

3.2. AIR QUALITY

The California Health and Safety Code defines air pollution as any discharge, release, or other propagation into the atmosphere, and includes, but is not limited to, smoke, charred paper, dust, soot, grime, carbon, fumes, gases, odors, particulate matter, acids, or any combination thereof. Sources of air pollution can be classified as stationary sources (e.g., industrial processes, generators), mobile sources (e.g., automobiles, trucks) or area sources (e.g., residential water heaters).

Criteria air pollutants are pollutants for which the federal and State governments have established ambient air quality standards to protect public health. The federal and State standards have been set at concentrations designed to prevent environmental exposures that would be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort.

Criteria air pollutants that are regulated by the federal and State governments include carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter ten microns or less in diameter (PM₁₀), fine particulate matter 2.5 microns or less in diameter (PM_{2.5}) and lead (Pb). These pollutants are discussed below; also provided are descriptions of ultrafine particulate matter (ultrafine PM), diesel particulate matter (diesel PM) and toxic air contaminants (TACs) as pollutants of air quality concern for which air quality standards have not been specifically established.

CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follows the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography and atmospheric stability.

CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of human health, CO competes with oxygen—often replacing it in the blood—thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue and impairment of central nervous system functions.

O₃ is a colorless gas that is formed in the atmosphere when reactive organic gases (ROG)—which include volatile organic compounds (VOC) and nitrogen oxides (NO_x)—react in the presence of ultraviolet sunlight. O₃ is not a primary pollutant directly emitted to the atmosphere; it is a secondary pollutant formed by complex interactions involving two or more chemical compounds. Emissions of ROG and NO_x that drive atmospheric O₃ formation are primarily attributed to automobile exhaust and industrial sources. Meteorology and terrain play major roles in O₃ formation. Ideal O₃ formation conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and clear

skies. Automobile travel serves as the greatest source of ozone-producing gases. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, restricted breathing, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

NO_2 , like O_3 , is formed in the atmosphere through a chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_x and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10} (discussed below). High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase of bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm).

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

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

SO₂ is a colorless, pungent gas that forms primarily through the combustion of sulfur-containing fossil fuels. Main sources of SO₂ emissions are coal and oil used in power plants and industries. Generally, the highest levels of SO₂ are found near large industrial complexes. In recent years, atmospheric SO₂ concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO₂ and limits on the sulfur content of fuels. SO₂ is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO₂ can also yellow plant leaves and erode iron and steel. Sulfur oxides (SO_x) refer to any of several compounds of sulfur and oxygen, the most important of which is SO₂.

Lead in the atmosphere exists as particulate matter. Sources of lead include leaded gasoline combustion, the manufacture of batteries, paint, ink, ceramics, and ammunition, and secondary lead smelting facilities. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall prevalence of airborne lead by nearly 95 percent. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities have become emission sources of greater concern. Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time and growth.

TACs are generally defined as those contaminants that are known or suspected to cause serious health problems but do not have a corresponding ambient air quality standard. These air pollutants may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Other factors such as the concentration of the chemical and its toxicity, meteorological conditions at the time of release, and the terrain all influence whether the emissions could be hazardous to human health. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. TACs can exist as PM₁₀ and PM_{2.5} or as vapors (gases), and include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources.

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

operating conditions, fuel composition, lubricating oil and whether an emission control system is present.

Diesel exhaust causes health effects from both short-term (acute) exposures and long-term (chronic) exposures. The nature and severity of health effects depends upon several factors including the dose and duration of exposure. Individuals also react differently to different levels of exposure. There is limited information on exposure to diesel PM specifically but there is substantial evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects. Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat and lungs, some neurological effects such as lightheadedness. Acute exposure may also elicit a cough or nausea as well as exacerbate asthma. Chronic inhalation exposure to diesel PM in experimental animal studies has shown a range of dose-dependent lung inflammation and cellular changes in the lung and immunological effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen.

3.2.1. REGULATORY FRAMEWORK

3.2.1.1. Federal

The Federal Clean Air Act (CAA) governs air quality at the national level and the United States Environmental Protection Agency (USEPA) is responsible for enforcing the regulations provided in the CAA. Under the CAA, USEPA is authorized to establish National Ambient Air Quality Standards (NAAQS) that set protective limits on concentrations of air pollutants in the atmosphere. Enforcement of the NAAQS is required under the 1977 CAA and subsequent amendments. USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. USEPA has jurisdiction over emission sources outside State waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California.

As required by the CAA, NAAQS have been established for seven criteria air pollutants: CO, NO₂, O₃, PM_{2.5}, PM₁₀, SO₂, and Pb. The CAA grants USEPA authority to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved on a regional scale. The federal standards are summarized in Table 3.2.1. USEPA has classified the Los Angeles County portion of the South Coast Air Basin (Basin) as a nonattainment area for O₃, PM_{2.5} and Pb and a maintenance area for PM₁₀, CO, and NO₂.

Table 3.2.1. State and National Criteria Pollutant Ambient Air Quality Standards and Attainment Status for the South Coast Air Basin

Pollutant	Averaging Period	California		Federal	
		Standards	Attainment Status	Standards	Attainment Status
Ozone (O ₃)	1-hour Average	0.09 ppm (180 µg/m ³)	Nonattainment	--	--
	8-hour Average	0.070 ppm (137 µg/m ³)	Nonattainment	0.070 ppm (137 µg/m ³)	Nonattainment
Respirable Particulate Matter (PM ₁₀)	24-hour Average	50 µg/m ³	Nonattainment	150 µg/m ³	Maintenance
	Annual Average	20 µg/m ³	Nonattainment	--	--
Fine Particulate Matter (PM _{2.5})	24-hour Average	--	--	35 µg/m ³	Nonattainment
	Annual Average	12 µg/m ³	Nonattainment	12.0 µg/m ³	Nonattainment
Carbon Monoxide (CO)	1-hour Average	20 ppm (23 mg/m ³)	Attainment	35 ppm (40 mg/m ³)	Maintenance
	8-hour Average	9.0 ppm (10 mg/m ³)	Attainment	9 ppm (10 mg/m ³)	Maintenance
Nitrogen Dioxide (NO ₂)	1-hour Average	0.18 ppm (339 µg/m ³)	Attainment	100 ppb (188 µg/m ³)	Maintenance
	Annual Average	0.030 ppm (57 µg/m ³)	Attainment	53 ppb (100 µg/m ³)	Maintenance
Sulfur Dioxide (SO ₂)	1-hour Average	0.25 ppm (655 µg/m ³)	Attainment	75 ppb (196 µg/m ³)	Attainment
	24-hour Average	0.04 ppm (105 µg/m ³)	Attainment	--	--
Lead (Pb)	30-day Average	1.5 µg/m ³	Attainment	--	--
	Calendar Quarter	--	--	0.15 µg/m ³	Nonattainment

Source: USEPA, 2015; CARB, 2015, 2016.

