5.3 AIR QUALITY

This section of the EIR evaluates the potential for implementation of the SUP to impact air quality in the District. This section discusses plans and policies from several jurisdictional agencies and LAUSD standard conditions, guidelines, specifications, practices, policies, and project design features (LAUSD Standards), along with the existing air quality conditions throughout the SUP area, and possible environmental impacts that may occur during future phases of the SUP and site-specific projects implemented under the SUP.

Terminology

Air basin: California is divided into 15 air basins to better manage air pollution. Air basin boundaries were determined by grouping together areas with similar geographical and meteorological features. While air pollution can move freely within an air basin, it can also sometimes be transported from one basin to another.[1] The Los Angeles Unified School District (LAUSD) is wholly within the South Coast Air Basin (SoCAB).

Ambient air quality standards (AAQS): The levels of air quality set for air pollutants that are considered to provide a reasonable margin of safety in the protection of the public health and welfare. There are both state and federally established AAQS.

Criteria air pollutants: These are air pollutants that have established federal and state AAQS and are identified and regulated under Title I in the Federal Clean Air Act of 1970. These pollutants include ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead (Pb).

Toxic air contaminants: These are other air pollutants not identified as criteria air pollutants, but may cause or contribute to an increase in mortality or in serious illness, or may pose a present or potential hazard to human health. There are currently 187 toxic air contaminants (TACs) identified and regulated under Title III of the Federal Clean Air Act Amendments of 1990.[2] There are 244 TACs identified in Title 17 of the California Code of Regulations.[3]

Attainment/Nonattainment: These are designations for the air basins signifying whether air pollutants meet the National and California AAQS. An attainment status signifies that an air pollutant meets the AAQS within a specified air basin. A nonattainment status signifies that an air pollutant does not meet the AAQS within a specified air basin.

[1] California Air Resources Board. California Air Basins. March 2014, http://www.arb.ca.gov/desig/airbasins/airbasins.htm.
[2] United States Environmental Protection Agency. March 2014. http://www.epa.gov/ttn/atw/pollsour.html.
[3] California Air Resources Board (CARB). 1999, December. Final Staff Report: Update to the Toxic Air Contaminant List.

5.3.1 Environmental Setting

5.3.1.1 REGULATORY FRAMEWORK

National, State, regional and local laws, regulations, plans, and guidelines are summarized below. The following regulatory framework discussion does not include all plans and policies that relate to air quality in the District. Site-specific projects have not been identified, and there may be local jurisdictional plans and policies that are applicable depending on the project site. Specific requirements of these laws, regulations, plans, and guidelines might not be up to date when a proposed site-specific school project undergoes review. Therefore, this section provides a general discussion of the most important plans and policies that apply to SUP-related projects. Although some of these may not directly applicable to the SUP or site-specific projects implemented under the SUP, they are included to assist in identifying potential impacts and significance thresholds. Applicable LAUSD Standards are also listed. See *Applicable Regulations and Standard Conditions* at end of this chapter for those that require District compliance.

Federal

Clean Air Act

The Clean Air Act (CAA) was passed in 1963 by the U.S. Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States and overhauled the planning provisions for areas not meeting the National AAQS. Basic elements of the CAA include provisions for attainment and maintenance of the national AAQS for major air pollutants (Title I), motor vehicle emissions and fuel standards (Title II), hazardous air pollutant standards (Title III), and stratospheric ozone protection (Title VI). The CAA allows states to adopt more stringent standards or to include other pollution species.

State

California Clean Air Act

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the State to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS. The CCAA mandates achieving the health-based California AAQS at the earliest practical date.

California Code of Regulations, Title 13, Division 3, Chapter 9, Article 4.8, Section 2449.

CARB Rule 2449. General Requirements for In-Use Off-Road Diesel-Fueled Fleets. Requires off-road diesel vehicles to limit nonessential idling to no more than 5 consecutive minutes.

California Code of Regulations, Title 13, Division 3, Chapter 10, Article 1, Section 2480

CARB Rule 2480. Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools. This Rule requires school busses, transit busses, and commercial vehicles (gross vehicle weight greater than 10,001 pounds except of pickup trucks and zero emission vehicles) to limit nonessential idling to no more than 5 consecutive minutes when in 100 feet of a school.

California Code of Regulations, Title 13, Division 3, Chapter 10, Article 1, Section 2485

CARB Rule 2485. Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. This Rule requires commercial vehicles weighing more than 10,001 pounds to limit nonessential idling to no more than 5 consecutive minutes.

California Education Code, Section 17213(c)(2)(c) and Public Resources Code, Section 21151.8(a)(1)(D)

These regulations require school districts to consider offsite sources of hazardous air emissions before acquiring property for a school site or approving an EIR or negative declaration for a school site acquisition or new school construction project. These sections require school districts to identify freeways and other busy traffic corridors where the edge of the roadway is within 500 feet of a proposed school site. A busy traffic corridor is defined as having 50,000 or more average daily vehicle trips in a rural area or 100,000 or more average daily trips in an urban area.[4]

California Education Code, Section 17213 and Public Resources Code, Section 21151.8(a)(1)(2)

These regulations require school districts to consider offsite sources of hazardous air emissions before acquiring property for a school site or approving an EIR or negative declaration for a school site acquisition or new school construction project. These sections require school districts to consult with appropriate agencies to identify facilities, including but not limited to freeways and other busy traffic corridors, large agricultural operations, and rail yards within one-fourth of a mile of a proposed school site that might reasonably be expected to emit hazardous air emissions.

California Code of Regulations, Title 24, Part 6

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission in June 1977 and are updated triannually in the **California Building Code**. Title 24, Part 6 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods.

On May 31, 2012, the California Energy Commission adopted the 2013 Building Energy Efficiency Standards, which went into effect on January 1, 2014. Buildings that are constructed in accordance with the 2013 Building and Energy Efficiency Standards are 25 percent (residential) to 30 percent (nonresidential)

[4] Education Code, Section 17213(d)(9)

more energy efficient than the 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

California Code of Regulations, Title 24, Part 11

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The **California Green Building Standards Code** (CALGreen) was adopted as part of the California Building Standards Code (Title 24). CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[5] The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011.

California Code of Regulations, Title 20, Sections 1601 through 1608

The 2006 **Appliance Efficiency Regulations** were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances.

California Code of Regulations, Title 13, Division 3, Chapter 1

Chapter 1 - Motor Vehicle Pollution Control Devices. The California Advanced Clean Cars Program has regulations and standards for controlling air pollutants and GHG emissions in cars and the Low Emission Vehicle Program III Standards are for control of criteria air pollutant emissions from new light- and medium-duty vehicles.

Federal and State Standards

Ambient Air Quality Standards

The National AAQS and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 5.3-1 these pollutants include O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

[5] The green building standards became mandatory in the 2010 edition of the code.

Table 5.3-1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.075 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm[2]	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm[a]	
	24 hours	0.04 ppm	0.014 ppm[b]	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	12 µg/m$^{3, c}$	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	Monthly	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	*	1.5 µg/m^3	
	3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)	24 hours	25 µg/m^3	*	Industrial processes.
Visibility-Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles[1]	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.

Table 5.3-1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: California Air Resources Board. 2013, June 4. Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.
Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
[a] When relative humidity is less than 70 percent.
[b] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
[c] On December 14, 2012, EPA lowered the federal primary $PM_{2.5}$ annual standard from 15.0 µg/m^3 to 12.0 µg/m^3. EPA made no changes to the primary 24-hour $PM_{2.5}$ standard or to the secondary $PM_{2.5}$ standards.

Air Pollutants of Concern

Criteria Air Pollutants

Pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary. Primary air pollutants are emitted directly from sources. CO, volatile organic compounds (VOC), NO_2, SO_2) PM_{10}, $PM_{2.5}$, and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, $PM_{2.5}$, and lead are "criteria air pollutants," which means that AAQS have been established for them. VOC and oxides of nitrogen (NO_x) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.[6] The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels.[7]

[6] South Coast Air Quality Management District. 2005, May. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.*
[7] California Air Resources Board. 2013, April 1. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/adm/adm.htm.

