4.1 AIR QUALITY

SUMMARY

This air quality assessment for the proposed Via Princessa East Extension project ("project" or "proposed project"), located in the City of Santa Clarita, California, was prepared in accordance with the South Coast Air Quality Management District's (SCAQMD) California Environmental Quality Act (CEQA) *Air Quality Handbook*[1] and other guidance provided by the SCAQMD. The proposed project consists of the extension of the Via Princessa roadway to make it one of the primary east-west arterials through the City of Santa Clarita. The project is about 1.2 miles in length and will be a six-lane facility with sidewalks on each side of the roadway and would include a two-lane bike path along the south side of the project.

The impacts associated with construction of the proposed project were compared to the thresholds of significance established by the SCAQMD. Thresholds of significance are used to assess the impacts from projected mass daily emissions of volatile organic compounds (VOCs), oxides of nitrogen (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), respirable particulate matter less than 10 microns in diameter (PM10), and fine particulate matter less than 2.5 microns in diameter (PM2.5) during project construction. The proposed project would not result in direct operational emissions other than periodic maintenance of the roadway; therefore, operational emissions would be qualitatively analyzed. In addition, the SCAQMD has promulgated localized significance thresholds (LSTs) in the SCAQMD Final Localized Significance Threshold Methodology[2] (LST Methodology) that identify local ambient air impacts during project construction for nitrogen dioxide (NO_2), CO, PM10, and PM2.5. In addition, the SCAQMD requires an evaluation of the project's impact on local CO concentrations near impacted intersections and roadways as well as an evaluation of impacts from odors and toxic air contaminants at sensitive receptors.

Based on the results of the air quality assessment, construction and operational emissions of the proposed project would not exceed the SCAQMD thresholds of significance. The proposed project's emissions during project construction would temporarily exceed the localized ambient concentration thresholds for PM10 and PM2.5 at nearby sensitive receptors. The proposed project would not lead to the formation of CO hotspots due to project-related vehicular traffic. Furthermore, the proposed project would not result in an odor nuisance and would not emit substantial toxic air contaminants that would exceed health-based standards. Mitigation measures described later in this section would reduce the construction

1 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993.

2 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008.

emissions of the proposed project, but localized construction emissions would be significant and unavoidable.

INTRODUCTION

This section describes the ambient air quality of the local and regional area and provides a comparison of existing air quality to applicable federal, state, and local air pollutant standards. In addition, sources of air emissions near the proposed project site are identified and discussed. This section also identifies the plans and policies developed in efforts to improve air quality. Finally, this section evaluates potential air quality impacts associated with the project and identifies mitigation measures to reduce potential impacts. Sources utilized in this discussion include the SCAQMD *CEQA Air Quality Handbook* (CEQA Handbook), *Air Quality Analysis Guidance Handbook* (Guidance Handbook), and air quality data from the SCAQMD, the California Air Resources Board (CARB), and the United States Environmental Protection Agency (US EPA).

Emission calculations were obtained from the Roadway Construction Emissions Model, Version 6.3.2, which was developed by the Sacramento Metropolitan Air Quality Management District (SMAQMD).[3] The Roadway Construction Emissions Model is used to assess the emissions from linear construction projects, such as roadways. The model incorporated factors from California Air Resource Board's (CARB's) EMFAC2007 on-road vehicle emissions model and CARB's OFFROAD2007 off-road vehicle emissions model. Both EMFAC2007 and OFFROAD2007 contain the most up-to-date emission factors for on-road and off-road vehicles. The Roadway Construction Emissions Model is approved for use by the SCAQMD for estimating air pollutant emissions for environmental analyses pursuant to CEQA.[4] The URBEMIS2007 Environmental Management Software was also used to estimate fugitive dust emissions from grading/excavation activities as well as operational of maintenance trucks and street sweepers. Emission calculations and air quality modeling conducted for the project are provided in **Appendix 4.1**.