Controlling air toxic emissions became a national priority with the passage of the CAA Amendments of 1990, whereby Congress mandated that USEPA regulate 188 air toxics, also known as hazardous air pollutants. USEPA has identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System. In addition, USEPA classified seven compounds with significant contributions from mobile sources that are among the national- and regional-scale cancer risk drivers identified in the 1999 National Air Toxics Assessment as hazardous air pollutants of concern. These include acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene and polycyclic organic matter.

3.2.1.2. State

In addition to being subject to the requirements of CAA, air quality in California is also subject to more stringent regulations under the California Clean Air Act (CCAA). In California, the CCAA is administered by the California Air Resources Board (CARB) at the State level and by the air quality management districts and air pollution control districts at the regional and local

levels. CARB, which became part of the California Environmental Protection Agency (Cal/EPA) in 1991, is responsible for meeting the State requirements of the CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS).

The CCAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The State standards are summarized in Table 3.2.1. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment.

The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data show that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances caused by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the Los Angeles County portion of the Basin is designated as a nonattainment area for O₃, PM_{2.5}, and PM₁₀.

CARB's statewide comprehensive air toxics program was established in the early 1980s. The Toxic Air Contaminant Identification and Control Act created California's program to reduce exposure to air toxics. Under the Toxic Air Contaminant Identification and Control Act, CARB is required to prioritize the identification and control of air toxics emissions. In selecting substances for review, CARB must consider criteria relating to the risk of harm to public health, such as amount or potential amount of emissions, manner of and exposure to usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community. The Toxic Air Contaminant Identification and Control Act also requires CARB to use available information gathered from the Air Toxics Hot Spots Information and Assessment Act to include in the prioritization of compounds.

CARB classified particulate emissions from diesel-fueled engines (diesel PM) as TACs in August 1998. Following the identification process, CARB was required by law to determine if there was a need for further control, which led to the risk management phase of the program. For the risk management phase, CARB formed the Diesel Advisory Committee to assist in the development of a risk management guidance document and a risk reduction plan. With the assistance of the Advisory Committee and its subcommittees, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines.

The Diesel Advisory Committee approved these documents on September 28, 2000, paving the way for the next step in the regulatory process: the control measure phase. During the control measure phase, specific Statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles have and continue to be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by

establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions.

3.2.1.3. Regional

South Coast Air Quality Management District (SCAQMD)

The SCAQMD was created to coordinate air quality planning efforts throughout Southern California. The SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, the SCAQMD is responsible for monitoring air quality, as well as planning, implementing and enforcing programs designed to attain and maintain State and federal ambient air quality standards. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources and certain mobile source emissions. The SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified or relocated stationary sources do not create net emission increases.

The SCAQMD has jurisdiction over an area of 10,743 square miles, consisting of the Basin and the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a subset of the SCAQMD's jurisdiction and covers an area of 6,745 square miles, including all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The Basin is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east; and the San Diego County line to the south. Figure 3.2.1 shows the geographic extent of the Basin highlighted, as well as the other air basins throughout California.

The SCAQMD Air Quality Management Plan (AQMP) is the jurisdictional blueprint for achieving the federal air quality standards and healthful air within the Basin. The AQMP outlines a comprehensive strategy aimed at controlling pollution from all sources of air pollutant emissions within the Basin, including stationary sources, on- and off-road mobile sources and area sources. The most recent iteration published by SCAQMD is the 2016 AQMP, which provides a thorough analysis of existing and potential regulatory control options, includes available, proven, and cost-effective strategies for improving air quality, and encourages programmatic partnerships to accelerate the transition to cleaner vehicles and the modernization of buildings and industrial facilities. The 2016 AQMP focuses on demonstrating attainment of the NAAQS for O₃ and PM_{2.5}, as demonstrated attainment of the NAAQS for PM₁₀ and the associated maintenance plan was approved in 2013.¹

SCAQMD, *Final 2016 AQMP*, March 2017.

Figure 3.2.1 California Air Basins – South Coast Air Basin



Source: CARB, 2016.

Additionally, SCAQMD has a long and successful history of reducing air toxics and criteria emissions in the Basin. SCAQMD has an extensive control program, including traditional and innovative rules and policies. These policies can be viewed in SCAQMD's Air Toxics Control Plan for the Next Ten Years. To date, the most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study IV (MATES-IV), conducted by SCAQMD.² The monitoring program measured more than 30 air pollutants, including both gases and particulates. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region based on emissions and weather data.

MATES-IV found that the cancer risk in the region from carcinogenic air pollutants ranges from about 320 to 480 in a million. About 90 percent of the risk is attributed to emissions associated with mobile sources, with the remainder attributed to toxics emitted from stationary sources, which include large industrial operations, such as refineries and metal processing facilities, as well as smaller businesses such as gas stations and chrome plating. The results indicate that diesel PM is the major contributor to air toxics risk, accounting on average for about 68 percent of the total risk.

Subsequent to the release of the MATES-IV, the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA) updated the methods for estimating cancer risks, which uses higher estimates of cancer during early life exposure and uses different assumptions for duration of residential exposures and breathing rates.³ Using the updated methods, the SCAQMD estimates that the risk for the same inhalation exposure level will be approximately 2.5 to 2.7 times higher, which would be reflected in the average lifetime air toxics risk estimated from the monitoring sites data going from 418 per million to 1,023 per million.⁴

The SCAQMD has established various regulations to control emissions of air pollutants throughout in the Basin that are codified in its official Rule Book. Regulations that are relevant to construction of the Proposed Project include Rules 401, 402, 403, and 1403.

- Rule 401 (Visible Emissions) limits visible emissions from properties within SCAQMD jurisdiction.
- Rule 402 (Nuisance) states that a person should not emit 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.
- Rule 403 (Fugitive Dust) controls fugitive dust through various requirements including, but not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material

² SCAQMD, *Final Report – Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-IV)*, May 2015.
³ California Environmental Protection Agency, Office of Health Hazard Assessment, *Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments*, 2015.
⁴ SCAQMD, *Final Report – Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-IV)*, May 2015.

from tires and vehicle undercarriages before vehicles exit a construction site, and maintaining effective cover over exposed areas.

- Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities) requires asbestos surveying, notification, asbestos-containing materials removal procedures and time schedules, asbestos-containing materials handling and clean-up procedures, and storage, disposal, and landfilling requirements for asbestos-containing waste materials at sites conducting demolition or renovation of structures that may potentially contain asbestos.