Volatile Organic Compounds (VOC) are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. There are no AAQS established for VOCs. However, because they contribute to the formation of O_3, South Coast Air Quality Management District (SCAQMD) has established a significance threshold for this pollutant.[8]

Nitrogen Oxides (NO_x) are a by-product of fuel combustion and contribute to the formation of ground-level O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO_2 produced by combustion is NO. However, NO reacts with oxygen quickly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and is more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO_2 is only potentially irritating. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 exposure concentrations near roadways are of particular concern for susceptible individuals, including people with asthma, asthmatics, children, and the elderly. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing elevated short-term NO_2 concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma.[9] The SoCAB is designated an attainment area for NO_2 under the National AAQS and nonattainment under the California AAQS.[10,11]

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_x). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly important for asthmatics at elevated ventilation rates (e.g., while exercising or playing.) At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency departments

[8] South Coast Air Quality Management District. 2005, May. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.*
[9] South Coast Air Quality Management District. 2005, May. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.*;U.S. Environmental Protection Agency (EPA). 2012, April 20. What are the Six Common Air Pollutants? http://www.epa.gov/airquality/urbanair.
[10] California Air Resources Board. 2013, April 1. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/adm/adm.htm.
[11] CARB has proposed to redesignate the SoCAB as attainment for NO_2 under the California AAQS (California Air Resources Board. 2013, October 23. *Proposed 2013 Amendments to Area Designations for State Ambient Air Quality Standards*. http://www.arb.ca.gov/regact/2013/area13/area13isor.pdf).

and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and asthmatics.[12] The SoCAB is designated attainment under the California and National AAQS.[13]

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. EPA scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death in people with heart of lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing). Diesel particulate matter (DPM) is classified by the California Air Resources Board (CARB) as a carcinogen. Particulate matter can also cause environmental effects such as visibility impairment,[14] environmental damage,[15] and aesthetic damage[16].[17] The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS.[18, 19]

Ozone (O_3) is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_X, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive

[12] South Coast Air Quality Management District. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.
[13] California Air Resources Board. 2013, April 1. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/adm/adm.htm.
[14] $PM_{2.5}$ is the main cause of reduced visibility (haze) in parts of the United States.
[15] Particulate matter can be carried over long distances by wind and then settle on ground or water. The effects of this settling include: making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.
[16] Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.
[17] South Coast Air Quality Management District. 2005, May. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*; U.S. Environmental Protection Agency (EPA). 2012, April 20. What are the Six Common Air Pollutants? http://www.epa.gov/airquality/urbanair.
[18] California Air Resources Board. 2013, April 1. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/adm/adm.htm.
[19] CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB has not violated federal 24-hour PM_{10} standards during the period from 2004 to 2007. In June 2013, the EPA approved the State of California's request to redesignate the South Coast PM_{10} nonattainment area to attainment of the PM_{10} National AAQS, effective on July 26, 2013

vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation, including forest trees and plants during the growing season.[20] The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour).[21]

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from on-road motor vehicle gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions to the air today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. Once taken into the body, lead distributes throughout the body in the blood and is accumulated in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The lead effects most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ.[22] However, in 2008 the EPA and CARB adopted more strict lead standards and special monitoring sites immediately downwind of lead sources recorded[23] very localized violations of the new state and federal standards. As a result of these localized violations, the Los Angeles County portion of the SoCAB was designated in 2010 as nonattainment under the California and National AAQS for lead.[24, 25] Because emissions of lead are found only in projects that are permitted by SCAQMD, lead is not an air quality of concern for SUP-related projects.

Toxic Air Contaminants

The public's exposure to air pollutants classified as TACs is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code, Section 39655(a), defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality

[20] South Coast Air Quality Management District. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.
[21] California Air Resources Board. 2013, April 1. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/adm/adm.htm.
[22] South Coast Air Quality Management District. 2005, May. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*; U.S. Environmental Protection Agency (EPA). 2012, April 20. What are the Six Common Air Pollutants? http://www.epa.gov/airquality/urbanair.
[23] South Coast Air Quality Management District. 2012, May 4. Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 identified that the Trojan Battery Company and Exide Technologies exceed the federal standards.
[24] South Coast Air Quality Management District. 2012, May 4. Final 2012 Lead State Implementation Plan: Los Angeles County. http://www.aqmd.gov/hb/attachments/2011-2015/2012May/2012-May4-030.pdf.
[25] CARB has proposed to redesignate the SoCAB as attainment for lead under the California AAQS (California Air Resources Board. 2013, October 23. Proposed 2013 Amendments to Area Designations for State Ambient Air Quality Standards. http://www.arb.ca.gov/regact/2013/area13/area13isor.pdf).

or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code, Section 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB has designated 244 compounds as TACs.[26] Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being DPM.

In 1998, CARB identified diesel particulate matter as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Regional

South Coast Air Quality Management District

SCAQMD is the air pollution control agency for areas within the SoCAB. It is responsible for controlling emissions from permitted stationary sources ranging from large power plants to gas stations. It is also responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared. In addition, SCAQMD also develops and adopts rules to control emissions generated from various sources ranging from equipment, industrial processes, paints and solvents, to consumer products.

[26] California Air Resources Board (CARB). 1999, December. Final Staff Report: Update to the Toxic Air Contaminant List.

Air Quality Management Plan

2012 AQMP. On December 7, 2012, SCAQMD adopted the 2012 AQMP, which employs the most up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources.27 It also addresses several state and federal planning requirements, incorporating new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and new meteorological air quality models. The 2012 AQMP builds upon the approach identified in the 2007 AQMP for attainment of federal PM and ozone 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 air pollutant standards within the timeframes allowed under the CAA. The 2012 AQMP demonstrates attainment of federal 24-hour $PM_{2.5}$ standard by 2014 and the federal 8-hour ozone standard by 2023. It includes an update to the revised EPA 8-hour ozone control plan with new commitments for short-term NO_x and VOC reductions. The plan also identifies emerging issues of ultrafine ($PM_{1.0}$) particulate matter and near-roadway exposure, and an analysis of energy supply and demand.

State Implementation Plan for Lead is a criteria pollutant. In 2008 EPA designated the Los Angeles County portion of the SoCAB as a nonattainment area under the federal lead classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and in the City of Industry exceeding the new standard in the 2007 to 2009 period of data used. The remainder of the SoCAB, outside the Los Angeles County nonattainment area, remains in attainment of the new standard. On May 24, 2012, CARB approved the State Implementation Plan (SIP) revision for the federal lead standard, which EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to EPA for approval in June 2012.

Applicable SCAQMD Rules

The following is partial list of SCAQMD rules that are applicable to the construction and operation of new schools and school additions and modernizations.[28]

- **SCAQMD Rule 201:** Permit to Construct. Requires a permit for installation of any equipment which releases air pollutants.
- **SCAQMD Rule 402:** Nuisance Odors. Prohibits the discharge of odors that cause injury, detriment, nuisance, or annoyance to a considerable number of people.
- **SCAQMD Rule 403:** Fugitive Dust. Requires control measures to reduce fugitive dust from active operations, storage piles, or disturbed surfaces so as to not be visible beyond the property line or exceed 20 percent opacity.

[27] South Coast Air Quality Management District. 2012. *Final 2012 Air Quality Management Plan.* http://www.aqmd.gov/aqmp/2012aqmp/Final/index.html.
[28] For the complete list of SCAQMD rules, go to http://www.aqmd.gov/rules/rulesreg.html.

- **SCAQMD Rule 1113:** Architectural Coatings. Limits VOC content by setting VOC standards for persons who supplies, sells, offers for sale, or manufactures any architectural coating for use in the SCAQMD.

- **SCAQMD Rule 1186:** PM_{10} Emissions from Paved and Unpaved Roads, and Livestock Operations. Requires control measures to reduce fugitive dust from paved and unpaved roads in addition to livestock operations.

- **SCAQMD Rule 1403:** Asbestos Emissions from Demolition/Renovation Activities. Requires surveying for and asbestos-containing materials removal procedures and measures for handling and cleanup, storage, disposal, and landfilling of asbestos-containing materials.

LAUSD Standards

This table lists the air quality related standard conditions and project design features (PDF) that are included as part of each SUP-related project, as appropriate.