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3 Sacramento Metropolitan Air Quality Management District, *Roadway Construction Emissions Model Version 6.3.2*, 2009. The model may be downloaded from the following website: http://www.airquality.org/ceqa/index.shtml.

4 Spoken communication with Daniel Garcia, air quality specialist at SCAQMD. The Sacramento Metropolitan Air Quality Management's Roadway Construction Emissions Model can be used as long as emission factors are current and accurate.

REGULATORY SETTING

Federal

The US EPA is responsible for enforcing the federal Clean Air Act (CAA), adopted in 1970 with major amendments occurring in 1977 and 1990,[5] and the National Ambient Air Quality Standards (NAAQS). The US EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The US EPA also maintains jurisdiction over emissions sources outside state waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California. The NAAQS identify acceptable air quality levels for seven criteria pollutants: ozone (O_3), nitrogen dioxide (NO_2), CO, SO_2, respirable particulate matter (PM10), fine particulate matter (PM2.5), and lead. The NAAQS are considered to be the maximum concentrations of ambient (background) air pollutants determined to be safe to protect the public health and welfare with an adequate margin of safety.

As part of its enforcement responsibilities, the US EPA requires each state with areas that do not meet the federal standards to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local planning components and regulations to identify specific measures to reduce pollution within the time frame identified in the SIP, using a combination of performance standards and market-based programs. The SCAQMD *2007 Air Quality Management Plan* is the regulatory mechanism for bringing the South Coast Air Basin (SoCAB) into conformity with the NAAQS.

The 1990 Clean Air Act Amendments[6] were enacted to better protect the public's health and create more efficient methods for lowering pollutant emissions. The major areas of improvement addressed in the amendments involved air basin designations with respect to the NAAQS, automobile/heavy-duty engine emissions, and hazardous air pollutants. The US EPA designates air basins as being in attainment or nonattainment for each of the seven criteria pollutants. Nonattainment air basins for ozone are further ranked (marginal, moderate, serious, severe, or extreme) according to the degree of nonattainment. CARB is required to describe in its SIP how the state will achieve the federal standards by specified dates for each air basin that has failed to attain a NAAQS for any criteria pollutant. The status of the Los Angeles County portion of the SoCAB with respect to attainment of the NAAQS is summarized in **Table 4.1-1, National Ambient Air Quality Standard Designations – South Coast Air Basin (Los Angeles County)** below.

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5 42 U.S.C. Sections 7401 et seq.

6 42 U.S.C. Sections 7401 et seq.

In response to rapid population growth and the associated rise in motor vehicle operations, the 1990 Clean Air Act Amendments addressed tailpipe emissions from automobiles, heavy-duty engines, and diesel fuel engines. The amendments established more stringent standards for hydrocarbons, NO_X, and CO emissions in order to reduce the ozone and carbon monoxide levels in heavily populated areas. Under the 1990 Clean Air Act Amendments, new fuels were required to be less volatile, contain less sulfur (regarding diesel fuel), and have higher levels of oxygenates (oxygen-containing substances to improve fuel combustion). Due to the lack of a substantial reduction in hazardous emissions under the 1977 Clean Air Act, the 1990 Clean Air Act Amendments listed 189 hazardous air pollutants (HAPs), which are carcinogenic, mutagenic, and/or reproductive toxicants, whose levels are to be reduced. The 1990 Clean Air Act Amendments require major stationary sources and area emissions sources to use Maximum Achievable Control Technology (MACT) to reduce HAP emissions and their associated health effects.

Table 4.1-1
National Ambient Air Quality Standard Designations
South Coast Air Basin (Los Angeles County)

Pollutant	Designation/Classification
Ozone (O_3)	Nonattainment/Extreme
Carbon Monoxide (CO)	Attainment/Maintenance
Nitrogen Dioxide (NO_2)	Attainment/Maintenance
Sulfur Dioxide (SO_2)	Attainment
Respirable Particulate Matter (PM10)	Nonattainment/Serious
Fine Particulate Matter (PM2.5)	Nonattainment
Lead (Pb)	Nonattainment

Source: US Environmental Protection Agency, "EPA Region 9 Air Quality Maps," http://www.epa.gov/region9/air/maps/index.html. 2011.