SCAMD has also published air quality guidance documents, including the CEQA Air Quality Handbook, originally published in 1993. The SCAQMD Handbook is currently under revision. During this time, the SCAQMD recommends that lead agencies follow the calculation methodologies in Chapter 9 and the Appendix to Chapter 9 in the Handbook. The SCAQMD recommends, however, that lead agencies avoid using the screening tables in Chapter 6 of the Handbook, because the tables were derived using an obsolete version of CARB's mobile source emissions factor inventory (EMFAC7E) instead of the currently approved version (EMFAC2014), and the trip-generation characteristics of the land uses identified in the Chapter 6 screening tables were based on the fifth edition of the Institute of Transportation Engineers Trip Generation Manual, and not the most current (sixth) edition. Further, SCAQMD recommends that lead agencies avoid using the on-road mobile source emission factors in Table A9-5-J1 through A9-5-L in the Handbook; instead, the SCAQMD recommends using other approved models to calculate emissions from land use projects, such as CalEEMOD.⁵

In June 2003, the SCAQMD published the Localized Significance Threshold Methodology that is intended to provide voluntary guidance for lead agencies in analyzing localized air quality impacts from projects.⁶ This guidance was updated in July 2008 to incorporate additional recommendations regarding PM_{2.5} emissions.⁷

Southern California Association of Governments (SCAG)

While Southern California is a leader in reducing emissions and ambient levels of air pollutants are improving, the SCAG region continues to have the worst air quality in the nation. The SCAG region encompasses six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 191 cities in an area covering more than 38,000 square miles. On April 7, 2016, SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which includes policies that promote actions to help the region confront congestion and mobility issues, and consequently, improve air quality.⁸ The 2016-2040 RTP/SCS charts a course for closely integrating land use and transportation planning, including in areas defined as High Quality Transit Areas.

High Quality Transit Areas are areas with rail transit service or bus service peak headways of less than 15 minutes. It outlines \$556.5 billion in transportation system investments through

⁵ SCAQMD, *CEQA Air Quality Handbook*, November 1993.

⁶ SCAQMD, *Final Localized Significance Threshold Methodology*, July 2008.

⁷ SCAQMD, *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds*, October 2006.

⁸ SCAG, *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy*, April 2016.

2040. Major themes in the 2016-2040 RTP/SCS that are relevant to the Proposed Project include integrating strategies for land use and transportation, striving for sustainability, protecting and preserving the existing transportation infrastructure, increasing capacity through improved system management, and giving people more transportation choices.

3.2.1.4. Local

City of Los Angeles General Plan Air Quality Element

The principal objective of the Air Quality Element of the General Plan is to aid the region in attaining the State and federal ambient air quality standards while continuing economic growth and improvement in the quality of life afforded to City residents. The Air Quality Element also documents how the City will implement local programs contained in the General Plan. Goals, objectives, and policies of the Air Quality Element applicable to the Proposed Project are listed in Table 3.2.2.

Los Angeles County Metropolitan Transportation Authority (Metro)

Metro recently implemented several policies and plans aimed at improving system-wide sustainability and minimizing detrimental air quality and climate change impacts from operations and new projects, collectively overseen by the Countywide Sustainability Planning Program. These policies and plans constitute the framework for the Metro Climate Action and Adaptation Plan, which is Metro's foundation for its Sustainability Implementation Plan.^{9,10} Strategies for achieving the objectives set forth in the Metro Climate Action and Adaptation Plan were analyzed in the Metro Energy and Resource Report.¹¹ The Metro policies and plans that most directly apply to reducing emissions of air pollutants that would result from implementation of the Proposed Project include the Energy and Sustainability Policy, Construction Demolition Debris Recycling and Reuse Policy, Environmental Policy, and the Green Construction Policy, all of which are incorporated into the Metro Countywide Sustainability Planning Policy and Implementation Plan.^{12,13,14,15}

⁹Metro, *Climate Action and Adaptation Plan*, June 2012.

¹⁰Metro, *Countywide Sustainability Planning Policy and Implementation Plan*, December 2012.

¹¹Metro, *Energy and Resource Report*, 2016.

¹²Metro, *Energy and Sustainability Policy*, June 2007.

¹³Metro, *Construction and Demolition Debris Recycling and Reuse Policy*, December 2007.

¹⁴Metro, *Environmental Policy*, August 2009.

¹⁵Metro, *Green Construction Policy*, August 2011.

Table 3.2.2. City of Los Angeles General Plan Air Quality Goals, Objectives, and Policies

Goal/Objective/Policy	Goal/Objective/Policy Description
Goal 1	Good air quality and mobility in an environment of continued population growth and healthy economic structure.
Objective 1.3	It is the objective of the City of Los Angeles to reduce particulate air pollutants emanating from unpaved areas, parking lots and construction sites.
Policy 1.3.1	Minimize particulate matter emissions from construction sites.
Goal 2	Less reliance on single-occupant vehicles with fewer commute and non-work trips.
Objective 2.1	It is the objective of the City of Los Angeles to reduce work trips as a step towards attaining trip reduction objectives necessary to achieve regional air quality goals.
Policy 2.1.1	Utilize compressed work weeks and flex time, telecommuting, carpooling, vanpooling, public transit, and improve walking/bicycling related facilities in order to reduce Vehicle Trips and Vehicle Miles Traveled (VMT) as an employer and encourage the private sector to do the same to reduce work trips and traffic congestion.
Goal 3	Efficient management of transportation facilities and system infrastructure using cost-effective system management and innovative demand-management techniques.
Objective 3.2	It is the objective of the City of Los Angeles to reduce vehicular traffic during peak periods.
Policy 3.2.1	Manage traffic congestion during peak periods.
Goal 4	Minimal impact of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality.
Objective 4.1	It is the objective of the City of Los Angeles to include the regional attainment of ambient air quality standards as a primary consideration in land use planning.
Policy 4.1.1	Coordinate with all appropriate regional agencies the implementation of strategies for the integration of land use, transportation, and air quality policies.
Objective 4.2	It is the objective of the City of Los Angeles to reduce vehicle trips and VMT associated with land use patterns.
Policy 4.2.2	Improve accessibility for the City's residents to places of employment, shopping centers and other establishments.
Policy 4.2.3	Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.
Policy 4.2.4	Require that air quality impacts be a consideration in the review and approval of all discretionary projects.
Policy 4.2.5	Emphasize trip reduction, alternative transit and congestion management measures for discretionary projects.

Source: City of Los Angeles, 1992.

Strategies outlined in the Environmental Policy to reduce air quality impacts include, but are not limited to: compliance with all environmental federal, State, and local laws and regulations; restoration of the environment by providing mitigation, corrective action, and monitoring to ensure that environmental commitments are implemented; avoidance of environmental degradation by minimizing releases to air, water, and land; prevention of pollution and conservation of resources by reducing waste and reusing materials; and ensuring that the planning, design, construction and operation of facilities and services consider environmental protection and sustainable features.