PDF #	Topic	Trigger for Compliance	Implementation Phase	Standard Conditions and Project Design Features
Standard Condition				
AQ-00 Compliance	Air Toxics Health Risk	If project includes new occupied spaces within ¼-mile of emission sources	Prior to project approval	OEHS CEQA Specification Manual, Appendix J, Air Toxics Health Risk Assessment (HRA). This document includes guidance on HRA Protocols for permitted, nonpermitted, and mobile sources that might reasonably be anticipated to emit hazardous air emissions and result in potential long-term and short-term health impacts to student and staff at the school site.
Project Design Features				
AQ-1	Construction emissions	If project requires large construction equipment	During project construction	LAUSD's construction contractor shall ensure that construction equipment is properly tuned and maintained in accordance with manufacturer's specifications.
AQ-2	Construction emissions	If project requires a removal action for soil contamination	During project construction	LAUSD or its construction contractor shall: • Maintain slow speeds with all vehicles. • Load impacted soil directly into transportation trucks to minimize soil handling. • Water/mist soil as it is being excavated and loaded onto the transportation trucks. • Water/mist and/or apply surfactants to soil placed in transportation trucks prior to exiting the site. • During dumping, minimize soil drop height into transportation trucks or stockpiles. • During transport, cover or enclose trucks transporting soils, increase freeboard requirements, and repair trucks exhibiting spillage due to leaks. • Cover the bottom of the excavated area with polyethylene sheeting when work is not being performed.

PDF #	Topic	Trigger for Compliance	Implementation Phase	Standard Conditions and Project Design Features
				• Place stockpiled soil on polyethylene sheeting and cover with similar material. • Place stockpiled soil in areas shielded from prevailing winds.
AQ-3	Construction Emissions	When site-specific review of a school construction project identifies potentially significant adverse regional and localized construction air quality impacts.	During project construction	LAUSD shall implement all feasible mitigation measures to reduce air pollutant emissions below the South Coast Air Quality Management District's (SCAQMD) regional and localized significance thresholds. LAUSD shall mandate in the construction bid contract for each project that identifies potentially significant regional construction air quality impacts, that the construction contractor implement the mitigation measures identified in the air quality analysis for the project. Measures shall reduce construction emissions during high-emission construction phases from vehicles and other fuel driven construction engines, activities that generate fugitive dust, and surface coating operations. Specific mitigation measures include, but are not limited to, the following: Exhaust Emissions • Schedule construction activities that affect traffic flow to off-peak hours (e.g. between 10:00 AM and 3:00 PM). • Consolidate truck deliveries and/or limit the number of haul trips per day. • Route construction trucks off congested streets. • Employ high pressure fuel injection systems or engine timing retardation. • Utilize ultra-low sulfur diesel fuel, containing 15 ppm sulfur or less (ULSD) in all diesel construction equipment. • Use construction equipment rated by the United States Environmental Protection Agency as having Tier 3 (model year 2006 or newer) or Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower. • Restrict non-essential diesel engine idle time, to not more than five consecutive minutes. • Utilize electrical power rather than internal combustion engine power generators as soon as feasible during construction. • Utilize electric or alternatively fueled equipment, if feasible. • Utilize construction equipment with the minimum practical engine size. • Utilize low-emission on-road construction fleet vehicles. • Ensure construction equipment is properly serviced and maintained to the manufacturer's standards. Fugitive Dust • Apply non-toxic soil stabilizers according to manufacturers' specification to all inactive construction areas (previously graded areas inactive for ten days or more). • Replace ground cover in disturbed areas as quickly as possible. • Sweep streets at the end of the day if visible soil material is carried onto adjacent public paved roads (recommend water sweepers with reclaimed water). • Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip. • Pave construction roads that have a traffic volume of more than 50 daily trips by construction equipment, and/or 150 daily trips for

PDF #	Topic	Trigger for Compliance	Implementation Phase	Standard Conditions and Project Design Features
				all vehicles. • Pave all construction access roads for at least 100 feet from the main road to the project site. • Water the disturbed areas of the active construction site at least three times per day, except during periods of rainfall. • Enclose, cover, water twice daily, or apply non-toxic soil binders according to manufacturers' specifications to exposed piles (i.e., gravel, dirt, and sand) with a five percent or greater silt content. • Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour (mph). • Apply water at least three times daily, except during periods of rainfall, to all unpaved road surfaces. • Limit traffic speeds on unpaved road to 15 mph or less. • Prohibit high emission causing fugitive dust activities on days where violations of the ambient air quality standard have been forecast by SCAQMD. • Tarp and/or maintain a minimum of 24 inches of freeboard on trucks hauling dirt, sand, soil, or other loose materials. • Limit the amount of daily soil and/or demolition debris loaded and hauled per day. General Construction • Utilize ultra-low VOC or zero-VOC surface coatings. • Phase construction activities to minimize maximum daily emissions. • Configure construction parking to minimize traffic interference. • Provide temporary traffic control during construction activities to improve traffic flow (e.g., flag person). • Develop a trip reduction plan for construction employees. • Implement a shuttle service to and from retail services and food establishments during lunch hours. • Increase distance between emission sources to reduce near-field emission impacts. • Require construction contractors to document compliance with the identified mitigation measures.
AQ-4	Air toxics health risk project siting criteria	If project includes new occupied spaces within ¼-mile of emission sources	Prior to final site selection	LAUSD shall prepare an HRA if new classrooms are: • Within 500 feet of a major transportation corridor (freeway, major rail line) such that health risks to students would be created or exacerbated. • Within 500 feet of a major stationary source of emissions such that health risks to students would be created or exacerbated. • On the priority list of schools most at risk from air pollution. • Near a high-risk facility previously identified by the Office of Environmental Health Safety (OEHS) such that health risks to students would be created or exacerbated.
AQ-5	Air toxics health risk	When a health risk assessment identifies risks that exceed the standards	Prior to project construction	LAUSD shall design each new heating, ventilation, and air conditioning (HVAC) system to mitigate impacts from air emissions to a level below the following thresholds: 1) maximum individual cancer risk (MICR) of 1 in 100,000; or 2) chronic hazard index of 1; or 3) acute hazard index of 1; or 4) 1-hour CO standard of 20 parts per million (ppm); or 5) 8-hour CO standard of 9.0 ppm; or 6) 1-hour NO_2 standard of 0.18 ppm; or 7) 24-hour PM_{10} and $PM_{2.5}$ standards (operation) of 2.5 $\mu g/m^3$. Each HVAC system design shall contain such specifications, including but not

PDF #	Topic	Trigger for Compliance	Implementation Phase	Standard Conditions and Project Design Features
				limited to an appropriate American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) minimum efficiency reporting value (MERV) for HVAC filters, as necessary to mitigate impacts to less than significant levels. The LAUSD shall implement all other measures to reduce health risks to acceptable levels as identified and recommended in the HRA. The HVAC system design specifications and requirements in addition to all other identified measures shall be noted and/or reflected on all building plans submitted to the Division of the State Architect.
AQ-6	Air pollutant emissions reduction	If project includes increase in student capacity and additional traffic.	During school operation	LAUSD shall encourage ride-sharing programs for students and teachers as well as maintain fleet vehicles such as school buses, maintenance vehicles, and other service fleet vehicles in good condition in order to prevent significant increases in air pollutant emissions created by operation of a new school.

5.3.1.2 EXISTING CONDITIONS

Regional Setting

LAUSD lies within the SoCAB, which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds.[29]

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains.