Hot-Spot Analysis for PM10 and PM2.5 Nonattainment and Maintenance Areas

The US EPA requires particulate matter (PM) hot spot analyses for projects of local air quality concern, which include certain highway and transit projects that involve significant levels of diesel vehicle traffic or any other project identified in the PM2.5 or PM10 SIP as localized air quality concern. The conformity rule requires that the emissions from the proposed project, when considered with background concentrations, will not produce a new violation of the NAAQS, increase the frequency or severity of existing violations, or delay timely attainment of the NAAQS or any required interim reductions or milestones. In general, a hot-spot analysis compares the air quality concentrations with the proposed

project (the build scenario) to the air quality concentrations without the project (the No-Build scenario). A build/no-build analysis is necessary for each analysis year(s) chosen. It is always necessary to complete emissions and air quality modeling on the build scenario and compare these results to the relevant particulate matter NAAQS.

Interim Guidance on Air Toxic Analysis in NEPA Documents

With the passage of the Clean Air Act Amendments of 1990, whereby Congress mandated that the US EPA regulate 188 air toxics – also known as hazardous pollutants, controlling air toxic emissions became a national priority. The US Department of Transportation Federal Highway Administration (FHWA) adopted the *Interim Guidance on Air Toxic Analysis in NEPA Documents* to establish methodology on how to analyze mobile source air toxics (MSAT) in the National Environmental Policy Act (NEPA) process for highways. The FHWA developed a tiered approach for analyzing MSAT in NEPA documents, depending on specific project circumstances. Under this tiered approach, projects with no potential for meaningful MSAT effects would not need to undergo qualitative or quantitative analysis, projects with low potential MSAT effects would need to undergo a qualitative analysis, and projects with higher potential MSAT effects would need to undergo qualitative analysis and identify alternatives.

State

CARB oversees air quality planning and control throughout California. It is primarily responsible for ensuring the implementation of the California Clean Air Act,[7] responding to the federal CAA planning requirements applicable to the state, and regulating emissions from motor vehicles and consumer products within the state. In addition, CARB also sets health based air quality standards and control measures for toxic air contaminants (TACs). Much of CARB's research focuses on automobile emissions, as they are the primary contributors to air pollution in California. Under the federal Clean Air Act, CARB has the authority to establish more stringent standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The California Clean Air Act mandates that air basins achieve the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. These standards apply to the same seven criteria pollutants as the federal Clean Air Act but also include sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. The state standards are more stringent than the federal standards, and in the case of PM10, far more stringent. The most relevant health effects of each of these pollutants are described later in this section.

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7 Chapter 1568 of the Statutes of 1988.

CARB supervises and supports the regulatory activities of local air quality districts as well as monitors air quality itself. Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. These designation criteria provide the basis for CARB to designate areas of the state as attainment, nonattainment, or unclassified according to state standards. CARB makes area designations for 10 criteria pollutants: O_3, CO, NO_2, SO_2, PM10, PM2.5, sulfates, lead, hydrogen sulfide, and visibility-reducing particles.[8] The air quality of a region is considered to be in attainment of the state standards if the measured ambient air pollutant levels for O_3, CO, NO_2, PM10, PM2.5, SO_2, and lead are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive three-year period. The status of the Los Angeles County portion of the SoCAB with respect to attainment with the CAAQS is summarized in **Table 4.1-2, California Ambient Air Quality Standard Designations – South Coast Air Basin (Los Angeles County)** below.