Metro's Environmental Policy was prepared to provide guidance in identifying potential environmental impacts generated by: development activities and developing mitigation measures to address those impacts; operating and maintaining Metro vehicles and facilities to minimize negative impacts on the environment; reducing consumption of natural resources; and reducing and/or diverting the amount of solid waste going to landfills. Metro is committed to planning and constructing projects and operating and maintaining facilities and vehicles in a manner that will protect human health and the environment.

Metro adopted the Green Construction Policy in 2011 to reduce environmental impacts from construction activities associated with Metro projects. Implementation updates were published in 2013 and 2015.^{16,17} The policy provides requirements for identifying and mitigating air emission impacts on human health, the environment, and the climate of on-road and off-road construction equipment and generators used in construction and development activities; implementing appropriate Best Management Practices (BMPs) to complement equipment mitigations; and implementing strategies to ensure compliance with applicable rules and regulations. The Green Construction Policy included requirements for off-road construction equipment to meet Tier 4 off-road emission standards where feasible or be outfitted with Best Available Control Technology (BACT) devices certified by CARB; on-road heavy-duty diesel trucks or equipment with a gross vehicle weight rating of 19,500 pounds or greater to comply with USEPA 2007 on-road emission standards for PM and NOx; and for the utilization of grid-based electric power at any construction site where feasible.

BMPs in the Green Construction policy include, but are not limited to: maintaining equipment according to manufacturer's specifications; restricting idling of construction equipment and on-road heavy-duty trucks to a maximum of five minutes when not in use; use of diesel particulate traps or BACT as feasible; configuration of haul routes to conform to local requirements to minimize traversing through congested streets, near sensitive receptor areas, and during peak traffic periods; and limiting traffic speeds on unpaved roads to less than 15 miles per hour.

3.2.2. EXISTING SETTING

3.2.2.1. Air Pollution Climatology

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

¹⁶Metro, *Update on Green Construction Policy Implementation*, March 27, 2013.

¹⁷Metro, *Update on Green Construction Policy Implementation*, August 6, 2015.

mountains and hills within the area contribute to the variation of rainfall, temperature and winds throughout the region.

The Basin experiences frequent temperature inversions. Temperature typically decreases with height. However, under inversion conditions, temperature increases as altitude increases, thereby preventing air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, air quality problems are created due to the interaction between the ocean surface and the lower layer of the atmosphere. This interaction creates a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons and NO₂ react under strong sunlight, creating smog. Light, daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains.

During the fall and winter, air quality problems are created due to CO and NO₂ emissions. CO concentrations are generally worse in the morning and late evening. In the morning, CO levels are relatively high due to cold temperatures and the large number of cars traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO emissions are produced almost entirely from automobiles, the highest CO concentrations in the Basin are associated with heavy traffic. NO₂ concentrations are also generally higher during fall and winter days.

3.2.2.2. Local Climate

The mountains and hills within the Basin contribute to the variation of rainfall, temperature, and winds throughout the region. The closest meteorological monitoring station to the Project Site is located at 1630 North Main Street, approximately one mile north of the Proposed Project. According to data obtained from the SCAQMD, the average wind speed in the vicinity of the Proposed Project is approximately 5.2 miles per hour, with calm winds occurring only 0.6 percent of the time. Wind in the vicinity of the Project Site predominately blows from the west and southwest diurnally, and switches direction blowing predominantly from the northeast at night.¹⁸

The nearest climatological data monitoring station to the Proposed Project is located at the University of Southern California campus, approximately 3.7 miles southwest of the Project Site. The annual average temperature recorded near the Proposed Project is 65.4 degree Fahrenheit (°F).¹⁹ The average winter temperature is 58.2°F and the average summer temperature is 72.7°F. Total precipitation averages approximately 14.9 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer. Precipitation averages 9.9 inches during the winter, 2.9 inches during the spring, 1.9 inches during the fall, and less than one-half inch during the summer.²⁰

3.2.2.3. Air Monitoring Data

SCAQMD monitors air quality conditions at 38 locations throughout the Basin, which is regionally divided into subareas referred to as Source Receptor Areas (SRAs). The Proposed

¹⁸SCAQMD, *Meteorological Data for AERMOD Applications*, November 2017.

¹⁹Western Regional Climate Center, *Local Climate Data Summaries for the Western U.S.*, November 2017.

²⁰Ibid.

Project is situated in SRA 1 Central Los Angeles County; air quality within SRA 1 is characterized by pollutant concentrations measured at the Los Angeles – North Main Street Station, located at 1630 North Main Street approximately one mile north of the Proposed Project. The station monitors ambient air concentrations of O₃, NO₂, PM₁₀, and PM_{2.5}. As of 2014, the SCAQMD ceased recording and publishing ambient CO and SO₂ concentrations throughout the Basin following an extended period of demonstrated attainment without any air quality violations. Existing criteria pollutant concentrations are shown in Table 3.2.3.

Table 3.2.3. Ambient Air Quality Data

Pollutant	Air Quality Standards & Comparative Metrics	2014	2015	2016
Ozone (O ₃)	Maximum 1-hr Average Concentration (ppm)	0.113	0.104	0.103
	Days > 0.090 ppm (State 1-hr Standard)	3	2	2
	Maximum 8-hr Average Concentration (ppm)	0.094	0.074	0.078
	Days > 0.070 ppm (State/Federal 8-hr Standard)	6	6	4
Nitrogen Dioxide (NO ₂)	Maximum 1-hr Average Concentration (ppm)	0.082	0.079	0.065
	Days > 0.18 ppm (State 1-hr Standard)	0	0	0
	Days > 0.100 ppm (Federal 1-hr Standard)	0	0	0
	Annual Average Concentration (ppm)	0.022	0.022	0.020
	Exceed 0.030 ppm? (State Annual Standard)	No	No	No
	Exceed 0.053 ppm? (Federal Annual Standard)	No	No	No
Respirable Particulate Matter (PM ₁₀)	Maximum 24-hr Average Concentration (µg/m ³)	86.8	88.5	74.6
	Days > 50 µg/m ³ (State 24-hr Standard)	38	30	21
	Annual Average Concentration (µg/m ³)	30.6	27.1	25.8
	Exceed 20.0 µg/m ³ ? (State Annual Standard)	Yes	Yes	Yes
Fine Particulate Matter (PM _{2.5})	Maximum 24-hr Average Concentration (µg/m ³)	65.0	70.3	49.4
	Days > 35 µg/m ³ (Federal 24-hr Standard)	6	7	2
	Annual Average Concentration (µg/m ³)	N/A	12.5	12.0
	Exceed 12.0 µg/m ³ ? (State/Federal Standard)	N/A	Yes	No

Source: CARB, 2017.

Neither State nor federal NO₂ standards were exceeded at the North Main Street monitoring station during the three-year period between 2014 and 2016. The eight-hour State and federal standard for O₃ and the one-hour State standard for O₃ were exceeded during this three-year period. The 24-hour and annual average State PM₁₀ standards were exceeded numerous times throughout the three-year period. The 24-hour federal standard for PM_{2.5} was exceeded each year during this period, and the annual average PM_{2.5} standard was exceeded in 2015. The air monitoring data are consistent with the attainment status designations presented in Table 3.2.1.