The Northern area, based on data collected from the Northridge Cal State Monitoring Station (ID No. 046263), has average lows ranging from 45.0°F to 64.1°F and average highs from 66.4°F to 92.3°F. The area has an average annual precipitation of 13.41 inches.[30] The South area, based on data collected from the Torrance Monitoring Station (ID No. 048973), has average lows from 44.3°F to 61.1°F and average highs

[29] South Coast Air Quality Management District. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.
[30] Western Regional Climate Center (WRCC). 2014. Western U.S. Historical Summaries – Northridge Cal State Monitoring Station (Station ID No. 046263). http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6263 (Accessed February 2014).

from 65.9°F to 78.6°F with average annual precipitation of 13.55 inches.[31] Average lows and highs for the West area, based on data collected from Culver City Monitoring Station (ID No. 042214), ranges from 45.3°F to 61.9°F and from 66.5°F to 79.0°F, respectively. Average annual precipitation for the area is 13.15 inches.[32] The East area, based on data collected from the Los Angeles Civic Center Monitoring Station (ID No. 045115), has average lows from 48.3°F to 63.8°F and average highs from 66.4°F to 83.1°F.[33]

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB.[34]

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions.[35]

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation

[31] Western Regional Climate Center (WRCC). 2014. Western U.S. Historical Summaries – Torrance Monitoring Station (Station ID No. 048973). http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca8973 (Accessed February 2014).
[32] Western Regional Climate Center (WRCC). 2014. Western U.S. Historical Summaries – Culver City Monitoring Station (Station ID No. 042214). http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2214 (Accessed February 2014).
[33] Western Regional Climate Center (WRCC). 2014. Western U.S. Historical Summaries – Los Angeles Civic Center Monitoring Station (Station ID No. 045115). http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5115 (Accessed February 2014).
[34] South Coast Air Quality Management District. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.
[35] South Coast Air Quality Management District. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.

inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area.[36]

Nonattainment Areas

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal AAQS through the SIP. Areas are classified attainment or nonattainment for particular pollutants, depending on whether they meet AAQS. Severity classifications for ozone nonattainment range from marginal, moderate, and serious to severe and extreme.

Transportation conformity for nonattainment and maintenance areas is required under the federal CAA to ensure federally supported highway and transit projects conform to the SIP. The EPA approved California's SIP revisions for attainment of the 1997 8-hour O_3 National AAQS for the SoCAB in March 2012. Findings for the new 8-hour O_3 emissions budgets for the SoCAB and consistency with the recently adopted 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) were submitted to the EPA for approval.

The attainment status for the SoCAB is shown in Table 5.3-2. The SoCAB is also designated in attainment of the California AAQS for sulfates. The SoCAB will have to meet the new federal 8-hour O_3 standard by 2023, and the federal 24-hour $PM_{2.5}$ standards by 2014 (with the possibility of up to a five-year extension to 2019, if needed). The SoCAB is designated as a nonattainment for NO_2 (entire basin) and lead (Los Angeles County only) under the California AAQS. However, CARB has proposed to redesignate the SoCAB as attainment for NO_2 and lead under the California AAQS.[37]

[36] South Coast Air Quality Management District. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.
[37] California Air Resources Board. 2013, October 23. Proposed 2013 Amendments to Area Designations for State Ambient Air Quality Standards. http://www.arb.ca.gov/regact/2013/area13/area13isor.pdf.

Table 5.3-2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment/Maintenance[a]
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Nonattainment[b]	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Nonattainment (Los Angeles County only)[b, c]	Nonattainment (Los Angeles County only)[c]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: California Air Resources Board. 2013, April 1. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/adm/adm.htm.

[a] Annual standard revoked September 2006. CARB approved SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM10 to attainment for PM10 under the National AAQS on March 25, 2010, because the SoCAB has not violated federal 24-hour PM10 standards from 2004 to 2007. In June 2013, the EPA approved the State of California's request to redesignate the South Coast PM10 nonattainment area to attainment of the PM10 National AAQS, effective on July 26, 2013.

[b] CARB has proposed to redesigate the SoCAB as attainment for lead and NO2 under the California AAQS. 38

[c] The Los Angeles portion of the SoCAB was designated nonattainment for lead under the new federal and existing state AAQS as a result of large industrial emitters. Remaining areas within the SoCAB are unclassified.

Multiple Air Toxics Exposure Study III

In 2000, SCAQMD conducted a study on ambient concentrations of TACs and estimated the potential health risks from air toxics. The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,400 in a million. The largest contributor to this risk was diesel exhaust, accounting for 71 percent of the air toxics risk. In 2008, SCAQMD conducted its third update to its study on ambient concentrations of TACs and estimated the potential health risks from air toxics. The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in one million. The largest contributor to this risk was diesel exhaust, accounting for approximately 84 percent of the air toxics risk.[39] Excess cancer risk within the District boundaries can range from 175 to 1,850 in a million.[40]

Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections for the LAUSD jurisdictional area are best documented by measurements made by SCAQMD. The following describes the existing ambient air quality for each of the four District Educational Service Centers (ESC).

[38] California Air Resources Board. 2013, October 23. Proposed 2013 Amendments to Area Designations for State Ambient Air Quality Standards. http://www.arb.ca.gov/regact/2013/area13/area13isor.pdf.

[39] South Coast Air Quality Management District. 2008, September. *Multiple Air Toxics Exposure Study in the South Coast Air Basin* (MATES III).

[40] South Coast Air Quality Management District. 2008b, September. Multiple Air Toxics Exposure Study III Model Estimated Carcinogenic Risk, Accessed January 2014, http://www3.aqmd.gov/webappl/matesiii/.

North ESC

The air quality monitoring station available for this area is the Reseda Monitoring Station. This station monitors O_3, CO, NO_2, and $PM_{2.5}$. Data from this station is summarized in Table 5.3-3. The data show that the concentration levels of O_3 and $PM_{2.5}$ of the area regularly exceed the state and federal one-hour and eight-hour O_3 standards as well as the state federal $PM_{2.5}$ standards. The CO and NO_2 standards have not been exceeded in the last five years for this general area.

Table 5.3-3 Ambient Air Quality Monitoring Summary (North ESA)

Pollutant Standard[a]	Number of Days Threshold Exceeded and Maximum Levels during Violations				
	2008	2009	2010	2011	2012
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm	0	1	0	3	1
State 8-hour ≥ 0.07 ppm	39	31	37	35	39
Federal 8-Hour > 0.075 ppm	25	19	19	26	23
Max. 1-Hour Conc. (ppm)	0.123	0.135	0.122	0.130	0.129
Max. 8-Hour Conc. (ppm)	0.103	0.100	0.091	0.103	0.098
Carbon Monoxide (CO)					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.0 ppm	0	0	0	0	0
Max. 8-Hour Conc. (ppm)	2.88	2.84	2.60	2.77	2.70
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.091	0.070	0.075	0.0699	0.0709
Sulfur Dioxide (SO_2)[b]					
State 1-Hour ≥ 0.04 ppm	*	*	*	*	*
Max. 1-Hour Conc. (ppm)	*	*	*	*	*
Coarse Particulates (PM_{10})[b]					
State 24-Hour > 50 µg/m^3	*	*	*	*	*
Federal 24-Hour > 150 µg/m^3	*	*	*	*	*
Max. 24-Hour Conc. (µg/m^3)	*	*	*	*	*
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 µg/m^3	2	1	1	1	2
Max. 24-Hour Conc. (µg/m^3)	50.5	39.9	40.7	39.8	41.6

Source: California Air Resources Board (CARB). 2014. Air Pollution Data Monitoring Cards (2008, 2009, 2010, 2011, and 2012), Accessed January 2014, http://www.arb.ca.gov/adam/topfour/topfour1.php.
ppm: parts per million; µg/m^3: or micrograms per cubic meter.
[a] Data obtained from the Anaheim – Reseda Monitoring Station at 18330 Gault in the City of Reseda.
[b] Data not available at Anaheim – Reseda Monitoring Station monitoring station.

South ESC

The air quality monitoring station available for South area is the North Long Beach Monitoring Station. This station monitors O_3, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. Data from this station is summarized in Table 5.3-4. The data show that the concentration levels of O_3 of the area has exceeded the state and federal one-hour and eight-hour O_3 standards. Concentration levels of NO_2 and PM_{10} have also exceeded their respective state

standards. Lastly, the federal $PM_{2.5}$ standard has regularly been exceeded. The CO and SO_2 standards have not been exceeded in the last five years for this general area.

