0 0 2.32 0 0	n/a n/a n/a 2.40 0 0	n/a n/a n/a 1.91 0 0
Nitrogen Dioxide (NO_2)	Maximum 1-hr Concentration (ppm) Days > 0.18 ppm (State 1-hr standard) Days > 0.100 ppm (National 1-hr standard)	0.089 0 0	0.11 0 1	0.077 0 0
Respirable Particulate Matter (PM_{10})	Maximum 24-hr concentration (μg/m^3) Days > 50 μg/m^3 (State 24-hr standard) Days > 150 μg/m^3 (National 24-hr standard)	42 0 0	53 9 0	80 43 0
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-hr concentration (μg/m^3) Exceed State Standard (12 μg/m^3) Days > 35 μg/m^3 (National 24-hr standard)	39.2 Yes 5	49.3 Yes 7	58.7 Yes 4
Sulfur Dioxide (SO_2)	Maximum 24-hr Concentration (ppm) Days > 0.04 ppm (State 24-hr standard) Days > 0.14 ppm (National 24-hr standard)	0.010 0 0	0.020 0 0	0.005 0 0

n/a = not available
SOURCE: CARB, Air Quality Data Statistics, *Top 4 Summary*, http://www.arb.ca.gov/adam/topfour/topfour1.php, accessed on November 21, 2013.
CO pollutant concentration was obtained from SCAQMD, Historical Data by Year, available at http://www.aqmd.gov/smog/historicaldata.htm, accessed on November 21, 2013.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Create objectionable odors affecting a substantial number of people.

The SCAQMD has developed specific CEQA significance thresholds to assess construction and operational air quality impacts.

Construction Phase Significance Criteria

The proposed project would have a significant impact related to construction activity if:

- Daily regional and localized construction emissions were to exceed SCAQMD construction emissions thresholds as presented in **Table 4.3-3**;
- The proposed project would generate significant emissions of TACs; and/or
- The proposed project would create an odor nuisance.

TABLE 4.3-3: SCAQMD DAILY CONSTRUCTION EMISSIONS THRESHOLDS		
Criteria Pollutant	**Regional Emissions (Pounds Per Day)**	**Localized Emissions (Pounds Per Day) /a/**
Volatile Organic Compounds (VOC)	75	--
Nitrogen Oxides (NO_X)	100	74
Carbon Monoxide (CO)	550	426
Sulfur Oxides (SO_X)	150	--
Fine Particulates ($PM_{2.5}$)	55	3
Particulates (PM_{10})	150	4
/a/ The LSTs were based on the most conservative threshold between SCAQMD Source Receptor Areas 1, 2, 6, and 7. It is not anticipated that construction of proposed enhancements would encompass a large area on any one particular day. The analysis conservatively assumed a one-acre construction area with a 25-meter (82-foot) receptor distance. **SOURCE**: SCAQMD, 2013.		

Operational Phase Significance Criteria

The proposed project would have a significant impact related to operational activity if:

- Daily operational emissions were to exceed SCAQMD operational emissions thresholds as presented in **Table 4.3-4**;
- Project-related traffic causes CO concentrations at study intersections to violate the CAAQS for either the one- or eight-hour period. The CAAQS for the one- and eight-hour periods are 20 and 9.0 ppm, respectively;
- The proposed project would generate significant emissions of TACs;
- The proposed project would create an odor nuisance; and/or
- The proposed project would not be consistent with the AQMP.

TABLE 4.3-4: SCAQMD DAILY OPERATIONAL EMISSIONS THRESHOLDS	
Criteria Pollutant	**Pounds Per Day**
Volatile Organic Compounds (VOC)	55
Nitrogen Oxides (NO_X)	55
Carbon Monoxide (CO)	550
Sulfur Oxides (SO_X)	150
Fine Particulates ($PM_{2.5}$)	55
Particulates (PM_{10})	150
SOURCE: SCAQMD, 2013.	