3.2.2.4. Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. CARB has identified the following groups who are most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes and people with cardiovascular and chronic

respiratory diseases.²¹ The SCAQMD identifies sensitive land uses as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.²² As shown in Figure 3.2.2, the closest sensitive receptor is the OSF residential development located along the western boundary of the Project Site. The OSF development contains approximately 450 dwelling units. No other sensitive receptors have been identified within 25 meters (approximately 80 feet) of the Project Site.

3.2.3. THRESHOLDS OF SIGNIFICANCE

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

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

The SCAQMD has promulgated significance thresholds to assist in the significance determination process for CEQA air quality assessments.²³ The thresholds were devised to provide environmental professionals with quantitative metrics for determining the potential significance of air pollutant emissions within the Basin. The SCAQMD thresholds are considered when addressing potential environmental impacts related to regional air quality. In addition to the regional significance thresholds above, the SCAQMD has developed specific CEQA localized significance thresholds (LSTs) applicable to on-site emission sources to protect sensitive receptors in close proximity to construction sites from exposure to substantial concentrations of O₃ precursors and criteria pollutants.

²¹CARB, *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005.

²²SCAQMD, *CEQA Air Quality Handbook*, November 1993.

²³SCAQMD, *Air Quality Significance Thresholds*, March 2015.

Figure 3.2.2 Sensitive Receptor Locations



Source: Terry A. Hayes Associates Inc., 2018.

The *SCAQMD Fact Sheet for Applying CalEEMod Localized Significance Thresholds* and the *Appendix C Mass Rate Lookup Tables* were consulted to determine the appropriate LST values for the air quality assessment.^{24,25} The threshold values used for this analysis are specific to a construction site with a two-acre daily disturbance area based on the construction equipment inventory and a sensitive receptor within 25 meters of the site boundary. These assumptions are consistent with the Proposed Project’s construction scenario, in that maximum daily ground disturbance activity during grading and excavation would require up to two scrapers on the Project Site, each of which can cover an area of one acre per day according to the SCAQMD.²⁶ Furthermore, the OSF residential development is situated along the boundary of the Proposed Project site, and therefore the LST value for the closest receptor proximity is appropriate.

According to the SCAQMD, localized emissions at the Project Site would result in a significant air quality impact if air pollutant concentrations exceed the following threshold values:

- Localized concentrations of CO exceed the one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm;
- Localized concentrations of NO₂ exceed the one-hour standard of 0.18 ppm; and/or
- Localized concentrations of PM₁₀ or PM_{2.5} exceed 10.4 µg/m³.

In order to address these regional and localized thresholds of significance related to air quality, the SCAQMD established quantitative threshold values for maximum allowable daily emissions of regulated pollutants. The SCAQMD determined that construction and operation of an individual project could release certain quantities of air pollutants into the atmosphere on a daily basis without compromising or conflicting with regional efforts to improve air quality as outlined in the AQMP. Table 3.2.4 presents the regional thresholds for O₃ precursors (VOC), NO_x, CO, SO_x, PM₁₀, and PM_{2.5} during construction and operation. Also shown in Table 3.2.4 are the LST values applicable to construction activities.

Table 3.2.4. SCAQMD Air Quality Significance Thresholds – Mass Daily Thresholds

POLLUTANT	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
CONSTRUCTION						
Regional Threshold (lb/day)	75	100	550	150	150	55
Localized Threshold (lb/day)	--	108	1,048	--	8	5
OPERATION						
Regional Threshold (lb/day)	55	55	550	150	150	55

Note: LST values selected for 2-acre daily disturbance based on equipment inventory and 25-meter receptor distance in SRA 1.

Source: SCAQMD, 2015; 2009.

• SCAQMD, *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*, 2013.
 • SCAQMD, *Localized Significance Threshold Appendix C - Mass Rate LST Look-Up Table*, October 2009.
 • SCAQMD, *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*, 2013.

Additionally, the SCAQMD has stated that a project would have a significant impact on the environment related to air quality if emissions of TACs result in a sensitive receptor exposure exceeding a Maximum Incremental Cancer Risk of 10 in one million, a Cancer Burden of 0.5 excess cancer cases, or a Chronic or Acute Hazard Index of 1.0.²⁷ The primary TAC associated with construction of the Proposed Project would be diesel PM emitted by heavy duty equipment and haul trucks. No specific regulatory threshold has been established for assessing potential impacts from odors.

3.2.4. IMPACT ANALYSIS AND MITIGATION MEASURES

The ensuing discussions address the potential significance of air quality impacts associated with construction and operation of the Proposed Project in accordance with the Appendix G Environmental Checklist criteria. Where appropriate, SCAQMD thresholds are invoked to substantiate the significance determinations.

Impact 3.2.1 Would the Proposed Project conflict with or obstruct implementation of the applicable air quality plan?

Impact Analysis

Less-than-Significant Impact. The following analysis addresses the potential for impacts during construction and operational activities.

Construction

The SCAQMD has responsibility for managing the Basin's air resources and is responsible for bringing the Basin into attainment for federal and state air quality standards. To achieve this goal, the SCAQMD prepares/updates the Basin's 2016 AQMP every four years. The "on-road emissions" 2016 AQMP budgets are developed based on the regional planning documents that are prepared by SCAG. The Proposed Project is included in the 2016-2040 RTP/SCS under Project ID 1TL0703. The 2016-2040 RTP/SCS was found by Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) to be in conformity with the State Implementation Plan on June 1, 2016.

The 2016 AQMP emissions budget is also based on growth projections assessed in the 2016–2040 RTP/SCS related to population and employment, and associated vehicle miles traveled (VMT). According to SCAQMD, there are two key indicators of consistency with the 2016 AQMP: 1) whether the Proposed Project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the 2016 AQMP; and 2) whether the Proposed Project would cause an exceedance of the forecasted growth incorporated into the 2016 AQMP. Construction of the Proposed Project is evaluated in the context of both indicators.

The first consistency indicator is whether the Proposed Project would violate the ambient air quality standards. Construction emissions associated with development of the Proposed

²⁷SCAQMD, *Air Quality Significance Thresholds*, March 2015.

Project would not have a long-term impact on the region's ability to meet California and federal air quality standards. As shown under the impact discussion for Criterion 3.2.2, maximum daily emissions of air pollutants from construction activities would not exceed regional or localized significance threshold values.

