3.2 Air Quality

This section of the Program Environmental Impact Report (PEIR) addresses potential air quality impacts associated with implementation of the proposed program. The environmental setting provides a description of the general air quality and meteorological conditions in the South Coast Air Basin (Basin). The regulatory setting provides a description of applicable federal, state, and local regulatory policies. The impact assessment section evaluates the potential for short-term and long-term air quality impacts to result from implementation of the proposed program. Mitigation measures are recommended as necessary to reduce significant air quality impacts.

3.2.1 Environmental Setting

Regional Setting

The proposed program is located in Los Angeles County (County), which covers an area of about 4,083 square miles and comprises 88 cities and approximately 2,650 square miles of unincorporated areas. The majority of the County is highly urbanized and consists of several cities, communities, and unincorporated areas. The proposed program is located in multiple jurisdictions of Los Angeles County, which include the Los Angeles County Flood Control District (LACFCD), County of Los Angeles, and the following 46 cities: Los Angeles, Beverly Hills, Culver City, Inglewood, Santa Monica, West Hollywood, Hawthorne, El Segundo, Lomita, Baldwin Park, Covina, Glendora, Industry, La Puente, Malibu, Calabasas, Agoura Hills, Westlake Village, Hidden Hills, Santa Clarita, Rancho Palos Verdes, Palos Verdes Estates, Rolling Hills Estates, Redondo Beach, Hermosa Beach, Torrance, Manhattan Beach, Arcadia, Azusa, Bradbury, Duarte, Monrovia, Sierra Madre, Alhambra, Burbank, Glendale, Hidden Hills, La Cañada Flintridge, Montebello, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, South Pasadena, and Temple City (refer to Figure 1-1). Each of these jurisdictions have independent planning documents that guide the development of urban, agricultural and other land uses within their jurisdictional boundaries.

Climate and Meteorology

The program is located in the portion of Los Angeles County that lies within the Basin. The program area is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Basin is an approximately 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere’s ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the program area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topography and climate of Southern California combine to make the Basin an area of high air pollution potential. 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 the perimeter. 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 usually mild climatological pattern is disrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions that produce ozone. The region experiences more days of sunlight than any other major urban area in the nation except Phoenix (SCAQMD, 2012).

Criteria Pollutants

The California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable or breathable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. The pollutants are referred to as "criteria air pollutants" since they are the most prevalent air pollutants known to be harmful to human health, and extensive health-effects criteria documents are available about their effects on human health and welfare. Standards have been established for each criteria pollutant to meet specific public health and welfare criteria set forth in the federal Clean Air Act (CAA). California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NO_X). While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is based on a list of exempted carbon compounds determined by CARB. VOC is a term used by the USEPA and is based on USEPA's own exempt list. The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed, it remains in the atmosphere for 1 or 2 days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth (rainout), or absorption by water molecules in clouds that later fall to earth with rain (washout).

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

CO, a colorless and odorless gas, is a relatively nonreactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s, when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts because of the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high-pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide

SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant, mainly as a result of burning high-sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as sulfur oxides (SO_X).

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. CARB has estimated that achieving the ambient air quality standards for PM_{10} could reduce premature mortality rates by 6,500 cases per year (CARB, 2002). Particulate matter can also damage materials and reduce visibility. One common source of $PM_{2.5}$ is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROGs. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by wood burning in residential wood stoves and fireplaces and open agricultural burning. $PM_{2.5}$ can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROGs, ammonia (NH_3), NOx, and SOx.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks as well as motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 was largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved through enhanced controls in the metals-processing industry. In the Basin, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to The California Almanac of Emissions and Air Quality (CARB, 2009), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel particulate matter). Diesel particulate matter differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel particulate matter 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.

Unlike the other TACs, no ambient monitoring data are available for diesel particulate matter because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a particulate matter exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel particulate matter. In addition to diesel particulate matter, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Odorous Emissions

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Offensive odors are unpleasant and can lead to public distress, generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

Program Area Air Quality Setting

Existing Air Quality

SCAQMD maintains monitoring stations within district boundaries that monitor air quality and compliance with associated ambient standards. The Enhanced Watershed Management Program (EWMP) areas associated with the proposed program are located in multiple jurisdictions within the County of Los Angeles, all of which are located within in the Basin. Given the large geographic region of the EWMP areas, an extensive listing of the air quality monitoring data collected by each SCAQMD monitoring station located within the EWMP areas is not provided in this PEIR. As individual EWMP projects are not assessed separately in this PEIR, the presentation of the air quality data collected by the monitoring stations relevant to each EWMP project is more applicable for inclusion in the environmental documents for future individual EWMP projects.

Both CARB and USEPA use the data measured at air quality monitoring stations to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts

for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. The current attainment status for the Basin is provided in **Table 3.2-1**.

TABLE 3.2-1
SOUTH COAST AIR BASIN ATTAINMENT STATUS

	Attainment Status	
Pollutant	**California Standards**	**Federal Standards**
Ozone	Extreme Nonattainment	Severe Nonattainment
CO	Attainment	Unclassified/ Attainment
NO_2	Attainment	Unclassified/ Attainment
SO_2	Attainment	Attainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment

SOURCE: CARB, 2013b; USEPA, 2013.

Sensitive Land Uses

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive to poor air quality than the general public because the population groups associated with these uses have increased susceptibility to respiratory distress. In addition, residential uses are considered more sensitive to air quality conditions than commercial and industrial uses, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Given that the majority of the County is highly urbanized with a variety of land use types (e.g., open space, residential, commercial, mixed-use, public and semi-public, and industrial uses), and that the proposed program would be located in various watersheds across the County that span multiple jurisdictions, existing sensitive uses such as residences, schools, hospitals, daycare centers, etc., would be located within and in proximity to the EWMP areas. As described in Section 3.9, *Land Use and Agriculture*, of this PEIR, many of the EWMP areas, including Ballona Creek, Beach Cities, Dominguez Channel, and Marina del Rey, have residential uses as the predominant land use.

3.2.2 Regulatory Setting

The EWMP areas associated with the proposed program are located in Los Angeles County within the Basin. Air quality in the County is regulated by USEPA, CARB, and SCAQMD. The

County of Los Angeles General Plan also contains an Air Quality Element in their 2014 draft document. This element summarizes air quality issues and outlines the goals and policies in the General Plan that will improve air quality and reduce greenhouse gas emissions (Los Angeles County, 2014). Los Angeles County's adopted General Plan has not yet been updated to include this element.