Table 5.3-4 Ambient Air Quality Monitoring Summary (South ESA)

Pollutant/Standard[a]	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2008	2009	2010	2011	2012
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm	0	0	1	0	0
State 8-hour ≥ 0.07 ppm	1	0	1	0	0
Federal 8-Hour > 0.075 ppm	0	0	1	0	0
Max. 1-Hour Conc. (ppm)	0.093	0.089	0.101	0.073	0.084
Max. 8-Hour Conc. (ppm)	0.074	0.067	0.084	0.061	0.67
Carbon Monoxide (CO)					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.0 ppm	0	0	0	0	0
Max. 8-Hour Conc. (ppm)	2.49	2.17	2.08	2.56	2.17
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 ppm	3	1	0	1	0
Max. 1-Hour Conc. (ppm)	0.125	0.111	0.0928	0.106	0.0772
Sulfur Dioxide (SO_2)					
State 1-Hour ≥ 0.04 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.012	0.005	0.006	0.004	0.003
Coarse Particulates (PM_{10})					
State 24-Hour > 50 µg/m³	1	3	0	0	0
Federal 24-Hour > 150 µg/m³	0	0	0	0	0
Max. 24-Hour Conc. (µg/m³)	124.3	76.9	44.0	43.0	45.0
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 µg/m³	8	6	0	2	4
Max. 24-Hour Conc. (µg/m³)	57.2	63.0	35.0	39.7	49.8

Source: California Air Resources Board (CARB). 2014. Air Pollution Data Monitoring Cards (2008, 2009, 2010, 2011, and 2012), Accessed January 2014, http://www.arb.ca.gov/adam/topfour/topfour1.php.
ppm: parts per million; µg/m³: or micrograms per cubic meter.
[a] Data obtained from the North Long Beach Monitoring Station at 3648 N. Long Beach Boulevard in the City of Long Beach.

East ESC

The air quality monitoring station available for South area is the Los Angeles – North Main Street Monitoring Station. This station monitors O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$. Data from this station is summarized in Table 5.3-5. The data show that the concentration levels of O_3 and PM_{10} of the area has regularly exceeded the state and federal one-hour and eight-hour O_3 standards and well as the federal PM_{10} standard. Concentration levels of NO_2 and PM_{10} have also exceeded their respective state standards. The CO and SO_2 standards have not been exceeded in the last five years for this general area.

Table 5.3-5 Ambient Air Quality Monitoring Summary (East ESA)

Pollutant/Standard[a]	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2008	2009	2010	2011	2012
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm	3	3	1	0	0
State 8-hour ≥ 0.07 ppm	6	5	1	0	2
Federal 8-Hour > 0.075 ppm	3	2	1	0	1
Max. 1-Hour Conc. (ppm)	0.109	0.139	0.098	0.087	0.093
Max. 8-Hour Conc. (ppm)	0.090	0.100	0.080	0.065	0.077
Carbon Monoxide (CO)					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.0 ppm	0	0	0	0	0
Max. 8-Hour Conc. (ppm)	1.96	2.17	2.32	2.40	1.91
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 ppm	2	2	0	1	0
Max. 1-Hour Conc. (ppm)	0.122	0.115	0.089	0.1096	0.0773
Sulfur Dioxide (SO_2)					
State 1-Hour ≥ 0.04 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.003	0.002	0.002	0.002	0.002
Coarse Particulates (PM_{10})					
State 24-Hour > 50 µg/m^3	2	4	0	9	43
Federal 24-Hour > 150 µg/m^3	0	0	0	0	0
Max. 24-Hour Conc. (µg/m^3)	66.0	72.0	42.0	53.0	80.0
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 µg/m^3	10	7	5	7	4
Max. 24-Hour Conc. (µg/m^3)	78.3	61.6	48.6	69.2	58.7

Source: California Air Resources Board (CARB). 2014. Air Pollution Data Monitoring Cards (2008, 2009, 2010, 2011, and 2012). http://www.arb.ca.gov/adam/topfour/topfour1.php.
Note: ppm: parts per million; µg/m^3: or micrograms per cubic meter.
[a] Data obtained from the Los Angeles – North Main Street Monitoring Station at 1630 North Main Street in the City of Los Angeles.

West ESC

The air quality monitoring station available for West ESC is the Los Angeles – Westchester Parkway Monitoring Station. This station monitors O_3, CO, NO_2, SO_2, and PM_{10}. Data from this station is summarized in Table 5.3-6. The data show that within the past five recorded years, the concentration levels of O_3 of the area has exceeded the state and federal one-hour and eight-hour O_3 standards. Additionally, the concentration level of PM_{10} has also exceeded the federal PM_{10} standard. The CO, NO_2, and SO_2 standards have not been exceeded in the last five recorded years for this general area.

Table 5.3-6 Ambient Air Quality Monitoring Summary (West ESA)

Pollutant/Standard[a]	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2008	2009	2010	2011	2012
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm	0	0	0	0	1
State 8-hour ≥ 0.07 ppm	1	0	0	0	1
Federal 8-Hour > 0.075 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.086	0.077	0.089	0.078	0.106
Max. 8-Hour Conc. (ppm)	0.075	0.070	0.070	0.067	0.075
Carbon Monoxide (CO)					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.0 ppm	0	0	0	0	0
Max. 8-Hour Conc. (ppm)	2.53	1.99	2.19	1.79	1.51
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.094	0.077	0.0758	0.0976	0.0772
Sulfur Dioxide (SO_2)					
State 1-Hour ≥ 0.04 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.004	0.006	0.004	0.002	0.002
Coarse Particulates (PM_{10})					
State 24-Hour > 50 µg/m^3	0	1	0	0	0
Federal 24-Hour > 150 µg/m^3	0	0	0	0	0
Max. 24-Hour Conc. (µg/m^3)	50.0	52.0	37.0	41.0	31.0
Fine Particulates ($PM_{2.5}$)[b]					
Federal 24-Hour > 35 µg/m^3	*	*	*	*	*
Max. 24-Hour Conc. (µg/m^3)	*	*	*	*	*

Source: California Air Resources Board (CARB). 2014. Air Pollution Data Monitoring Cards (2008, 2009, 2010, 2011, and 2012), Accessed January 2014, http://www.arb.ca.gov/adam/topfour/topfour1.php.
Note: ppm: parts per million; µg/m^3: or micrograms per cubic meter.
[a] Data obtained from the Los Angeles – Westchester Parkway Monitoring Station at 7201 W. Westchester Parkway in the City of Los Angeles.
[b] Data not available at Los Angeles – Westchester Parkway Monitoring Station monitoring station.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases.

Residential areas are also considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, because the majority of the workers tend to stay indoors most of the time. In addition, the workforce is generally the

healthiest segment of the population. All of these types of land uses are present within LAUSD's service boundaries.

5.3.2 Thresholds of Significance

CEQA GUIDELINE THRESHOLDS

According to CEQA Guidelines Appendix G (CCR Sections 15000–15387) and CEQA Statute (PRC Section 21151.8), a project would normally have a significant effect on the environment if it would:

AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.

AQ-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

AQ-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

AQ-4 Expose sensitive receptors to substantial pollutant concentrations.

AQ-5 Create objectionable odors affecting a substantial number of people.

CEQA STATUE THRESHOLDS

AQ-6 Is the boundary of the proposed school site within 500 feet of the edge of the closest traffic lane of a freeway or busy traffic corridor? If yes, would the project create an air quality health risk due to the placement of the School? (PRC Section 21151.8(a)(1)(D))

AQ-7 Would the project create an air quality hazard due to the placement of a school within one-quarter mile of: (a) permitted and nonpermitted facilities identified by the jurisdictional air quality control board or air pollution control district; (b) freeways and other busy traffic corridors; (c) large agricultural operations; and/or (d) a rail yard, which might reasonably be anticipated to emit hazardous air emissions, or handle hazardous or acutely hazardous material, substances, or waste? (PRC Section 21151.8(a)(2))

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

The analysis of the proposed SUP's air quality impacts follows the guidance and methodologies recommended in SCAQMD's *CEQA Air Quality Handbook* and the significance thresholds on SCAQMD's website.[41] CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. SCAQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation.

[41] SCAQMD's Air Quality Significance Thresholds are current as of March 2011 and can be found at: http://www.aqmd.gov/ceqa/hdbk.html.

In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed though an analysis of localized CO impacts and localized significance thresholds (LSTs).

Regional Significance Thresholds

SCAQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 5.3-7 lists SCAQMD's regional significance thresholds.

Table 5.3-7 SCAQMD Regional Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: South Coast Air Quality Management District. 2011, March (Revised). SCAQMD Air Quality Significance Thresholds. http://www.aqmd.gov/ceqa/handbook/signthres.pdf.