In addition, construction activities associated with the Proposed Project would comply with State and local strategies designed to control air pollution, such as SCAQMD Rules 402 and 403 and the Metro Green Construction Policy. SCAQMD Rule 403 requires the watering of unpaved surfaces disturbed by construction activities and limiting vehicle speeds to 15 miles per hour on unpaved surfaces. The Metro Green Construction Policy requires the use of heavy-duty construction equipment meeting Tier 4 engine specifications. These assumptions were built into the emissions modeling. By adhering to the stringent SCAQMD and Metro rules and regulations pertaining to fugitive dust control and maintaining maximum daily emissions below SCAQMD mass daily thresholds, construction activities associated with the Proposed Project would not conflict with or obstruct implementation of the goals and objectives of the 2016 AQMP to improve air quality in the Basin.

The second consistency indicator is whether the Proposed Project would exceed the regional growth assumptions incorporated into the applicable air quality plan. A large-scale individual project could potentially exceed assumptions in the air quality plan if it resulted in a zoning change that resulted in disproportionate growth relative to the land use types analyzed in the air quality plan. However, the air quality plan focuses on long-term, operational sources of air pollutants that contribute to the regional emission inventory. Short-term, temporary emissions associated with construction activities would not conflict with the air quality plan so long as no SCAQMD thresholds of significance are exceeded. As shown in Table 3.2.5 under Criterion 3.2.2, construction activities would not generate daily air pollutant emissions of sufficient magnitude to exceed any applicable threshold of significance. Therefore, the Proposed Project would result in less-than-significant impacts related to the conflict or implementation of the applicable air quality plan during construction.

Operations

Operation of the Proposed Project would involve train travel through the expanded Division 20 Rail Yard portal and storage of rail cars within the existing and proposed turnback facilities. Implementation of the Proposed Project would increase the number of trains stored in the Division 20 Rail Yard from 104 to 282. However, the trains are powered by electric propulsion and do not constitute mobile sources of air pollutant emissions.

There would be approximately 107 additional employees at the Project Site upon commencement of operations of the Proposed Project. Employees would arrive through a combination of single-occupancy vehicles, carpools, and public transit. The additional vehicle trips would not represent a substantial incremental increase relative to existing operational activities; conservatively assuming that all additional employees would commute individually, the 107 daily vehicle trips would generate daily emissions of approximately 0.5 pounds VOC, 0.4 pounds NO_x, 4.7 pounds CO, less than 0.1 pounds SO_x, 0.2 pounds PM₁₀, and 0.1 pounds PM_{2.5}. Daily mass emissions are substantially below the applicable SCAQMD operational Air Quality Significance Thresholds, therefore mobile source emissions would be less-than-significant.

In addition, the Proposed Project would allow Metro to operate the Purple Line Extension at full capacity and improve headways for the Purple and Red Lines. The Purple Line Extension would extend the existing Metro Purple Line heavy rail transit subway from its current terminus at Wilshire/Western Station to a new western terminus near the West Los Angeles Veterans Administration Hospital. According to the Westside Subway Extension Record of Decision, the Metro Purple Line Extension, “will reduce congestion by providing reliable, higher speed transit service. During peak periods, rail operating speeds are faster than speeds for a comparable trip by automobile, providing more reliability in travel time variation. The improved convenience of transit improvements in the corridor would encourage use of a public transit alternative that would reduce daily vehicle trips, VMT, and congestion on roadways.”²⁸ Importantly for regional air quality, the Proposed Project would assist in reductions in regional VMT and associated pollutant emissions.

The Proposed Project would thus not have the potential to conflict with or obstruct implementation of the 2016 AQMP. Therefore, the Proposed Project would result in less-than-significant impacts related to implementation of the applicable air quality plan during operations.

Mitigation Measures

This impact would be less than significant and does not require mitigation measures.

Impact 3.2.2 Would the Proposed Project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact Analysis

Less-than-Significant Impact. The following analysis addresses the potential for impacts during construction and operational activities.

Construction

Construction of the Proposed Project is anticipated to begin in early Spring 2019 and finish in Fall 2023, followed by several months of testing and commissioning prior to opening for use in November 2023. General activity phases that would occur during construction of the Proposed Project include demolition of structures and widening of the existing Division 20 portal, modification of the existing 1st Street Bridge, grading and excavation to level the Project Site, installation of the new storage tracks, and construction of the turnback tracks and installation of a new TPSS and emergency backup power generator. It is proposed that the first two phases of construction activity may utilize up to eight pieces of construction equipment per day, and that the latter two phases of construction activity would utilize up to 10 pieces of construction equipment per day.

As a conservative approach, the air quality impact assessment assumed that the entire equipment inventory for each phase would be operating continuously for eight hours per day to estimate maximum potential emissions of air pollutants during a shift. It is highly unlikely that

²⁸FTA, *Environmental Record of Decision for the Westside Subway Extension*, August 9, 2012.

during the course of a shift all construction equipment would be utilized simultaneously and continuously without any breaks. However, to characterize maximum possible emissions that could occur over a given day taking into account dual shifts and overlap of construction activities, the air quality impact assessment also considers the additive emissions from the successive construction activities with the greatest magnitude of emissions (Demolition/Portal Widening + Excavation/Grading). This extreme hypothetical parameterization represents the worst-case scenario that is reasonably foreseeable within a day of construction activity.

Demolition activities would raze and remove approximately 306,875 square feet of existing building structures resulting in a maximum of 15 truckloads per day, and excavation would involve the displacement and disposal of approximately 100,000 cubic yards of material at an off-site facility resulting in a maximum of 25 truckloads per day. It was assumed that installation of the new storage tracks and construction of the turnback facility would require a maximum of 10 truckloads of material deliveries per day for the purposes of emissions modeling. Overlapping activities could generate up to 50 truck trips per day. Detailed CalEEMod emissions modeling output files containing input data can be found in the Air Quality and Greenhouse Gas Technical Memorandum.

Construction of the Proposed Project would have a potentially significant air quality impact under this criterion if maximum daily emissions of any regulated pollutant would exceed the applicable SCAQMD thresholds presented in Table 3.2.4. Daily emissions of regulated pollutants were quantified for each phase of construction activity involved with implementation of the Proposed Project. Refer to Table 3.2.5 below for a comparison of the maximum daily emissions during each phase of construction to the applicable SCAQMD thresholds. Table 3.2.5 includes a comparison of both regional (total) and localized (on-site sources only) emissions to applicable thresholds.

Results of the construction activity emissions modeling presented in Table 3.2.5 demonstrate that maximum daily emissions of air pollutants would not exceed any applicable regional or localized significance threshold values throughout the duration of Proposed Project construction during any single phase, or even under a hypothetical scenario when the phases overlapped. Additionally, maximum possible daily emissions accounting for dual shifts and construction activity overlap would remain below applicable SCAQMD regional and localized mass daily thresholds. Construction equipment and activities would be required to adhere to the provisions of the Metro Green Construction Policy, thereby reducing potential environmental impacts through the utilization of equipment engines meeting Tier 4 emission standards.