USEPA

Criteria Air Pollutants

At the federal level, USEPA has been charged with implementing national air quality programs. USEPA's air quality mandates are drawn primarily from the federal CAA, which was enacted in 1970. The most recent major amendments to the CAA were made by Congress in 1990.

The CAA requires USEPA to establish National Ambient Air Quality Standards (NAAQS). USEPA has established primary and secondary NAAQS for the following "criteria air pollutants": ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. **Table 3.2-2** shows the NAAQS for these pollutants.

The CAA also requires each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The CAA Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIPs are modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. USEPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals. If USEPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary sources of air pollution in the air basin.

USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking. USEPA's primary role at the state level is to oversee state air quality programs. USEPA sets federal vehicle and stationary source emissions standards and provides research and guidance in air pollution programs.

In June 2004, USEPA finalized the adoption of a comprehensive national program/rule to reduce emissions from off-road diesel engines used primarily in construction, agricultural, and industrial applications by integrating engine and fuel controls as a system to gain the greatest emission reductions. Specifically, USEPA adopted new emission standards for off-road diesel engines and sulfur reductions in off-road diesel fuel aimed at dramatically reducing harmful emissions and helping states and local areas that have been designated as 8-hour ozone nonattainment areas to improve their air quality. The new engine standards, which are based on the use of advanced exhaust emission control devices, began to take effect in 2008 and would continue to be phased in until 2015. USEPA estimates particulate matter reductions of 95 percent, NOx reductions of 90

TABLE 3.2-2
AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time[a]	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm 0.070 ppm[b]	--- 0.075 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO_X react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial/industrial mobile equipment.
Carbon Monoxide (CO)	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide (NO_2)	1 hour Annual Arithmetic Mean	0.18 ppm 0.030 ppm	0.100 ppm 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm --- 0.04 ppm ---	75 ppb 0.5 ppm 0.14 ppm 0.030 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants; destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Respirable Particulate Matter (PM_{10})	24 hours Annual Arithmetic Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 ---	May irritate eyes and respiratory tract, decreases in lung capacity, increases cancer and mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
Fine Particulate Matter ($PM_{2.5}$)	24 hours Annual Arithmetic Mean	--- 12 µg/m^3	35 µg/m^3 12.0 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
Lead (Pb)	30 Day Average Calendar Quarter Rolling 3-Month Average	1.5 µg/m^3 --- ---	--- 1.5 µg/m^3 0.15 µg/m^3	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).	*Present source:* lead smelters, battery manufacturing, and recycling facilities. Past source: combustion of leaded gasoline.
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache, and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining
Sulfates (SO_4)	24 hours	25 µg/m^3	No National Standard	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.
Visibility-Reducing Particles	8 hours	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, and discourages tourism.	See $PM_{2.5}$.
Vinyl Chloride	24 hours	0.01 ppm	No National Standard	Short-term exposure to high levels of vinyl chloride in the air can cause dizziness, drowsiness, and headaches. Long-term exposure through inhalation and oral exposure can cause liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer in humans.	Polyvinyl chloride (PVC) plastic and vinyl products.

NOTE: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.
[a] The averaging time is the interval of time over which the sample results are reported.
[b] This concentration was approved by CARB on April 28, 2005, and became effective May 17, 2006.

SOURCE: CARB, 2013c.

percent, and the virtual elimination of SO_X from off-road engines that meet the new standards. Because the emission control devices in the off-road diesel engines could potentially be damaged by sulfur, USEPA also targeted the reduction of sulfur levels in off-road diesel fuel as part of its rule. The rule aimed to reduce off-road diesel fuel sulfur levels by 99 percent, resulting in an Ultra Low Sulfur Diesel (ULSD) fuel that has a maximum sulfur concentration of 15 parts per million (ppm). The phase-in of fuel controls to reduce the sulfur levels in off-road diesel fuel began in 2007.

With respect to on-road diesel engines, USEPA promulgated the Heavy-Duty Highway Rule in 2007, which aims to reduce emissions from on-road, heavy-duty diesel trucks by establishing a series of increasingly strict emission standards for new engines. Manufacturers are required to produce new diesel vehicles that meet particulate matter and NO_X emission standards beginning with model year 2007.

Hazardous Air Pollutants

USEPA has programs for identifying and regulating HAPs. The first National Emission Standards for Hazardous Air Pollutants (NESHAPs) were originally required by the CAA in 1970, which were developed for sources and source categories of HAPs that were determined to pose adverse risk to human health. The USEPA Administrator was directed to set risk-based NESHAPs at a level that provided an ample margin of safety to protect the public health from HAPs. Subsequently, in Section 112(d) of the 1990 CAAA, Congress directed USEPA to develop technology-based standards to further regulate HAPs. As opposed to the original conception of NESHAPs as a risk-based standard, the technology-based NESHAPS were established according to Maximum Achievable Control Technology (MACT) requirements. The MACT NESHAP standards were different for major sources than for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (tpy) of a single HAP or more than 25 tpy of any combination of HAPs; all other sources are considered area sources. Section 112(f) of the 1990 CAAA also specified that USEPA determine whether or not to promulgate additional NESHAP standards beyond the MACT within 8 years after promulgation of the MACT standard (but within 9 years after promulgation of the 2-year MACT source categories). Thus, USEPA is required to evaluate the NESHAPs developed according to the MACT standards for any "residual risk" with 8 years of promulgation. If the "residual risk" for a source category does not protect public health with "an ample margin of safety," then USEPA must promulgate health-based standards for that source category to further reduce HAP emissions.

The CAAA also required USEPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

CARB

Criteria Air Pollutants

CARB, a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. CARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementation of the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, requires CARB to establish the California Ambient Air Quality Standards (CAAQS). CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. Applicable CAAQS are shown in Table 3.2-2.

The CCAA requires all local air districts in the state to endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts shall focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

Among CARB's other responsibilities are overseeing compliance by local air districts with California and federal laws; approving local air quality plans; submitting SIPs to USEPA; monitoring air quality; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Toxic Air Contaminants

Air quality regulations also focus on TACs. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no safe level of exposure. This contrasts with the criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established. Instead, USEPA and CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the MACT or best available control technology (BACT) for toxics and to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by the districts, establish the regulatory framework for TACs.