CO Hot Spots

Areas of vehicle congestion have the potential to create pockets of CO called hot spots, which have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. Typically, for an intersection to exhibit a significant CO concentration, it would operate at level of service (LOS) E or worse without improvements.[42]

Localized Significance Thresholds

SCAQMD developed Localized Significance Thresholds (LSTs) to determine if emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at a project site (offsite mobile-source emissions are not included in the LST analysis) would expose sensitive receptors to substantial concentrations of criteria air pollutants. Table 5.3-8 shows the localized significance thresholds for projects in the SoCAB.

[42] California Department of Transportation (Caltrans). 1997, December. Transportation Project-Level Carbon Monoxide Protocol. UCD-ITS-RR-97-21. Prepared by Institute of Transportation Studies, University of California, Davis.

Table 5.3-8 SCAQMD LSTs

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)[a]	10.4 µg/m^3
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)[a]	10.4 µg/m^3
24-Hour PM_{10} Standard – Operation (SCAQMD)[a]	2.5 µg/m^3
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)[a]	2.5 µg/m^3

Source: South Coast Air Quality Management District. 2011, March (Revised). SCAQMD Air Quality Significance Thresholds. http://www.aqmd.gov/ceqa/handbook/signthres.pdf.
Note: ppm – parts per million; µg/m^3 – micrograms per cubic meter
[a] Threshold is based on SCAQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, SCAQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5.3-8 for projects under five acres. LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS. LSTs are based on the ambient concentrations of that pollutant within the project SRA and the distance to the nearest sensitive receptor. However, an LST analysis can only be conducted at a project level, and quantification of LSTs is not applicable for this program-level environmental analysis.

Health Risk Thresholds

Whenever a project would require 1) the use of chemical compounds that have been identified in SCAQMD Rule 1401, 2) the use of chemical compounds placed on CARB's air toxics list pursuant to Assembly Bill 1807 (AB 1807), Air Contaminant Identification and Control Act (1983), or 3) the use of chemical compounds placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, an HRA is required by the SCAQMD. Table 5.3-9 lists the SCAQMD's TAC incremental risk thresholds for operation of a project. Residential, commercial, office, and institutional (e.g., schools, churches) uses do not use substantial quantities of TACs, and these thresholds are typically applicable for new industrial projects. Although not officially adopted by SCAQMD, these thresholds are also commonly used to determine air quality land use compatibility of a project with major sources of TACs. In addition, risk from criteria pollutants (CO, NO_2, PM_{10}, and $PM_{2.5}$) generated from non-construction-related sources are evaluated against the standards in Table 5.3-8, as required by the District's HRA Protocol.

Table 5.3-9 SCAQMD Toxic Air Contaminants Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million (1 in 100,000)
Chronic Hazard Index (project increment)	≥ 1.0
Acute Hazard Index (program increment)	>1.0

Source: South Coast Air Quality Management District. 2011, March (Revised). SCAQMD Air Quality Significance Thresholds. http://www.aqmd.gov/ceqa/handbook/signthres.pdf.

5.3.3 Environmental Impacts

ANALYTIC METHODOLOGY

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with implementation of the SUP. SCAQMD has published the *CEQA Air Quality Handbook* (Handbook) and updates on its website to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in environmental impact reports and was used extensively in the preparation of this analysis. The SCAQMD has published additional guidance for LSTs—"Localized Significance Threshold Methodology for CEQA Evaluations" (2008)—that are intended to provide guidance in evaluating localized effects from emissions generated by a project. These documents were also used in the preparation of this analysis.

The applicable thresholds are identified in brackets after the impact statement.

Impact 5.3-1: SUP-related projects would be consistent with the applicable air quality management plan. [Threshold AQ-1]

All SUP Projects

Regional growth projections are used by SCAQMD to forecast future emission levels in the SoCAB. For southern California, these regional growth projections are provided by the Southern California Association of Governments (SCAG) and are partially based on land use designations included in city/county general plans. Typically, only large, regionally significant projects have the potential to affect the regional growth projections. The SUP is not a regionally significant project that would warrant Intergovernmental Review by SCAG. Any new facilities built under the SUP would be growth accommodating and would fulfill the educational needs of the existing local communities served by the District. Any new trip generating facilities would reduce vehicle miles traveled (VMT) by minimizing the need for the local residents to travel to farther schools. Additionally, it is anticipated that the regional emissions generated by operation of school improvements and/or new facilities would not exceed the SCAQMD regional significance emissions thresholds. Thus, the SUP would not be considered by SCAQMD to be a substantial source of air pollutant emissions, and would not conflict or obstruct implementation of the AQMP. Impacts would be less than significant.

Impact 5.3-2: Construction activities may generate short-term emissions that exceed of the South Coast Air Quality Management District's regional significance thresholds and cumulatively contribute to the South Coast Air Basin nonattainment designations. [Thresholds AQ-2 and AQ-3]

Construction activities associated with the SUP would cause short-term emissions of criteria air pollutants. The primary source of NO_X, CO, and SO_X emissions is the operation of construction equipment. The primary sources of particulate matter (PM_{10} and $PM_{2.5}$) emissions include activities that disturb the soil, such as grading and excavation, and building demolition and construction. The primary source of VOC emissions is the application of architectural coating and off-gas emissions associated with asphalt paving.

All SUP Projects

Site-specific school projects have not been identified under the SUP. Information regarding specific projects, soil types, and the locations of receptors would be needed in order to quantify the level of impact associated with construction activity. However, all future projects would be subject to regulatory measures (e.g., SCAQMD Rule 201 for a permit to operate, Rule 403 for fugitive dust control, Rule 1113 for architectural coatings, Rule 1403 for new source review, and CARB's Airborne Toxic Control Measures). In addition, all future individual school projects (e.g., new school facilities on new property or existing campus, building additions, facility renovations, athletic facility improvements, etc.) would also be subject to the LAUSD Standards. LAUSD requires incorporation of applicable measures for all school projects to reduce emissions of construction-related criteria air pollutants that exceed the SCAQMD regional construction emissions thresholds.

Compliance with state and local regulations and the LAUSD PDF AQ-1, PDF AQ-2, and PDF AQ-3 would reduce construction-related criteria air pollutant emissions. However, these measures may not reduce construction-related emissions to below the SCAQMD regional construction significance thresholds for some SUP-related projects such as construction of large buildings on adjacent developed parcels. Additionally, in accordance with the SCAQMD methodology, emissions that exceed the regional significance thresholds would cumulatively contribute to the nonattainment designations of the SoCAB. The SoCAB is designated nonattainment for O_3 and particulate matter (PM_{10} and $PM_{2.5}$). Emissions of VOC and NO_x are precursors to the formation of O_3. In addition, NO_X is a precursor to the formation of particulate matter (PM_{10} and $PM_{2.5}$). Thus, a large project may cumulatively contribute to the nonattainment designations of the SoCAB for O_3 and particulate matter (PM_{10} and $PM_{2.5}$). Therefore, construction-related air quality impacts are considered potentially significant and may not be feasibly mitigated to a level of insignificance.

Impact 5.3-3: SUP-related projects would not generate long-term emissions that would exceed the South Coast Air Quality Management District's regional significance thresholds and would not cumulatively contribute to the South Coast Air Basin nonattainment designations. [Thresholds AQ-2 and AQ-3]

Long-term air pollutant emissions are associated mobile sources (i.e., vehicle trips) and area sources (e.g., fuel use in landscaping equipment, aerosols, and off-gas emission from application of paints) and energy use (natural gas use, purchased energy). Typically, emissions from mobile sources are the largest contributor to the overall long-term emissions inventory associated with operation of a school.