IMPACTS

Construction Emissions

The proposed project is an element of the General Plan that would guide mobility policies, programs, and projects in the City of Los Angeles through the year 2035. The proposed project is developed to the concept level of detail and specific roadway designs for planned improvements are not yet available. Program implementation is in large part contingent upon the availability of adequate funding. Funding is likely to change over time due to economic conditions and fluctuations in the priorities of federal, state and regional funding agencies as well as the City budget. In order to assist the City in prioritizing annual transportation related funding the various departments including, planning, transportation and public works will collectively prepare for Council a sub-set of programs to be implemented in each forthcoming budget cycle. Therefore, there is no construction schedule or phasing.

Table 4.3-5 shows the treatments associated with each Enhanced Network and associated degree of construction emissions. Many of the treatments would have minimal, or no, construction emissions. An general analysis has been completed below to quantify regional and localized analysis from projects that could generate construction emissions.

TABLE 4.3-5: TREATMENT LEVEL AND CONSTRUCTION AIR QUALITY INTENSITY

Enhanced Network	Treatment Level	Assumptions	Construction Intensity
Pedestrian-Enhanced Network	N/A	Infrastructure (e.g., way-finding, street trees, and lighting)	Low
		Bulb-outs and sidewalk widening	Medium
Bicycle-Enhanced Network	Moderate	Remove one vehicular travel lane per direction to accommodate a buffered bicycle lane	Low
	Comprehensive	Remove one vehicular travel lane per direction to accommodate a cycle track	Low
Transit-Enhanced Network	Moderate	No change to lane configuration	None
		Double frequency of bus service	None
	Moderate Plus	Convert one vehicular travel lane per direction to a bus only lane during peak periods	Low
		Double frequency of bus service	None
	Comprehensive	Convert one vehicular travel lane per direction to a bus only lane for the full day	Low
		Double frequency of bus service	None
Vehicle-Enhanced Network	Moderate	Increase vehicle travel speeds by 10 percent	None
		Add one vehicular travel lane per direction if all-day parking is available –OR– convert one off-peak parking lane per direction to a full-time vehicular travel lane	Low
	Comprehensive	Increase vehicle travel speeds by 10 percent	None
		Add one vehicular travel lane per direction if all-day parking is available –OR– convert one off-peak parking lane per direction to a full-time vehicular travel lane	Low
		Increase effective vehicular capacity by 10 percent	None

SOURCE: Fehr & Peers, 2013.

Regional. The majority of construction emissions would be related to equipment exhaust, truck trips, and worker commute trips. Detailed construction information was not available for this planning level analysis. It was assumed that a maximum construction envelope associated with proposed enhancements could include up to four pieces of heavy-duty construction equipment operating simultaneously for eight hours per day, 25 truck trips, and 15 commute trips. Equipment engine emissions were estimated using OFFROAD2007 and on-road emissions were estimated using EMFAC2011. **Table 4.3-6** shows the maximum estimated daily regional emissions associated with construction activity. Daily construction emissions would not exceed the SCAQMD regional significance threshold for all criteria pollutants. Therefore, the proposed project would result in a less-than-significant impact related to regional construction emissions.

Localized. Localized impacts from on-site daily emissions associated with construction activities were evaluated for sensitive receptors located adjacent to construction activity. Emissions for the localized construction air quality analysis were compiled using Localized Significance Threshold (LST) methodology promulgated by the SCAQMD in *Sample Construction Scenarios for Project Less than Five Acres in Size.* Localized on-site emissions were calculated using similar methodology to the regional emission calculations. As shown in **Table 4.3-6**, daily construction emissions would not exceed the SCAQMD localized significance thresholds. Therefore, the proposed project would result in a less-than-significant impact related to localized construction emissions.