Table 3.2.5. Maximum Daily Emissions – Proposed Project Construction

Phase	Daily Emissions (Pounds Per Day)					
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
DEMOLITION & PORTAL WIDENING						
On-Site Emissions	0.6	2.5	31.0	0.1	1.3	0.3
Off-Site Emissions	0.7	9.6	5.6	<0.1	1.4	0.4
Total	1.3	12.2	36.6	0.1	2.7	0.7
EXCAVATION & GRADING						
On-Site Emissions	0.8	3.3	33.0	0.1	3.5	1.5
Off-Site Emissions	0.9	15.8	7.0	<0.1	2.6	0.7
Total	1.7	19.1	40.0	0.1	6.1	2.2
INSTALLATION OF STORAGE TRACKS AND MOW BUILDING RENOVATIONS						
On-Site Emissions	0.5	4.0	24.0	<0.1	0.1	0.1
Off-Site Emissions	0.5	4.5	4.4	<0.1	1.1	0.3
Total	1.0	8.5	28.4	<0.1	1.2	0.4
CONSTRUCTION OF TURNBACK FACILITIES						
On-Site Emissions	0.4	3.2	19.0	<0.1	<0.1	<0.1
Off-Site Emissions	0.4	3.9	3.8	<0.1	1.0	0.3
Total	0.8	7.1	22.7	<0.1	1.1	0.3
REGIONAL ANALYSIS						
Maximum Regional Daily Emissions	1.7	19.1	40.0	0.1	6.1	2.1
Regional Significance Threshold	75	100	550	150	150	55
Exceed Regional Threshold?	No	No	No	No	No	No
Maximum Possible Overlap – Regional						
Maximum Possible Overlap – Regional	3.0	31.3	76.6	0.2	8.8	2.9
Regional Significance Threshold	75	100	550	150	150	55
Exceed Regional Threshold?	No	No	No	No	No	No
LOCALIZED ANALYSIS						
Maximum Localized Daily Emissions	--	4.0	33.0	--	3.5	1.5
Localized Significance Threshold	--	108	1,048	--	8	5
Exceed Localized Threshold?	--	No	No	--	No	No
Maximum Possible Overlap – Localized						
Maximum Possible Overlap – Localized	--	7.3	64.0	--	4.8	1.8
Localized Significance Threshold	--	108	1,048	--	8	5
Exceed Localized Threshold?	--	No	No	--	No	No

Note: LST values are for 2-acre site and 25-meter receptor proximity in SRA 1.

Source: Terry A. Hayes Associates Inc., 2017.

The results of emissions modeling presented in Table 3.2.5 demonstrate that maximum daily emissions would be below the applicable SCAQMD thresholds for both regional and localized emissions during construction activities. Even under a hypothetical worst-case scenario with construction phase overlap, maximum daily emissions would remain below the regional and localized threshold values. Therefore, the Proposed Project would result in a less-than-significant impact related to violating an air quality standard during construction.

Operations

Operation of the Proposed Project would involve train travel through the expanded Division 20 Rail Yard portal and storage of rail cars within the existing and proposed turnback facilities. Implementation of the Proposed Project would increase the number of trains stored in the Division 20 Rail Yard from 104 to 282. However, the trains are powered by electric propulsion

and do not constitute mobile sources of air pollutant emissions. For a discussion of the Proposed Project's impact see Section 3.4 Energy Resources.

There would be approximately 107 additional employees at the Project Site after completion of the Proposed Project. Employees would arrive through a combination of single-occupancy vehicles, carpools, and public transit. As previously discussed, related emissions would not be significant. Conservatively assuming that all additional employees would commute individually, the 107 daily vehicle trips would generate daily emissions of approximately 1.0 pounds VOC, 0.7 pounds NO_x, 9.3 pounds CO, less than 0.1 pounds SO_x, 0.4 pounds PM₁₀, and 0.2 pounds PM_{2.5}. Daily mass emissions are substantially below the applicable SCAQMD thresholds. Implementation of the Proposed Project would accommodate expanded storage capacity for the Metro Red and Purple Lines but would not independently expand current Metro rail operations. The Proposed Project would thus not have the potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation. Therefore, the Proposed Project would result in a less-than-significant impact related to violating an air quality standard during operations.

Mitigation Measures

This impact would be less than significant and does not require mitigation measures.

Impact 3.2.3 Would the Proposed Project 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)?

Impact Analysis

Less-than-Significant Impact. The following analysis addresses the potential for impacts during construction and operational activities.

Construction

The Basin region is currently designated as nonattainment of the federal and State ambient air quality standards for O₃, PM₁₀, and PM_{2.5}. Therefore, there is an ongoing regional cumulative impact associated with these air pollutants. Taking into account the existing environmental conditions, SCAQMD promulgated guidance that an individual project can emit allowable quantities of these pollutants on a regional scale without significantly contributing to the cumulative impacts. SCAQMD has indicated that the project-level thresholds may be used as an indicator to determine if project emissions contribute considerably to an existing cumulative impact.²⁹ Therefore, the Proposed Project would be considered cumulatively considerable if its implementation resulted in daily emissions of VOC, NO_x, PM₁₀, or PM_{2.5} that exceeded applicable SCAQMD mass daily thresholds of significance during construction activities.

²⁹SCAQMD, *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution Appendix D: Cumulative Impact Analysis Requirements Pursuant to CEQA*, August 2003.

As discussed above and shown in Table 3.2.5, air pollutant emissions associated with construction of the Proposed Project would not exceed any applicable SCAQMD thresholds. Despite the region being designated nonattainment of the ambient air quality standards for O₃, PM₁₀, and PM_{2.5}, SCAQMD does not consider individual project emissions of lesser magnitude than the mass daily thresholds to be cumulatively considerable. Furthermore, construction activities required for implementation of the Proposed Project would adhere to the stringent requirements of the Metro Green Construction Policy, implementing numerous best management practices and effective control technologies to reduce regional and localized air quality impacts. Therefore, the Proposed Project would result in a less-than-significant impact related to cumulatively considerable net increases of nonattainment pollutants during construction.

Operations

The Basin region is currently designated as nonattainment of the federal and California ambient air quality standards for O₃, PM₁₀, and PM_{2.5}. Therefore, there is an ongoing regional cumulative impact associated with these air pollutants. Taking into account the existing environmental conditions, SCAQMD promulgated guidance that an individual project can emit allowable quantities of these pollutants on a regional scale without significantly contributing to the cumulative impacts. SCAQMD has indicated that the project-level thresholds may be used as an indicator to determine if project emissions contribute considerably to an existing cumulative impact.³⁰ Therefore, the Proposed Project would be considered cumulatively considerable if its implementation resulted in daily emissions of VOC, NO_x, PM₁₀, or PM_{2.5} that exceeded applicable SCAQMD mass daily thresholds of significance during future operations.