New Construction on New Property or Existing Campus

Operation of a new school on an existing campus or adjacent parcel would result in the generation of vehicle trips and new localized air pollutant emissions from non-mobile sources (i.e., area sources and energy use). Overall, however, it is not anticipated that operation of a new school would generate long-term air pollutant emissions that would exceed the SCAQMD regional operation significance thresholds. As schools are typically growth accommodating land uses built to serve the local community, a new school would reduce the overall vehicle miles traveled in the region and thereby reduce mobile-source air pollutant emissions. Furthermore, it is not anticipated that even new schools would generate a substantial amount of non-

transportation sources of emissions. The SUP does not include any new school projects on stand-alone sites. Table 5.3-10 shows the long-term air pollutant emissions generated from Central Los Angeles High School No. 12. This project consisted of the construction of a 19-classroom high school facility on a 1.28-acre LAUSD-owned site, adjacent to the existing Miguel Contreras Learning Complex and is used as a typical new school project under the SUP.

Table 5.3-10 Operational Phase Emissions of a Typical LAUSD School

Sector	Criteria Air Pollutant Emissions (pounds per day)[a]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Central Los Angeles High School No. 12[b]						
Stationary[c]	1	<1	<1	0	<1	<1
Mobile	15	15	63	<1	8	1
Total Project Emissions	16	16	63	<1	8	1
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Significant?	No	No	No	No	No	No

Sources: High School No. 12: LAUSD, Central Los Angeles High School No. 12 Draft EIR, pg. 3B-16, certified July 12, 2011;
Note: Totals may not equal 100 percent due to rounding.
[a] Values shown here represent the highest emissions between summer and winter emissions.
[b] Based on 55,361 building square feet of school facilities, capacity of 500 high school students, and 855 average daily trips generated.
[c] Combined emissions from area sources and energy usage.

As shown in the table, operational phase emissions would not exceed the SCAQMD regional operational phase significance thresholds. For new school construction projects that would replace existing land uses, the resulting net emissions would be similar to or lower than the emissions shown in the table. Additionally, as part of PDF AQ-6, LAUSD shall encourage ride-sharing programs for students and teachers as well as maintain fleet vehicles such as school buses, maintenance vehicles, and other service fleet vehicles in good condition in order to prevent significant increases in air pollutant emissions created by operation of a new school. While individual projects under LAUSD's SUP would be less than SCAQMD's regional operational phase significance thresholds, it is unknown how many individual projects may occur under the SUP at the same time. However, the 10-year projection for the overall student population within the LAUSD jurisdiction indicates an overall 2.2 decrease from existing conditions (see Chapter 4 of this EIR). Additionally, the long-range 50-year projection of school aged population for Los Angeles County also indicates an overall decline compared to the existing student population. As new schools would generally be developed to accommodate growth and the overall student population would be on the decline, it is anticipated that development of new stand-alone schools or expansion of an existing campus to include a new school component (e.g., addition of an elementary school to an existing middle school campus) would be minimal. Thus, it is not anticipated that the overall operational phase emissions generated by cumulative projects under the SUP would exceed the SCAQMD thresholds of significance. Therefore, operational phase air pollutant emissions generated by the combination of the types of projects described in Chapter 4, *Program Description*, are considered less than significant.

Modernization, Repair, Replacement, Upgrade, Remodel, Renovation and Installation

Small SUP-related projects involving repair, replacement, upgrades, remodeling, or renovation would not increase capacity to existing schools. Thus, no new vehicle trips would be generated and there would be no increase in mobile source emissions for these types of school project. Furthermore, building improvements could also result in increased energy efficiency thereby reducing emissions from energy usage (i.e., natural gas). Future modernization projects could potentially add new capacity to existing schools through the installation of portable classrooms (see Chapter 4, Table 4-2 of this EIR). However, as discussed, overall student enrollment for the LAUSD is projected to decline for the next 10 years. Thus, it is anticipated that any portables would primarily be installed to accommodate the existing enrolled student population. Additionally, if the installation of portables is to accommodate growth, it is anticipated that emissions would be nominal and less than the emissions shown in Table 5.3-10. Furthermore, it would also contribute to the reduction of overall vehicle miles traveled in the region and mobile-source air pollutant emissions Therefore, operational phase regional air quality impacts for this type of project would be less than significant.

Impact 5.3-4: Site-specific SUP projects may generate short-term emissions that exceed South Coast Air Quality Management District's localized significance thresholds and expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-4]

Implementation of the SUP could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevating those levels. Unlike the construction emissions shown in Table 5.3-10 above, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu g/m^3$) and can be correlated to potential health effects. LSTs are the amount of project-related emissions generated at which localized concentrations (ppm or $\mu g/m^3$) would exceed the AAQS for criteria air pollutants for which the SoCAB is designated a nonattainment area.

All SUP Project

Concentrations of criteria air pollutant generated by a school project (i.e., New Construction on New Property/Existing Campus and Modernization, Repair, Replacement, Upgrade, Remodel, and Renovation) depend on the emissions generated onsite and the distance to the nearest sensitive receptor. Therefore, an LST analysis can only be conducted at a project-level, and quantification of LSTs is not applicable for this program-level environmental analysis. Future individual school projects of varying types could be built in proximity to existing sensitive receptors. Although application of LAUSD PDF AQ-3 would reduce localized air pollutant emissions construction equipment exhaust combined with fugitive dust particulate matter emissions generated from all types of school projects has the potential to expose sensitive receptors to substantial concentrations of criteria air pollutant emissions even after this reduction in impacts. Therefore, localized air quality impacts from short-term construction activities are considered potentially significant, and may not be feasibly mitigated to a level of insignificance.

Impact 5.3-5: Operation of SUP projects would not expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-4]

All SUP Projects

LSTs

Operation of schools would not generate substantial quantities of emission from onsite, stationary sources. Land uses that have the potential to generate substantial stationary sources of emissions that would require a permit from SCAQMD include industrial land uses, such as chemical processing, and warehousing operations where substantial truck idling could occur onsite. Schools do not fall within these categories of uses. While operation of schools would possibly result in the use of standard onsite mechanical equipment, air pollutant emissions generated from operation of this system would be nominal (see Table 5.3-10). Therefore, localized air pollution emissions from stationary sources would be less than significant.

CO Hotspot Analysis

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm. At the time of the 1993 Handbook, the SoCAB was designated nonattainment under the California AAQS and National AAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined. Since 2007, the SCAQMD has been designated in attainment for CO under both the California AAQS and National AAQS. As identified within SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. A CO hotspot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods and did not predict a violation of CO standards.[43] Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.[44] Implementation of the SUP would not produce the volume of traffic at any one intersection required to generate a CO hotspot.[45] Therefore, SUP-related CO hotspots impacts would be less than significant.

[43] The four intersections were Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day and LOS E in the morning peak hour and LOS F in the evening peak hour.
[44] Bay Area Air Quality Management District (BAAQMD). 2011, May (Revised). California Environmental Quality Act Air Quality Guidelines.
[45] See Footnotes b and d of Table 5.3-10 in this chapter for representative average daily vehicle trips that would be generated for a high school and a K-8 school.

Impact 5.3-6: Implementation of SUP-related projects would not create objectionable odors. [Threshold AQ-5]

Nuisance odors from land uses in the SoCAB are regulated under SCAQMD Rule 402, Nuisance, which states:

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

All SUP Projects

The type of facilities that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. Schools do not fall within these types of land uses. While use of landscaping equipment to maintain school property can generate exhaust fumes, the odors would be temporary. Similarly, any construction-related odor emissions from construction equipment exhaust and application of asphalt and architectural coatings would be temporary and intermittent in nature. Short-term construction-related odors are expected to cease upon the drying or hardening of the odor-producing materials. Therefore, odor impacts associated with implementation of the SUP are considered less than significant.

Impact 5.3-7: SUP-related projects would not expose sensitive receptors in proximity to freeways and major roadways to substantial pollutant concentrations. [Thresholds AQ-6 and AQ-7]

The majority of neighborhoods within the LAUSD boundaries can be characterized as urban communities. For these communities, emissions from mobile and stationary sources can contribute significantly to localized concentrations of air contaminants.

Carcinogenic toxic air contaminants that constitute the most of the known health risks from motor vehicle traffic include diesel particulate matter (DPM) from trucks, and benzene, formaldehyde, 1,3-butadiene, and acetaldehyde emissions from passenger vehicles. On a typical urban freeway (truck traffic of 10,000 to 20,000/day), DPM represents approximately 70 percent of the potential health risk from the vehicle traffic. The association of truck-related emissions with adverse health effects is generally strongest between 300 and 1,000 feet and diminishes with distance. The impact of traffic emissions is on a gradient that at some point becomes indistinguishable from the regional air pollution problem.[46] Typically, emissions generated from vehicles depend on vehicle mix, the rate at which pollutants are generated during the course of travel, and the number of vehicles traveling along the roadway network.