TABLE 4.3-6: DAILY CONSTRUCTION EMISSIONS						
	Pounds Per Day					
Construction Activity	**VOC**	**NO_X**	**CO**	**SO_X**	**$PM_{2.5}$**	**PM_{10}**
Maximum Regional Total	6	60	27	<1	2	2
Regional Significance Threshold	**75**	**100**	**550**	**150**	**55**	**150**
Exceed Threshold?	No	No	No	No	No	No
Maximum On-Site Total	6	48	24	<1	2	2
Localized Significance Threshold	**--**	**74**	**426**	**--**	**3**	**4**
Exceed Threshold?	--	No	No	--	No	No
SOURCE: TAHA, 2013.						

Toxic Air Contaminant (TACs). The greatest potential for TAC emissions during construction would be diesel particulate emissions associated with heavy-duty equipment operations. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer based on the use of standard risk assessment methodology. Construction activity would occur throughout the project area and sensitive receptor exposure to construction TACs would vary during the process; however, in general it is anticipated that construction activities in the immediate vicinity of any individual sensitive receptor would be relatively brief (in the order of a few days). In addition, as shown in **Table 4.3-5**, above, the majority of construction activity associated with the proposed project would be low intensity (e.g., would not require heavy-duty equipment). Exposure to diesel particulate matter and related TACs are anticipated to be low. Therefore, the proposed project would result in a less-than-significant impact related to construction TAC emissions.

Odor. Potential sources that may emit odors during construction activities include equipment exhaust and paving and painting activities. Odors from these sources would be localized and generally confined to the immediate area surrounding the construction site. The proposed project would utilize typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. Construction activity would not cause an odor nuisance. Therefore, the proposed project would result in a less-than-significant impact related to construction odors.

Operational Emissions

The modeling of traffic and air emissions is conservative (i.e. somewhat worst case) as it does not take into consideration the reduction in traffic that will occur as drivers become transit riders and/or telecommute as a result of congestion pricing.

Regional. The *MP 2035* Enhanced Networks would change regional vehicle miles traveled (VMT) and associated air emissions. **Table 4.3-7** summarizes changes in VMT among the Existing, Future No Project, and Future With Project scenarios on surface streets by APC and for the City as a whole. Under Existing conditions, motorists travel over 75 million vehicle miles on roadways within the City of Los Angeles on an average weekday. Under Future No Project conditions, daily VMT increases to 82.6 million, 8 percent above Existing Base levels. The increase occurs disproportionately on Freeways, where VMT increases by 8.3 percent, compared with surface streets, where VMT increases by 7.7 percent.

Future With Project conditions would result in daily VMT of 81 million, 7.6 percent greater than Existing levels, but 2.0 percent lower than Future No Project levels. VMT on surface streets would be only 3.4 percent greater than Existing conditions, while freeway VMT would exceed Existing conditions by 11.2 percent. Relative to Future No Project conditions, freeway VMT would increase by 0.4 percent, while surface street VMT would decrease by 4.8 percent.