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807 [Chapter 1047, Statutes of 1983]) and the Air Toxics Hot Spots Information and Assessment Act (Hot Spots Act) (AB 2588 [Chapter 1252, Statutes of 1987]). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted USEPA's list of HAPs as TACs. Most recently, diesel particulate matter was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an airborne toxics control measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

The Air Toxics Hot Spots Information and Assessment Act requires existing facilities emitting toxic substances above a specified level to prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk-reduction measures.

CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook), which provides guidance concerning land use compatibility with TAC sources (CARB, 2005). Although it is not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way.

SCAQMD

Criteria Air Pollutants

SCAQMD attains and maintains air quality conditions in the Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SCAQMD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SCAQMD also inspects stationary sources of air pollution and responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the CAA, CAAA, and CCAA. Air quality plans applicable to the proposed program are discussed below.

Air Quality Management Plan

SCAQMD and the Southern California Association of Governments (SCAG) are responsible for preparing the air quality management plan (AQMP), which addresses federal and state CAA requirements. The AQMP details goals, policies, and programs for improving air quality in the Basin.

The 2012 AQMP was adopted by the SCAQMD Governing Board on December 12, 2012. The purpose of the 2012 AQMP for SCAG is to set forth a comprehensive and integrated program that will lead the Basin into compliance with the federal 24-hour $PM_{2.5}$ air quality standard, and to provide an update to the Basin's commitments toward meeting the federal 8-hour ozone standards. The AQMP also serves to satisfy recent USEPA requirements for a new attainment demonstration of the revoked 1-hour ozone standard, as well as a vehicle miles traveled (VMT) emissions offset demonstration.[1] Specifically, once approved by CARB, the AQMP would serve as the official SIP submittal for the federal 2006 24-hour $PM_{2.5}$ standard, for which USEPA has

[1] Although the federal 1-hour ozone standard was revoked in 2005, the USEPA has proposed to require a new 1-hour ozone attainment demonstration in the South Coast extreme ozone nonattainment area as a result of a recent court decision. Although USEPA has replaced the 1-hour ozone standard with a more health protective 8-hour standard, the CAA anti-backsliding provisions require that California have approved plans for attaining the 1-hour standard.

established a due date of December 14, 2012.[2] In addition, the AQMP updates specific new control measures and commitments for emissions reductions to implement the attainment strategy for the 8-hour ozone SIP. The 2012 AQMP sets forth programs which require integrated planning efforts and the cooperation of all levels of government: local, regional, state, and federal. Currently, SCAQMD staff has already begun initiating an early development process for the 2015 AQMP.

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction anticipated under the proposed program would include the following:

Rule 401 – Visible Emissions. This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in visible emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than 3 minutes in any 1 hour that is as dark or darker in shade than that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Rule 402 – Nuisance. This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Rule 403 – Fugitive Dust. This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust, and requires best available control measures to be applied to earthmoving and grading activities.

Toxic Air Contaminants

At the local level, air pollution control or management districts may adopt and enforce CARB control measures. Under SCAQMD Regulation XIV (Toxics and Other Non-Criteria Pollutants), and in particular Rule 1401 (New Source Review), all sources that possess the potential to emit TACs are required to obtain permits from SCAQMD. Permits may be granted to these operations

[2] Although the 2012 AQMP was approved by the SCAQMD Board on December 7, 2012, the plan did not get submitted to the USEPA by December 14, 2012 as it first required approval from CARB. The 2012 AQMP was subsequently approved by CARB on January 25, 2013, and as of February 13, 2013 the plan has been submitted by CARB to the USEPA.

if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. SCAQMD limits emissions and public exposure to TACs through a number of programs. SCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. As none of the proposed Best Management Practices (BMP) projects in the County would involve TAC-emitting stationary sources, no permits from SCAQMD would be required for operation of the proposed BMP projects.

The Air Toxics Control Plan (March 2000, revised March 26, 2004) is a planning document designed to examine the overall direction of SCAQMD's air toxics control program. It includes development and implementation of strategic initiatives to monitor and control air toxics emissions. Control strategies that are deemed viable and are within SCAQMD's jurisdiction will each be brought to the SCAQMD Board for further consideration through the normal public review process. Strategies that are to be implemented by other agencies will be developed in a cooperative effort, and the progress will be reported back to the Board periodically.

In September 2008, the SCAQMD completed the Multiple Air Toxics Exposure Study III (MATES III). MATES III is a monitoring and evaluation study conducted in the Basin and is a follow-up to previous air toxics studies. The study consists of several elements, including a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the Basin. The study focuses on the carcinogenic risk from exposure to air toxics. However, it does not estimate mortality or other health effects from particulate exposures. MATES III shows that areas within the County have an estimated carcinogenic risk ranging from 1,173 to 1,449 in a million. These model estimates were based on monitoring data collected at 10 fixed sites within the Basin. As of June 2012, SCAQMD began conducting the MATES IV.

County of Los Angeles

General Plan

The Conservation and Open Space Element of the 1980 County of Los Angeles General Plan sets the policy direction for management of the County's natural resources, including air quality. The specific policies in the County General Plan related to improving air quality include:

Policy 1: Actively support strict air quality regulations for mobile and stationary sources, and continued research to improve air quality. Promote vanpooling, carpooling and improved public transportation.

Policy 2: Support the conservation of energy and encourage the development and utilization of new energy sources including geothermal, thermal waste, solar, wind and ocean-related sources.

Policy 3: Promote the use of solar energy to the maximum extent possible.

The Air Quality Element of the Draft 2014 County of Los Angeles General Plan summarizes air quality issues and outlines goals and policies that will improve air quality and reduce greenhouse gas emissions. These specific policies include:

Policy AQ 1.1: Minimize health risks to people from industrial toxic or hazardous air pollutant emissions, with an emphasis on local hot spots, such as existing point sources affecting immediate sensitive receptors.

Policy AQ 1.2: Encourage the use of low or no volatile organic compound (VOC) emitting materials.

Policy AQ 1.3: Reduce particulate inorganic and biological emissions from construction, grading, excavation, and demolition to the maximum extent feasible.

Policy AQ 1.4: Work with local air quality management districts to publicize air quality warnings, and to track potential sources of airborne toxics from identified mobile and stationary sources.

Policy AQ 2.1: Encourage the application of design and other appropriate measures when siting sensitive uses, such as residences, schools, senior centers, daycare centers, medical facilities, or parks with active recreational facilities within proximity to major sources of air pollution, such as freeways.