Operation of the Proposed Project would involve train travel through the expanded Division 20 Rail Yard portal and storage of rail cars. Implementation of the Proposed Project would increase the number of trains stored in the Division 20 Rail Yard from 104 to 282. However, the trains are powered by electric propulsion and do not constitute mobile sources of air pollutant emissions. There would be approximately 107 additional employees at the Project Site after completion of the Proposed Project. Employees would arrive through a combination of single-occupancy vehicles, carpools, and public transit.

As previously discussed, related emissions would not be significant. Implementation of the Proposed Project would accommodate expanded storage capacity for the Metro Red and Purple Lines but would not independently expand current Metro rail operations. Operation of the Proposed Project would not generate new substantial source of O₃ precursors or particulate matter. Operation of the Proposed Project would not have the potential to result in a cumulatively considerable net increase in emissions of O₃ precursors or particulate matter. Therefore, the Proposed Project would result in a less-than-significant impact related to cumulatively considerable net increases of nonattainment pollutants during operations.

³⁰SCAQMD, *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution Appendix D: Cumulative Impact Analysis Requirements Pursuant to CEQA*, August 2003.

Mitigation Measures

This impact would be less than significant and does not require mitigation measures.

Impact 3.2.4 Would the Proposed Project expose sensitive receptors to substantial pollutant concentrations?

Impact Analysis

Less-than-Significant Impact. The following analysis addresses the potential for impacts during construction and operational activities.

Construction

The nearest land uses that are considered sensitive receptors are the OSF residential apartments situated adjacent to the west and south of the southern portion of the Project Site along Santa Fe Avenue between 1st and 4th Streets; these residential uses share a property line with the Proposed Project. The SCAQMD designed its construction LST values to prevent the occurrence of substantial pollutant concentrations from reaching sensitive receptors near construction sites. The LST values were derived to ensure that localized emissions would not expose sensitive receptors to air pollutant concentrations that could cause public health concerns or create pollutant hot spots. As shown in Table 3.2.5, construction activities associated with implementation of the Proposed Project would not generate localized emissions from on-site sources of sufficient magnitude to exceed any applicable SCAQMD LST value. Additionally, construction activities would be subject to the provisions of the Metro Green Construction Policy and all applicable SCAQMD Rules and Regulations, including Rule 401 (Visible Emissions) and Rule 403 (Fugitive Dust). Construction of the Proposed Project would not have the potential to expose sensitive receptors to substantial pollutant concentrations.

Further, according to wind direction data obtained from SCAQMD meteorological station located at 1630 North Main Street—approximately one mile north of the Project Site—daytime winds during construction hours blow predominantly from the west, southwest, and south, which would transport emissions in the opposite direction of sensitive receptors. Existing and future wind conditions often vary, which could result in no wind or wind blowing occasionally towards OSF.

Therefore, the Proposed Project would result in a less-than-significant impact related to the exposure of sensitive receptors to substantial pollutant concentrations during construction.

Operations

Operation of the Proposed Project would involve train travel through the expanded Division 20 Rail Yard portal and storage of rail cars within the existing and proposed turnback facilities. Implementation of the Proposed Project would increase the number of trains stored in the Division 20 Rail Yard from 104 to 282. However, the trains are powered by electric propulsion and do not constitute mobile sources of air pollutant emissions. There would be approximately 107 additional employees at the Project Site after completion of the Proposed Project. Employees would arrive through a combination of single-occupancy vehicles,

carpools, and public transit. As previously discussed, related emissions would not be significant. Implementation of the Proposed Project would accommodate expanded storage capacity for the Metro Red and Purple Lines but would not independently expand current Metro rail operations.

The portal widening requires a new ventilation shaft building to be installed on the parcel currently occupied by LAPD Viertel's Central Division Police Garage. The building would house three fans that would only operate in the event of an emergency such as a fire. Emergency operation of the fans due to fire is unlikely to occur and the potential for exposure to substantial pollutant concentrations resulting from fires is low. Furthermore, the average wind speed in the vicinity of the Proposed Project is approximately 5.2 miles per hour, with calm winds occurring approximately only 0.6 percent of the time. Wind in the vicinity of the Project Site predominately blows from the west and southwest diurnally, and switches direction blowing predominantly from the northeast at night. Residences are located approximately 1,000 feet to the east and 1,300 feet to the south of the vent shaft. In the event of pollutant release, it is anticipated that the smoke plume would be dispersed, and pollutant concentrations would be minimal before reaching the nearest sensitive land uses.

Operation of the Proposed Project would not have the potential to result in exposure of sensitive receptors to substantial pollutant concentrations. Therefore, the Proposed Project would result in a less-than-significant impact related to the exposure of sensitive receptors to substantial pollutant concentrations during operations.

Mitigation Measures

This impact would be less than significant and does not require mitigation measures.

Impact 3.2.5 Would the Proposed Project create objectionable odors affecting a substantial number of people?

Impact Analysis

Less-than-Significant Impact. The following analysis addresses the potential for impacts during construction and operational activities.

Construction

Sources that may potentially emit odors during construction activities include equipment exhaust and architectural coatings, as well as volatile soil contamination in the subsurface if it were to become disturbed during construction activities. Odors from these sources would be localized and generally confined to the immediate area surrounding the Project Site.

Construction of the Proposed Project would adhere to the stringent provisions of the Metro Green Construction Policy (e.g., equipment maintenance and inspections, restriction of idling, maintaining buffer zones where feasible) and employ best management practices to prevent the occurrence of a nuisance odor in accordance with SCAQMD Rule 402 (Nuisance). The odorous emissions would be typical of most construction sites and temporary in nature. There are no schools or public parks within 500 feet of the Project Site boundary that would be especially susceptible to odors emanating from these sources. Daytime winds most often blow construction fumes away from the residential receptors to the west and south.

Additionally, the construction of the Proposed Project would adhere to all requirements set forth in SCAQMD Rules and Regulations. Therefore, the Proposed Project would result in a less-than-significant impact related to the creation of objectionable odors during construction.

Operations

Land uses and industrial operations commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding.³¹ Operation of the Proposed Project would involve train travel through the expanded Division 20 Rail Yard portal and storage of rail cars within the existing and proposed turnback facilities. Implementation of the Proposed Project would increase the number of trains stored in the Division 20 Rail Yard from 104 to 282. However, the trains are powered by electric propulsion and do not constitute mobile sources of air pollutant emissions. Implementation of the Proposed Project would not generate new stationary or mobile sources of odorous air pollutant emissions, nor would it move any existing sources of odors closer to sensitive receptors in the vicinity of the Project Site. Operation of the Proposed Project would not have the potential to create nuisance odors. Therefore, the Proposed Project would result in a less-than-significant impact related to the the creation of objectionable odors during operations.

Mitigation Measures

This impact would be less than significant and does not require mitigation measures.

³¹SCAQMD, *CEQA Air Quality Handbook*, November 1993.