TABLE 4.3-7: DAILY VEHICLE MILES TRAVELED IN THE CITY OF LOS ANGELES		
Area Planning Commission	**Vehicle Miles Traveled**	**Percent Change**
EXISTING CONDITIONS		
1. North Valley	6,049,100	–
2. South Valley	6,766,200	–
3. Central	6,489,500	–
4. East Los Angeles	2,923,500	–
5. West Los Angeles	5,487,900	–
6. South Los Angeles	5,688,800	–
7. Harbor	2,003,900	–
Surface Streets	**35,408,900**	–
Freeways (Mainline)	**39,857,400**	**–**
TOTAL	**75,266,200**	**–**
FUTURE NO PROJECT (COMPARISON TO EXISTING)		
1. North Valley	6,694,700	10.7%
2. South Valley	7,272,100	7.5%
3. Central	6,959,200	7.2%
4. East Los Angeles	3,171,000	8.5%
5. West Los Angeles	5,922,200	7.9%
6. South Los Angeles	6,250,900	9.9%
7. Harbor	2,193,600	9.5%
Surface Streets	**38,463,700**	**8.6%**
Freeways (Mainline)	**44,164,000**	**10.8%**
TOTAL	**82,627,700**	**9.8%**
FUTURE WITH PROJECT (COMPARISON TO EXISTING)		
1. North Valley	6,475,500	7.0%
2. South Valley	7,100,600	4.9%
3. Central	6,553,300	1.0%
4. East Los Angeles	2,870,700	(1.8%)
5. West Los Angeles	5,774,200	5.2%
6. South Los Angeles	5,822,600	2.4%
7. Harbor	2,029,100	1.3%
Surface Streets	**36,625,900**	**3.4%**
Freeways (Mainline)	**44,329,500**	**11.2%**
TOTAL	**80,955,400**	**7.6%**
FUTURE WITH PROJECT (COMPARISON TO FUTURE NO PROJECT)		
1. North Valley	6,475,500	(3.3%)
2. South Valley	7,100,600	(2.4%)
3. Central	6,553,300	(5.8%)
4. East Los Angeles	2,870,700	(9.5%)
5. West Los Angeles	5,774,200	(2.5%)
6. South Los Angeles	5,822,600	(6.9%)
7. Harbor	2,029,100	(7.5%)
Surface Streets	**36,625,900**	**(4.8%)**
Freeways (Mainline)	**44,329,500**	**0.4%**
TOTAL	**80,955,400**	**(2.0%)**
SOURCE: City of Los Angeles Travel Demand Model, 2013.		

The same socio-demographic changes (increases in population and employment) apply to both the Future No Project conditions and to Future with Project conditions, resulting in an increase in the level of VMT over Existing conditions; however, Project improvements to transit, walk, and bicycle modes shift travelers from vehicles to those modes, reducing the VMT under Future with Project conditions relative to Future No Project conditions. Freeway VMT increases more than surface street VMT likely because reductions in capacity on some surface streets divert some arterial through-trips to the freeways.

Regional emissions were estimated using the VMT presented above and the CARB EMFAC2011 model. **Table 4.3-8** presents mass emissions for each scenario and APC, and **Table 4.3-9** presents emission comparisons between scenarios.

TABLE 4.3-8: TOTAL REGIONAL EMISSIONS

	Pounds Per Day				
Area Planning Commission	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**
EXISTING CONDITIONS					
1. North Valley	2,383	6,736	52,958	348	718
2. South Valley	3,011	7,876	62,788	407	823
3. Central	4,108	9,302	71,163	462	867
4. East Los Angeles	1,593	3,811	29,718	193	374
5. West Los Angeles	3,247	7,539	57,952	377	719
6. South Los Angeles	2,871	7,083	55,964	362	713
7. Harbor	830	2,253	18,026	117	240
Surface Streets	18,043	44,601	348,570	2,265	4,455
Freeways (Mainline)	15,954	51,078	361,234	2,476	5,159
TOTAL	33,998	95,679	709,804	4,741	9,614
FUTURE NO PROJECT					
1. North Valley	293	1,572	11,962	319	722
2. South Valley	346	1,765	13,452	352	790
3. Central	507	2,213	14,620	370	792
4. East Los Angeles	192	888	6,273	161	353
5. West Los Angeles	398	1,767	12,023	308	667
6. South Los Angeles	348	1,664	12,113	312	689
7. Harbor	96	514	3,965	105	237
Surface Streets	2,181	10,384	74,409	1,928	4,249
Freeways (Mainline)	1,960	11,871	80,613	2,304	5,248
TOTAL	4,141	22,255	155,022	4,232	9,497
FUTURE WITH PROJECT					
1. North Valley	287	1,534	11,598	310	699
2. South Valley	344	1,743	13,189	345	772
3. Central	485	2,098	13,803	350	747
4. East Los Angeles	181	820	5,731	147	321
5. West Los Angeles	395	1,744	11,783	302	651
6. South Los Angeles	334	1,580	11,372	293	644
7. Harbor	92	486	3,696	97	220
Surface Streets	2,118	10,004	71,172	1,843	4,054
Freeways (Mainline)	2,011	12,021	81,526	2,324	5,285
TOTAL	4,129	22,025	152,698	4,167	9,339
SOURCE: City of Los Angeles Travel Demand Model, 2013; CARB, EMFAC2011.					