Policy AQ 2.2: Participate in, and effectively coordinate the development and implementation of community and regional air quality programs.

Policy AQ 3.1: Facilitate the implementation and maintenance of the Community Climate Action Plan to ensure that the County reaches its climate change and greenhouse gas emission reduction goals.

Policy AQ 3.2: Reduce energy consumption in County operations by 20 percent by 2015.

Policy AQ 3.3: Reduce water consumption in County operations.

Policy AQ 3.4: Participate in local, regional and state programs to reduce greenhouse gas emissions.

Policy AQ 3.5: Encourage maximum amounts of energy conservation in new development and municipal operations.

Policy AQ 3.6: Support and expand urban forest programs within the unincorporated areas.

City General Plans

The numerous cities encompassed by the EWMP project area all have their own respective city General Plans, some of which may contain policies that address air quality. As implementation of the individual structural BMP projects proceed, specific policies and objectives pertaining to air

quality from applicable city General Plans will be identified and evaluated on a project-by-project basis during subsequent California Environmental Quality Act (CEQA) environmental processes.

3.2.3 Impact Assessment

Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, impacts related to air quality may be considered significant if the proposed program 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.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

As guided by Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. As such, the significance thresholds and analysis methodologies in SCAQMD's *CEQA Air Quality Handbook* are used in evaluating project impacts. The SCAQMD has established daily mass emissions thresholds for criteria pollutants and ozone precursors, which are shown in **Table 3.2-3**

Program Impact Discussion

Air Quality Plan

Impact 3.2-1: The project could conflict with or obstruct implementation of the applicable air quality plan.

Structural (Regional, Centralized, and Distributed) BMPs

In preparation of the AQMP, SCAQMD and SCAG use land use designations contained in General Plan documents to forecast, inventory, and allocate regional emissions from land use and development-related sources. For purposes of analyzing consistency with the AQMP, projects that are consistent with the regional population, housing, and employment forecasts identified by SCAG are considered to be consistent with the AQMP growth projections, since the forecast assumptions by SCAG forms the basis of the land use and transportation control portions of the AQMP.

TABLE 3.2-3
SCAQMD REGIONAL AIR QUALITY SIGNIFICANCE THRESHOLDS

	Mass Daily Thresholds (lbs/day)	
Pollutant	**Construction**	**Operations**
Oxides of Nitrogen (NO_X)	100	55
Reactive Organic Gases (ROG)	75	55
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_X)	150	150
Carbon Monoxide (CO)	550	550
Lead[a]	3	3
TACs (including carcinogens and non-carcinogens	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	

[a] As the proposed program would not involve the development of any major lead emissions sources, lead emissions are not analyzed further in the PEIR.

SOURCE: SCAQMD, 2011.

Additionally, since SCAG's regional growth forecasts are based upon, among other things, land uses designated in General Plans, a project that is consistent with the land use designated in a city's General Plan would also be consistent with the SCAG's regional forecast projections, and thus also with the AQMP growth projections.

Implementation of the proposed program would involve the installation of structural control measures that would be constructed as BMPs to reduce the impact of stormwater and non-stormwater on receiving water quality within the EWMP areas. As such, the proposed program is not a land use project and its implementation would not induce any additional growth within the EWMP areas in the County. Therefore, the proposed program would not conflict with, or obstruct, implementation of the AQMP. Overall, this impact would be less than significant.

Mitigation Measures: None required

Significance Determination: Less than significant

Non-Structural (Institutional) BMPs

As discussed in Chapter 2.0, *Project Description*, non-structural/institutional BMPs do not include the construction of new facilities. Consequently, no impacts associated with implementation of the SCAQMD's AQMP would result.

Mitigation Measures: None required

Significance Determination: No impact

Air Quality Standards

Impact 3.2-2: The project could violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Structural (Regional, Centralized, and Distributed) BMPs

Construction

Development of the proposed structural BMPs would generally involve construction phases such as site preparation, grading and excavation, and construction of the structural control measure. Construction activities associated with each structural BMP (regional, centralized, and distributed) would generate pollutant emissions from the following general activities: (1) site preparation, grading, and excavation; (2) construction workers traveling to and from a BMP site; (3) delivery and hauling of construction supplies to and soil and debris from the structural BMP site; (4) fuel combustion by on-site construction equipment; and (5) construction of the structural BMP. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. Construction activities involving site preparation and grading would primarily generate PM_{10} emissions. Mobile source emissions (use of diesel-fueled equipment on-site, and traveling to and from a BMP site) would primarily generate NO_X emissions. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring at the same time.

The timing and sequencing of the development of the proposed structural BMPs within the EWMP areas are currently unknown. Thus, the amount of program-related construction that would occur on a daily or annual basis cannot be determined with any certainty at this time. As such, it is expected that the construction activities for the structural BMPs in the EWMP areas would occur intermittently throughout the course of the program implementation period Construction impacts associated with each structural BMP development would be short-term in nature and limited to the period of time when construction activity is taking place for that particular development. Although it is beyond the scope of this PEIR to assess the construction emissions for each individual BMP project, for the purpose of this analysis an emissions estimate for a representative "worst-case" construction scenario of each structural BMP type (i.e., distributed, centralized, and regional) is provided to demonstrate the magnitude of the daily emissions that can be generated by each structural BMP type. As such, a worst-case construction scenario was defined for a small-, medium-, and large-scale structural BMP project, which corresponds to a distributed, centralized, and regional structural BMP project, respectively. In addition, the year 2015 was used as the construction analysis year to provide a conservative analysis, since construction equipment used in future years beyond 2015 would likely emit pollutants at a lower rate because of more stringent emission standards, advances in technologies and fuels, and equipment turnover.

The maximum daily construction emissions for the three structural BMP project types were estimated using the California Emissions Estimator Model (CalEEMod), which is designed to model construction emissions for land use development projects based on building size, land use

and type, and disturbed acreage, and allows for the input of project-specific information. The construction-related emissions of criteria air pollutants for the three structural BMP types were modeled based on general information provided in the project description and CalEEMod default settings along with reasonable assumptions based on other similar types of projects. The specific modeling parameters pertaining to the types and amount of construction equipment used during each construction phase for a representative distributed, centralized, and regional structural BMP project that was used to generate construction emissions are shown in **Tables 3.2-4**, **3.2-5**, and **3.2-6**, respectively.