[46] California Air Resources Board (CARB). 2005, May. Air Quality and Land Use Handbook: A Community Health Perspective.

Stationary sources that can generate large quantities of DPM and other air toxics include rail yards, ports, refineries, warehouse distribution centers, dry cleaners, gasoline stations, and chrome platers. Warehousing distribution centers can generate DPM from the trucking operations that occur at their facilities. DPM can be generated from the exhaust stack of trucks and from operation of transport refrigeration units. In addition to the onsite emissions, truck travel in and out of warehousing distribution centers can also contribute to the local pollution.[47] Ports not only generate DPM, but also ozone and other particulate matter. Generators associated with ports include diesel-powered ships, harbor craft, cargo handling equipment, trucks, and locomotives.[48] Refineries are one of the largest generators of VOC and NO_X and also generate large amounts of particulate matter. In addition, they emit a variety of TACs (e.g., acetaldehyde, arsenic, antimony, benzene, DPM, and 1, 3-butadiene).

New Construction on New Property or Existing Campus

State-Funded School Projects

School projects under these categories that use state funds would be subject to Public Resources Code Section 21151.8 and Education Code Section 17213 pursuant to Title 5 requirements. These sections require the preparation of an HRA for state-funded school projects. The HRA would be prepared in accordance with the District's HRA Protocol. The assessment would identify stationary sources (permitted and nonpermitted) in addition to nearby freeways and major roadways within a quarter-mile radius of a proposed new school. Additionally, the assessment would also evaluate impacts from criteria air pollutants from roadways and other sources that are within 500 feet and may have a local impact. Under PDF AQ-4 and AQ-5, LAUSD will implement measures necessary to reduce the potential cancer and noncancer risks to an acceptable level (i.e., below 10 in 1 million or a hazard index of 1). These specified mandatory measures, which could include installation of MERV filters in HVAC systems, would be incorporated into the design and construction of the new school facility. Compliance with California Education Code, Section 17213 and Public Resources Code, Section 21151.8 regulations, LAUSD OEHS CEQA Specification Manual, Appendix J, Air Toxics Health Risk Assessment, and PDF AQ-4 and AQ-5 would ensure that the exposure levels for students and staff near stationary sources and freeways and major roadways would be within the acceptable levels and less than the incremental risk thresholds.

The LAUSD Air Toxics Health Risk Assessment guidance document is applicable for all permitted, nonpermitted, and mobile sources within a quarter mile of a project site that might reasonably be anticipated to emit hazardous air emissions and result in potential long-term and short-term health impacts to student and staff at the school site. Additionally, the HRA protocol requires assessment of criteria air pollutants generated from roadways that exceed an annual average daily traffic count of 100,000 vehicles in urban areas, or 50,000 vehicles in rural areas that are within 500 feet of a project site. The six components required are:

- **Task 1:** Identify and Screen Potential Emission Sources
- **Task 2:** Characterize Sources

[47] California Air Resources Board (CARB). 2005, May. Air Quality and Land Use Handbook: A Community Health Perspective.
[48] California Air Resources Board (CARB). 2005, May. Air Quality and Land Use Handbook: A Community Health Perspective.

- **Task 3:** Predict Air Contaminant Levels
- **Task 4:** Assessment of Exposure
- **Task 5:** Health Risk Assessment
- **Task 6:** Preparation of Assessment Report

Specified mandatory measures to reduce health risks, could include installation of MERV filters in HVAC systems, would be incorporated into the design and construction of the new school facility. Therefore, health risk impacts for school projects subject to state requirements would be less than significant.

Non-State-Funded School Projects

School projects that are not state funded and therefore not subject to Public Resources Code Section 21151.8 and Education Code 17213 could potentially expose students and staff to health risks beyond the acceptable limits. However, compliance with California Education Code, Section 17213 and Public Resources Code, Section 21151.8 regulations, and implementation of LAUSD OEHS CEQA Specification Manual, Appendix J, Air Toxics Health Risk Assessment, and PDF AQ-4 and AQ-5 preparation of an HRA and measures necessary to reduce the potential cancer and noncancer risks to an acceptable level. Therefore, health risk impacts for locally-funded school projects would be less than significant.

Modernization, Repair, Replacement, Upgrade, Remodel, Renovation and Installation

School projects under this category would involve modernization of existing facilities only. These types of projects would not alter or change the footprint of an existing classroom building or intensify building or school uses. Thus, these modernization projects would not cause a change of the exposure levels at existing schools. Therefore, health risk impacts for projects types under this category would be less than significant.

5.3.4 Applicable Regulations and Standard Conditions

State

- Hazardous air emissions (Ed Code Section 17213 and PCR Section 21151.8)
- California Advanced Clean Cars CARB (13 CCR, Division 3, Chapter 1)
- Low-Emission Vehicle Program – LEV III (13 CCR, Division 3, Chapter 1)
- Statewide Retail Provider Emissions Performance Standards (SB 1368).
- Airborne Toxics Control Measure to Limit School Bus Idling and Idling at Schools (13 CCR 2480)
- Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling (13 CCR 2485)
- In-Use Off-Road Diesel Idling Restriction (13 CCR 2449)
- Building Energy Efficiency Standards (Title 24, Part 6)
- California Green Building Code (Title 24, Part 11)
- Appliance Energy Efficiency Standards (Title 20)

Regional

- SCAQMD Rule 201: Permit to Construct
- SCAQMD Rule 402: Nuisance Odors
- SCAQMD Rule 403: Fugitive Dust
- SCAQMD Rule 1113: Architectural Coatings
- SCAQMD Rule 1186: Street Sweeping
- SCAQMD Rule 1403: Asbestos Emissions from Demolition/Renovation Activities

LAUSD Standards

- LAUSD OEHS CEQA Specification Manual, Appendix J, Air Toxics Health Risk Assessment (HRA) Protocol. December 2005, Revised June 2007.

- Project Design Features: PDF AQ-1, PDF AQ-2, PDF AQ-3, PDF AQ-4, PDF AQ-5, and PDF AQ-6

5.3.5 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and LAUSD Standards listed above, the following impacts would be less than significant: 5.3-1, 5.3-3, 5.3-5, 5.3-6 and 5.3-7.

Even with implementation of regulatory requirements and LAUSD Standards the following impacts would be **potentially significant**:

- **Impact 5.3-2** Construction activities could generate short-term emissions in exceedance of SCAQMD'S regional construction significance threshold criteria and cumulatively contribute to the nonattainment designations of the SoCAB.

- **Impact 5.3-4** Construction activities could generate short-term emissions in exceedance of SCAQMD'S localized significance threshold criteria and expose sensitive receptors to substantial pollutant concentrations.

5.3.6 Mitigation Measures

Impact 5.3-2

No feasible mitigation measures are available that would further reduce short-term emissions and impacts to the regional air quality.

Impact 5.3-4

No feasible mitigation measures are available that would further reduce potentially significant short-term localized emission impacts.

Impact 5.3-1, 5.3-3, 5.3-5, 5.3-6 and 5.3-7

No mitigation measures are required.

5.3.7 Level of Significance After Mitigation

Impact 5.3-2

Compliance with SCAQMD regulations and LAUSD Standards would reduce criteria air pollutant emissions from construction-related activities. However, short-term emissions generated from future individual projects could still exceed the SCAQMD regional significance threshold criteria. No additional mitigation measures are available to reduce impacts. Therefore, Impact 5.3-2 is considered potentially **significant and unavoidable.**

Impact 5.3-4

Compliance with SCAQMD regulations and LAUSD Standards would reduce criteria air pollutant emissions from construction-related activities. However, short-term onsite emissions generated from future individual projects could still exceed the SCAQMD localized significance threshold criteria even after this reduction. No additional mitigation measures are available to reduce impacts. Therefore, Impact 5.3-4 is considered potentially **significant and unavoidable.**

Impact 5.3-1, 5.3-3, 5.3-5, 5.3-6 and 5.3-7

Impacts would be less than significant.

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