TABLE 4.3-9: REGIONAL EMISSIONS COMPARISON					
	Pounds Per Day				
Area Planning Commission	**VOC**	**NO_X**	**CO**	**$PM_{2.5}$**	**PM_{10}**
FUTURE WITH PROJECT (COMPARISON TO EXISTING)					
1. North Valley	(2,096)	(5,202)	(41,361)	(38)	(19)
2. South Valley	(2,667)	(6,133)	(49,599)	(62)	(50)
3. Central	(3,623)	(7,204)	(57,360)	(112)	(121)
4. East Los Angeles	(1,412)	(2,991)	(23,987)	(46)	(54)
5. West Los Angeles	(2,851)	(5,795)	(46,169)	(76)	(68)
6. South Los Angeles	(2,537)	(5,504)	(44,592)	(69)	(69)
7. Harbor	(738)	(1,767)	(14,331)	(20)	(20)
Surface Streets	(15,925)	(34,597)	(277,398)	(422)	(401)
Freeways (Mainline)	(13,944)	(39,057)	(279,708)	(151)	(126)
TOTAL	(29,868)	(73,654)	(557,106)	(574)	(275)
Regional Significance Threshold	55	**55**	**550**	**55**	**150**
Exceed Threshold?	No	No	No	No	No
FUTURE WITH PROJECT (COMPARISON TO FUTURE NO PROJECT)					
1. North Valley	(6.0)	(38.5)	(364.6)	(9.8)	(22.9)
2. South Valley	(2.3)	(22.2)	(262.3)	(7.2)	(17.4)
3. Central	(22.5)	(115.4)	(816.8)	(20.4)	(44.9)
4. East Los Angeles	(11.8)	(68.3)	(542.0)	(14.1)	(32.2)
5. West Los Angeles	(2.2)	(22.9)	(240.4)	(6.3)	(15.1)
6. South Los Angeles	(13.5)	(85.0)	(741.1)	(19.5)	(45.2)
7. Harbor	(4.0)	(28.1)	(269.5)	(7.2)	(17.1)
Surface Streets	(62)	(380)	(3,237)	(84)	(195)
Freeways (Mainline)	50.5	150.7	912.8	19.9	36.7
TOTAL	(12)	(230)	(2,324)	(65)	(158)
SOURCE: City of Los Angeles Travel Demand Model, 2013; CARB, EMFAC2011.					

Under Existing conditions, criteria pollutants would be emitted at substantially higher levels compared to Future conditions. Although traffic volumes would be higher in both Future without and Future with Project conditions, pollutants emissions from mobile sources are expected to be much lower due to technological advances in vehicle emissions systems combined with normal turnover in the vehicle fleet. Future with Project emissions would be less than both Existing and (echoing reductions in VMT) Future No Project, and would not exceed the SCAQMD significance thresholds. Therefore, the proposed project would result in a less-than-significant impact related to regional emissions.