TABLE 3.2-4
MODELING PARAMETERS FOR WORST-CASE CONSTRUCTION SCENARIO FOR A DISTRIBUTED BMP PROJECT

Construction Phase	Construction Equipment Type	Construction Equipment Quantity	Construction Equipment Daily Usage Hours
Site Preparation	Excavator	1	8
	Tractors/Loaders/Backhoes	1	6
	Other General Industrial Equipment	1	8
Grading	Graders	1	4
	Rubber Tired Dozers	1	4
	Tractors/Loaders/Backhoes	1	8
Building Construction	Forklifts	1	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	2	8
	Welders	1	8
Acres of Grading:	2		

TABLE 3.2-5
MODELING PARAMETERS FOR WORST-CASE CONSTRUCTION SCENARIO FOR A CENTRALIZED BMP PROJECT

Construction Phase	Construction Equipment Type	Construction Equipment Quantity	Construction Equipment Daily Usage Hours
Site Preparation	Excavator	2	6
	Tractors/Loaders/Backhoes	3	8
	Other General Industrial Equipment	1	8
Grading	Graders	2	8
	Rubber Tired Dozers	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction	Forklifts	2	8
	Generator Sets	2	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Acres of Grading:	10		

TABLE 3.2-6
MODELING PARAMETERS FOR WORST-CASE CONSTRUCTION SCENARIO FOR A REGIONAL BMP PROJECT

Construction Phase	Construction Equipment Type	Construction Equipment Quantity	Construction Equipment Daily Usage Hours
Site Preparation	Excavator	3	8
	Tractors/Loaders/Backhoes	4	8
	Other General Industrial Equipment	3	8
	Rubber Tired Dozers	2	8
Grading	Graders	2	8
	Rubber Tired Dozers	3	8
	Tractors/Loaders/Backhoes	4	8
Building Construction	Forklifts	3	8
	Generator Sets	4	8
	Tractors/Loaders/Backhoes	4	7
	Welders	1	8
Acres of Grading:	40		

Tables 3.2-7, **3.2-8**, and **3.2-9** summarize the modeled worst-case daily emissions that are estimated to occur on peak construction days for a representative distributed, centralized, and regional structural BMP project, respectively. The CalEEMod modeling for each representative structural BMP project type assumes that appropriate dust control measures would be implemented during each phase of development as required by SCAQMD Rule 403—Fugitive Dust. These dust control measures generally include, but are not limited to, the following:

- All haul trucks shall be covered when loaded with fill.
- Paved streets shall be swept at least once per day where there is evidence of dirt that has been carried on to the roadway.
- Watering trucks shall be used to minimize dust. Watering should be sufficient to confine dust plumes to the project work areas.
- Active disturbed areas shall have water applied to them three times daily.
- Inactive disturbed areas shall be revegetated as soon as feasible to prevent soil erosion.
- For disturbed surfaces to be left inactive for four or more days and that will not be revegetated, a chemical stabilizer shall be applied per manufacturer's instruction.
- For unpaved roads, chemical stabilizers shall be applied or the roads shall be watered once per hour during active operation.
- Vehicle speed on unpaved roads shall be limited to 15 miles per hour.
- For open storage piles that will remain on-site for two or more days, water shall be applied once per hour, or coverings shall be installed.

- For paved road track-out, all haul vehicles shall be covered and shall maintain a freeboard height of 12 inches.
- During high wind conditions (wind speeds in excess of 25 miles per hour), all earthmoving activities shall cease or water shall be applied to soil not more than 15 minutes prior to disturbing such soil.
- Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the construction site each trip on a gravel surface to prevent dirt and dust from impacting the surrounding areas.

TABLE 3.2-7
ESTIMATED PEAK DAILY EMISSIONS FOR PROJECT CONSTRUCTION ACTIVITIES FOR A DISTRIBUTED BMP PROJECT

	Estimated Maximum Daily Emissions (lbs/day)					
Construction Activity	**ROG**	**NO_X**	**CO**	**SO_x**	**PM_{10}[a]**	**$PM_{2.5}$[a]**
Site Preparation: *On-Site*	1.08	10.83	7.38	0.01	0.73	0.67
Off-Site	0.04	0.05	0.53	1.06	7.90	7.20
Total Emissions:	**1.12**	**10.88**	**7.91**	**1.07**	**8.63**	**7.87**
Grading: *On-Site*	2.24	16.06	15.02	0.20	1.30	1.20
Off-Site	5.87	80.41	67.88	0.21	1.52	1.39
Total Emissions:	**8.11**	**96.47**	**82.90**	**0.41**	**2.82**	**2.59**
Building: *On-Site*	2.30	16.03	12.00	.02	1.24	1.19
Off-Site	0.17	0.23	2.45	4.91	3.64	3.34
Total Emissions:	**2.47**	**16.26**	**14.45**	**4.93**	**4.88**	**4.53**
Maximum Regional Daily Emissions	**8.11**	**96. 47**	**82.90**	**0.41**	**2.82**	**2.59**
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No

NOTE: See Appendix C for CalEEMod model outputs.

[a] PM_{10} and $PM_{2.5}$ emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

TABLE 3.2-8
ESTIMATED PEAK DAILY EMISSIONS FOR PROJECT CONSTRUCTION ACTIVITIES FOR A CENTRALIZED BMP PROJECT

	Estimated Maximum Daily Emissions (lbs/day)					
Construction Activity	**ROG**	**NO_X**	**CO**	**SO_x**	**PM_{10}[a]**	**$PM_{2.5}$[a]**
Site Preparation: *On-Site*	2.10	20.98	14.56	0.02	1.45	1.34
Off-Site	0.07	0.09	0.99	1.99	1.48	1.35
Total Emissions:	**2.17**	**21.07**	**15.55**	**2.01**	**2.93**	**2.69**
Grading: *On-Site*	5.39	57.37	36.76	0.04	3.10	2.85
Off-Site	6.93	108.06	80.26	0.25	1.79	1.64
Total Emissions:	**12.32**	**165.43**	**117.02**	**0.29**	**4.89**	**4.49**
Building: *On-Site*	3.48	25.48	18.62	0.03	1.97	1.88
Off-Site	1.60	8.32	21.25	0.04	0.14	0.13
Total Emissions:	**5.08**	**33.80**	**39.87**	**0.07**	**2.11**	**2.01**
Maximum Regional Daily Emissions	**12.32**	**165.43**	**117.02**	**0.29**	**4.89**	**4.49**
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	**Yes**	No	No	No	No