Localized. Proposed enhancements would potentially change lane configurations by removing travel or parking lanes for transit and bicycle travel. Reducing the number of travel lanes would result in local traffic congestion, resulting in a signalized intersection worsening Level of Service (LOS) E or F. In addition, utilizing existing parking lanes for travel would locate vehicle emissions closer to land uses adjacent to roadways. Localized high CO concentrations could occur where large amounts of traffic operate under heavily congested conditions and if vehicles would be idling for a substantial period of time. Many roadway segments that would be affected by the proposed project already operate at or near capacity during peak hour periods and any incremental change in traffic volumes or vehicle idling emissions would not be significant. In addition, despite the fact the components of the proposed project in traffic may decrease vehicle speeds and increase idle times at certain intersections, CO concentrations in the Basin have not exceeded State standards since 1992 due to stringent State and federal mandates for lowering vehicle emissions. This is accurate even when considering the most congested City intersections with the highest traffic volumes and largest percentage of vehicle idle time. It is not anticipated that any intersection affected by the proposed project contains the requisite vehicle volumes and delays to generate a CO hotspot. Therefore, the proposed project would result in a less-than-significant impact related to localized CO concentrations in 2035. Specific designs for roadway changes were not available when this analysis was completed. CO concentrations could increase where roadways would be widened adjacent to sensitive receptors. Such conditions, if they were to exist, would be evaluated in project specific environmental documents.

Specific designs for roadway changes are not available, in any cases where roadways would be widened adjacent to sensitive receptors emissions could increase compared to today and such conditions (if they were to exist) would be evaluated in project specific environmental documents.

Toxic Air Contaminants (TACs). The greatest exposure concern to TACs is associated with diesel emissions. The proposed project could include increase bus service along certain routes. Also buses could be located in closer proximity to sensitive uses as a result of the conversion of parking lanes to travel lanes. Truck traffic patterns are not anticipated to substantially change as compared to today, although truck vehicle miles would increase proportionate to total vehicle miles. Specific designs for roadway changes were not available when this analysis was completed. TAC concentrations could increase where roadways would be widened adjacent to sensitive receptors. Such conditions, if they were to exist, would be evaluated in project specific environmental documents.

The majority of buses operating within the City of Los Angeles are powered by alternative fuels. For example, the entire bus fleet operated by the Los Angeles County Metropolitan Transportation Authority is powered by compressed natural gas. It is not anticipated that increased bus service would substantially increase diesel particulate emissions. In addition, the proposed mobility enhancements are designed to improve the flow of passenger vehicles along heavily trafficked roadways. It is not anticipated that lane conversions would change diesel-emitting truck travel patterns and significantly increase associated exposure to emissions. Therefore, the proposed project would result in a less-than-significant impact related to operational TACs.

Odor. According to the SCAQMD *CEQA Air Quality Handbook*, land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies and fiberglass molding. The proposed project is not typically associated with odor complaints and would result in no significant impact.

Air Quality Management Plan (AQMP) Consistency. The 2012 AQMP was prepared to accommodate growth, to reduce the high levels of pollutants within areas under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Consistency with the AQMP can be assessed by determining how a project accommodates increased in population or employment. Generally, a project that is planned in a way that minimizes VMT both within the project area and the surrounding community would also minimize air pollutant emissions. As demonstrated above, the proposed project would substantially reduce regional emission. Therefore, the proposed project would be consistent with the goals of the AQMP.

MITIGATION MEASURES

CONSTRUCTION

Construction impacts related to air quality emissions and applicable plans, policies, and regulations would be less than significant. No mitigation measures are required.

OPERATIONS

Operational impacts related to air quality emissions and applicable plans, policies, and regulations would be less than significant. No mitigation measures are required.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

CONSTRUCTION

Construction impacts related to air quality emissions and applicable plans, policies, and regulations were determined to be less than significant without mitigation.

OPERATIONS

Operational impacts related to air quality emissions and applicable plans, policies, and regulations were determined to be less than significant without mitigation.

CUMULATIVE IMPACTS

A significant impact would occur if the proposed project resulted in a cumulative net increase in any criteria pollutant above threshold standards. The SCAQMD's approach for assessing cumulative air quality impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and State Clean Air Acts. The SCAQMD has set forth significance thresholds designed to assist in the attainment of ambient air quality standards. The proposed project would not result in significant emissions. Therefore, the proposed project would not result in a cumulatively considerable impact related to air quality.