NOTE: See Appendix C for CalEEMod model outputs.
[a] PM_{10} and $PM_{2.5}$ emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

TABLE 3.2-9
ESTIMATED PEAK DAILY EMISSIONS FOR PROJECT CONSTRUCTION ACTIVITIES FOR A REGIONAL BMP PROJECT

	Estimated Maximum Daily Emissions (lbs/day)					
Construction Activity	**ROG**	**NO_X**	**CO**	**SO_x**	**PM_{10}[a]**	**$PM_{2.5}$[a]**
Site Preparation: *On-Site*	6.43	67.27	48.36	0.05	4.00	3.68
Off-Site	0.14	0.19	1.98	3.98	2.95	2.71
Total Emissions:	**6.57**	**67.46**	**50.34**	**4.03**	**6.95**	**6.39**
Grading: *On-Site*	6.75	72.62	48.35	0.05	3.84	3.53
Off-Site	11.76	183.65	136.01	0.41	3.04	2.79
Total Emissions:	**18.51**	**256.27**	**184.36**	**0.46**	**6.88**	**6.32**
Building: *On-Site*	5.46	41.01	29.69	0.04	3.14	3.02
Off-Site	6.43	33.48	85.27	0.16	0.56	0.52
Total Emissions:	**11.89**	**74.58**	**114.96**	**.20**	**3.70**	**3.54**
Maximum Regional Daily Emissions	**18.51**	**256.27**	**184.36**	**0.46**	**6.88**	**6.32**
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	**Yes**	No	No	No	No

NOTE: See Appendix C for CalEEMod model outputs.
[a] PM_{10} and $PM_{2.5}$ emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

As shown in Table 3.2-7, implementation of distributed BMPs would not result in significant air emissions when assuming worst-case construction methods. However, as shown in Tables 3.2-8 and 3.2-9, for some of the larger regional and centralized BMPs, the maximum daily level of construction-generated emissions of NO_X would exceed the applicable SCAQMD-recommended thresholds under the worst-case construction scenario. The remaining criteria pollutants (i.e., ROG, CO, SOx, PM_{10}, and $PM_{2.5}$) would not exceed the applicable SCAQMD-recommended thresholds. The exceedance of SCAQMD's threshold for NO_X emissions for larger BMPs would be generated primarily during the grading phase, when emissions associated with off-road construction equipment and on-road soil hauling activities would occur. Thus, impacts associated with NOx emissions during construction activities of centralized and regional structural BMPs are considered significant.

It should be noted that the sample construction scenarios provided in this analysis for a single distributed, centralized, and regional structural BMP project represent an estimation of construction methods and emissions. It is likely that the actual emissions associated with each structural BMP type would be less than those presented in this PEIR.

As discussed previously, it is anticipated that future structural BMP developments associated with the proposed program would be reviewed on a case-by-case basis to ascertain whether an individual development would generate potentially significant air quality impacts during construction, and, where it is necessary, will require the implementation of mitigation measures to minimize air emissions and reduce potentially significant impacts. As such, the identification of a significant program-level impact from construction in this PEIR for the proposed program does not preclude the finding of less-than-significant impacts from construction for future individual structural BMP projects within the EWMP areas.

For BMPs that may result in significant air emissions as determined by implementing agencies, **Mitigation Measures AIR-1** and **AIR-2** would need to be implemented to reduce construction emissions to less than significant levels. For smaller BMPs including distributed BMPs, air emissions would not be significant and would not require mitigation measures. Table 3.2-10 summarizes which BMPs would require mitigation measures.

While implementation of Mitigation Measures AIR-1 and AIR-2 would reduce construction-related emissions, they may not reduce these emissions to levels below the SCAQMD thresholds for every structural BMP project, as the amount of emissions generated for each structural BMP project would vary depending on its size, the land area that would need to be disturbed during construction, and the length of the construction schedule. Implementation of large regional or centralized BMPs could result in temporary significant and unavoidable air emissions during peak periods of construction.

Operation

Implementation of the proposed program would not result in substantial long-term regional emissions of criteria air pollutants. The proposed structural BMPs are not land use projects and, therefore, would not generate daily vehicle-exhaust emissions by the motor vehicles traveling to and from the individual project areas. While it is anticipated that implementing agencies would

conduct visits to the structural BMP sites for inspection and maintenance activities, these visits would occur only periodically throughout the year and would result in minimal emissions. Additionally, while some of the centralized and regional structural BMPs may require the installation of pump stations and ancillary components, this equipment would be electrically powered and would not generate emissions at the BMP sites.

Some Regional BMPs may involve grading large areas to be used as percolation basins. Some of these areas may be unvegetated, which may result in dust erosion. Implementing agencies would be required to prepare a Dust Control Plan to be in compliance with Rule 403. Stabilizing soils with binders, gravel, or vegetation would reduce dust emissions from large graded areas and prevent significant PM_{10} emissions. Compliance with existing dust emission regulations, specifically Rule 403, would ensure that operational impacts would be less than significant.

Mitigation Measures:

AIR-1: Implementing agencies shall require for large regional or centralized BMPs the use of low-emission equipment meeting Tier II emissions standards at a minimum and Tier III and IV emissions standards where available as CARB-required emissions technologies become readily available to contractors in the region.

AIR-2: For large construction efforts that may result in significant air emissions, implementing agencies shall encourage contractors to use lower-emission equipment through the bidding process where appropriate.

Significance Determination: Impacts from construction emissions would remain significant and unavoidable for some of the larger projects as there are no other feasible mitigation measures available to reduce these impacts at this program level; impacts from operational emissions would be less than significant. (The application of these mitigation measures to specific BMP types and categories are identified in Table 3.2-10.)

Non-Structural (Institutional) BMPs

As discussed in Chapter 2.0, *Project Description*, non-structural/institutional BMPs do not include the construction of new facilities. Consequently, no air quality impacts associated with construction or operational activities would result.

Mitigation Measures: None required

Significance Determination: No impact

Cumulative Impacts

Impact 3.2-3: The program could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Structural (Regional, Centralized, and Distributed) BMPs

As the Basin is currently in nonattainment for ozone, PM_{10}, and $PM_{2.5}$, cumulative development consisting of the proposed program along with other reasonably foreseeable future projects in the Basin as a whole could violate an air quality standard or contribute to an existing or projected air quality violation. However, based on SCAQMD's cumulative air quality impact methodology, SCAQMD recommends that if an individual project results in air emissions of criteria pollutants (ROG, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the proposed program region is in nonattainment under an applicable federal or state ambient air quality standard.

As discussed previously under Impact 3.2-2, under conditions where multiple structural BMPs would be constructed concurrently in the EWMP areas, it is anticipated that the total aggregate construction emissions generated from these multiple structural BMP projects on a daily basis would exceed the SCAQMD's significance thresholds for criteria pollutants. Even with implementation of **Mitigation Measures AIR-1** and **AIR-2**, the resulting aggregate daily emissions may not be reduced to levels below the SCAQMD thresholds should multiple structural BMP projects be constructed concurrently. Thus, construction-related air quality impacts associated with the proposed program would be considered significant and unavoidable. Therefore, as pollutants for which the Basin is in nonattainment (i.e., ozone, PM_{10}, and $PM_{2.5}$) associated with the proposed program could exceed SCAQMD's respective thresholds for construction, these pollutant emissions would, in conjunction with other past, current, and probable future projects, be cumulatively considerable, and cumulative impacts would be significant and unavoidable.

With respect to operational emissions, program implementation would not result in substantial long-term regional emissions of criteria air pollutants and would not exceed the SCAQMD thresholds of significance for criteria pollutants. As such, the proposed program's operational emissions would not be cumulatively considerable and cumulative air quality impacts would be less than significant.

> **Mitigation Measures:** Implement **Mitigation Measures AIR-1** through **AIR-2**
>
> **Significance After Mitigation**: Significant and unavoidable for construction; less-than-significant for operations. (The application of these mitigation measures to specific BMP types and categories are identified in Table 3.2-10.)

Non-Structural (Institutional) BMPs

As discussed in Chapter 2.0, *Project Description*, non-structural/institutional BMPs do not include the construction of new facilities. Consequently, no cumulative air quality impacts in the Basin would result.

> **Mitigation Measures:** None required
>
> **Significance Determination:** No impact

Sensitive Receptors

Impact 3.2-4: The project could expose sensitive receptors to substantial pollutant concentrations.

Structural (Regional, Centralized, and Distributed) BMPs

Construction and operation of new developments that would occur under the proposed program could potentially expose sensitive receptors in the EWMP areas of the County to localized air quality impacts from criteria pollutants and TACs. Separate discussions are provided below analyzing the potential for sensitive receptors to be exposed to these pollutant sources.

Carbon Monoxide Hotspots

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. Projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at 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.

While construction-related traffic on the local roadways would occur during construction of each structural BMP project, the net increase of construction worker vehicle trips to the existing traffic volumes on the local roadways would be relatively small and would not result in CO hotspots. Additionally, the construction-related vehicle trips would only occur in the short-term, and would cease once construction activities for a structural BMP project has been completed. Thus, because trip-generating land uses are not associated with the proposed program and the amount of maintenance visits to the structural BMP sites would be minimal, impacts associated with CO hotspots would be less than significant and no mitigation is required.

Mitigation Measures: None required

Significance Determination: Less than significant

Localized Construction Air Quality Impacts – Criteria Air Pollutants

The EWMP areas associated with the proposed program are located in multiple jurisdictions within the County of Los Angeles, all of which are located within in the Basin. Given that the majority of the County is highly urbanized with a variety of land use types and that the proposed program would be located in various watersheds across the County that span multiple jurisdictions, existing sensitive uses such as residences, schools, hospitals, daycare centers, etc., would be located within and in proximity to the EWMP areas. During construction of the individual structural BMP projects in the EWMP areas, existing sensitive receptors that happen to be located adjacent to or near these structural BMP construction sites could be exposed to significant adverse localized air quality impacts. According to SCAQMD's localized significance

threshold (LST) methodology, projects greater than 5 acres in size should perform air quality dispersion modeling to determine whether construction activities would cause or contribute to adverse localized air quality impacts. Where projects would be less than 5 acres in size, the SCAQMD provides screening tables that can be used to determine the maximum allowable daily emissions that would satisfy the LSTs without project-specific dispersion modeling. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. According to SCAQMD's LST methodology, LSTs are only applicable to the on-site construction emissions that are generated by a project and do not apply to emissions generated off-site such as mobile emissions on roadways from worker, vendor, and haul truck trips.

SCAQMD has indicated, in its 2003 *Final Localized Significance Threshold Methodology* document, that LSTs are applicable to projects at the project-specific level and are not intended for regional projects.[3] Given the large geographic area associated with the project, an LST analysis would not be applicable to this PEIR. Depending on the size and scale of a particular structural BMP project and the intensity of the construction effort that would be required, the construction emissions generated by a new structural BMP project could potentially cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards at the existing sensitive uses located in the vicinity of that project. For individual structural BMP projects that would fit this scenario, **Mitigation Measure AIR-3** would be implemented, which requires a project-level LST analysis to be prepared to demonstrate that the construction emissions of a structural BMP project would not exceed SCAQMD's LSTs or result in pollutant emissions that would cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards.[4] With implementation of Mitigation Measures AIR-3, this impact would be reduced to less than significant. For smaller BMPs, including distributed BMPs, air emissions would not be significant and would not require mitigation measures.

Mitigation Measures:

AIR-3: For large construction efforts associated with regional or centralized BMPs, implementing agencies shall conduct a project-specific LST analysis where necessary to determine local health impacts to neighboring land uses. Where it is determined that construction emissions would exceed the applicable LSTs or the most stringent applicable federal or state ambient air quality standards, the structural BMP project shall reduce its daily construction intensity (e.g., reducing the amount of equipment used daily, reducing the amount of soil graded/excavated daily) to a level where the structural BMP project's construction emissions would no longer exceed SCAQMD's LSTs or result in pollutant

3 Page 1-1 of SCAQMD's 2003 *Final Localized Significance Threshold Methodology* document.

4 As discussed previously, the LSTs for NO_X, CO, PM_{10}, and $PM_{2.5}$ provided in SCAQMD's screening tables represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard for those respective pollutants. For projects that are less than 5 acres, the SCAQMD's LST screening tables can be used to determine whether construction-related emissions would result in a potential significant air quality impact. For projects that exceed 5 acres in size, dispersion modeling should be conducted, per SCAQMD's LST methodology, to determine whether the most stringent applicable federal or state ambient air quality standards for pollutants would be exceeded, which would result in a significant air quality impact.

emissions that would cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards.

Significance Determination: Less than significant with mitigation. (The application of these mitigation measures to specific BMP types and categories are identified in Table 3.2-10.)

Localized Construction Air Quality Impacts – Toxic Air Contaminants

Intermittent construction activities occurring throughout the program area over the implementation period of the individual structural BMPs would result in short-term emissions of diesel particulate matter, which is a TAC. During construction of each individual structural BMP project within the EWMP areas, the exhaust of off-road heavy-duty diesel equipment would emit diesel particulate matter during general construction activities, such as site preparation (e.g., excavation, grading, and clearing); materials transport and handling; structural BMP construction; and other miscellaneous activities. Similar to the localized criteria pollutant emissions during construction, the short-term emissions of diesel particulate matter associated with each structural BMP development would only affect its own remote group of existing sensitive receptors that are located nearby. SCAQMD has not adopted a methodology for analyzing such impacts and has not recommended that health risk assessments be completed for construction-related emissions of TACs.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., the potential exposure to TACs to be compared to applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period or duration of activities associated with each of the future individual structural BMP development occurring in the EWMP areas under the proposed program.

The construction period for any individual structural BMP that would occur in the EWMP areas under the proposed program would be finite and much less than the 70-year period used for risk determination. Because off-road heavy-duty diesel equipment would be used only temporarily at each individual structural BMP site, the construction activities associated with each structural BMP project in the EWMP areas would not expose sensitive receptors to substantial emissions of TACs. This impact would be less than significant.

Mitigation Measures: None required

Significance Determination: Less than significant

Operational Sources of Toxic Air Contaminants

Implementation of the program, which would involve the installation of structural control measures that would be constructed as BMPs to reduce the impact of stormwater and non-stormwater on receiving water quality, would not result in new land uses in the EWMP areas.

Operation of the structural BMPs would not involve TAC-emitting equipment, as the majority of the structural BMPs would operate passively without the use of mechanized equipment. While some of the centralized and regional structural BMPs may require the use of pump stations and associated components, such equipment would be electrically driven and would not result in direct emissions at the individual structural BMP sites. Therefore health risks from TAC emissions associated with project operations would not occur.

Mitigation Measures: None required

Significance Determination: No impact

Non-Structural (Institutional) BMPs

As discussed in Chapter 2.0, *Project Description*, non-structural/institutional BMPs do not include the construction of new facilities. Consequently, no impacts associated with exposure of sensitive receptors to substantial pollutant emissions would result.

Mitigation Measures: None required

Significance Determination: No impact

Objectionable Odors

Impact 3.2-5: The proposed program could create objectionable odors affecting a substantial number of people.

Structural (Regional, Centralized, and Distributed) BMPs

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The project does not include any uses identified by the SCAQMD as being associated with odors.

During the construction phases for each of the new structural BMP projects that would occur in the EWMP areas over the course of the implementation period, exhaust from construction equipment may produce discernible odors typical of most construction sites. Such odors would be a temporary source of nuisance to adjacent uses, but because they are temporary and intermittent in nature, would not be considered a significant environmental impact. Therefore, impacts associated with objectionable odors during construction would be less than significant.

Although rainfall in Southern California is limited to certain times of year, and most drainage channels are dry for most of the year, some structural BMPs may involve retaining intermittent stormwater or dry weather flows on a site that may result in organic odors as water levels fluctuate and decomposition occurs in saturated mud. Restored creeks and estuaries may be permanently wet, resulting in odors from saturated mud or algal blooms. Standing water may emit odors if algal blooms occur for periods of time before the water dries or percolates. If these facilities are near sensitive receptors such as residential areas, these odors may result in a severe nuisance, particularly during night time hours. Regular maintenance may be sufficient to reduce

odors in some situations. **Mitigation Measure AES-2** requires implementing agencies to prepare and implement maintenance plans for all BMPs installed. Implementation of **Mitigation Measure AIR-4** promotes the consideration of odors when siting BMP locations and types.

Mitigation Measure: Implement **Mitigation Measure AES-2**

AIR-4: During planning of structural BMPs, implementing agencies shall assess the potential for nuisance odors to affect a substantial number of people. BMPs that minimize odors shall be considered the priority when in close proximity to sensitive receptors.

Significance Determination: Less than significant. (The application of these mitigation measures to specific BMP types and categories are identified in Table 3.2-10.)

Non-Structural (Institutional) BMPs

As discussed in Chapter 2.0, *Project Description*, non-structural/institutional BMPs do not include the construction of new facilities. Consequently, no impacts associated with objectionable odors would result.

Mitigation Measures: None required

Significance Determination: No impact

3.2.4 Summary of Impact Assessment

Table 3.2-10 shows a summary of the structural BMPs requiring mitigation.

TABLE 3.2-10
SUMMARY OF AIR QUALITY IMPACTS REQUIRING MITIGATION MEASURES

	Thresholds of Significance				
Structural BMPs	**Air Quality Plan**	**Air Quality Standards**	**Nonattainment Criteria Pollutants**	**Sensitive Receptors**	**Objectionable Odors**
Applicable Mitigation Measures:	**None Required**	**AIR-1; AIR-2**	**AIR-1; AIR-2**	**AIR-3**	**AES-2; AIR-4**
Regional BMPs					
Regional Detention and Infiltration	No	Yes	Yes	Yes	Yes
Regional Capture, Detention and Use	No	Yes	Yes	Yes	Yes
Centralized BMP					
Bioinfiltration	No	Yes	Yes	Yes	Yes
Constructed Wetlands	No	Yes	Yes	Yes	Yes
Treatment/Low-Flow Diversions	No	Yes	Yes	Yes	Yes
Creek, River, Estuary Restoration	No	Yes	Yes	Yes	Yes
Distributed BMPs					
Site-Scale Detention	No	No	No	No	Yes
LID – Infiltration/Filtration BMPs – Porous Pavement, Green Streets, Bioswale/Filter Strips, Downspout Disconnects	No	No	No	No	Yes
LID – Green Infrastructure – Capture and Use – Cisterns, Rain Barrels, Green roofs, Planter Boxes	No	No	No	No	Yes
Flow-through Treatment BMPs	No	No	No	No	Yes
Source-Control Treatment BMPs (catch basin inserts/screens, hydrodynamic separators, gross solids removal devices)	No	No	No	No	Yes
Low-Flow Diversions	No	No	No	No	Yes

NOTE: These conclusions are based on typical BMP size and location.