Table 4.1-2
California Ambient Air Quality Standard Designations
South Coast Air Basin (Los Angeles County)

Pollutant	Designation/Classification
Ozone (O_3)	Nonattainment[1]
Carbon Monoxide (CO)	Attainment
Nitrogen Dioxide (NO_2)	Nonattainment
Sulfur Dioxide (SO_2)	Attainment
Respirable Particulate Matter (PM10)	Nonattainment
Fine Particulate Matter (PM2.5)	Nonattainment
Lead (Pb)	Nonattainment
Sulfates (SO_4)	Attainment
Hydrogen Sulfide (H_2S)	Unclassified
Vinyl Chloride	Unclassified
Visibility-Reducing Particles	Unclassified

Source: California Air Resources Board, "Area Designations Maps/State and National," http://www.arb.ca.gov/desig/adm/adm.htm. 2011.

[1] *CARB has not issued area classifications based on the state 8-hour standard. The previous classification for the 1-hour ozone standard was Severe.*

8 California Air Resources Board, "Area Designations (Activities and Maps)," http://www.arb.ca.gov/desig/desig.htm. 2010. According to California Health and Safety Code, Section 39608, "state board, in consultation with the districts, shall identify, pursuant to subdivision (e) of Section 39607, and classify each air basin which is in attainment and each air basin which is in nonattainment for any state ambient air quality standard." Section 39607(e) states that the State shall "establish and periodically review criteria for designating an air basin attainment or nonattainment for any state ambient air quality standard set forth in Section 70200 of Title 17 of the California Code of Regulations. California Code of Regulations, Title 17, Section 70200 does not include vinyl chloride; therefore, CARB does not make area designations for vinyl chloride.

Local

South Coast Air Quality Management District

The management of air quality in the SoCAB is the responsibility of the SCAQMD. This responsibility was given to SCAQMD by the state legislature's adoption of the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Lewis-Presley Air Quality Act, the SCAQMD is responsible for bringing air quality in the areas under its jurisdiction into conformity with federal and state air quality standards. Specifically, the SCAQMD is responsible for monitoring ambient air pollutant levels throughout the basin and for developing and implementing attainment strategies to ensure that future emissions will be within federal and state standards.

The SCAQMD primarily regulates emissions from stationary sources such as manufacturing and power generation. Mobile sources such as buses, automotive vehicles, trains, and airplanes are largely out of the SCAQMD's jurisdiction and within the regulatory jurisdiction of CARB and the US EPA. In order to achieve air quality standards, the SCAQMD adopts an Air Quality Management Plan that serves as a guideline for bringing pollutant concentrations into attainment with federal and state standards. The SCAQMD determines if certain rules and control measures are appropriate for its specific region according to technical feasibility, cost effectiveness, and the severity of nonattainment. Once the SCAQMD has adopted the proper rules, control measures, and permit programs, it is responsible for implementing and enforcing compliance with those rules, control measures, and programs.

SCAQMD Air Quality Analysis Guidance Handbook

In 1993, the SCAQMD prepared its CEQA Handbook to assist local government agencies and consultants in preparing environmental documents for projects subject to CEQA.[9] The SCAQMD is in the process of developing its Guidance Handbook to replace the CEQA Handbook. The CEQA Handbook and the Guidance Handbook describe the criteria that SCAQMD uses when reviewing and commenting on the adequacy of environmental documents. The Guidance Handbook provides the most up-to-date recommended thresholds of significance in order to determine if a project will have a significant adverse environmental impact. Other important subjects covered in the CEQA Handbook and the Guidance Handbook include methodologies for estimating project emissions and mitigation measures that can be implemented to avoid or reduce air quality impacts. Although the Governing Board of the SCAQMD has

[9] South Coast Air Quality Management District, "Air Quality Analysis Guidance Handbook," http://www.aqmd.gov/CEQA/hdbk.html. 2010.

adopted the CEQA Handbook, and is in the process of developing the Guidance Handbook, the SCAQMD does not, nor it intend to, supersede a local jurisdiction's CEQA procedures.[10]

While the Guidance Handbook is being developed, supplemental information has been adopted by the SCAQMD. These include revisions to the air quality significance thresholds and a relatively new procedure referred to as "localized significance thresholds," which has been added as a significance threshold under the *Final Localized Significance Threshold Methodology* (LST Methodology).[11] In addition, the SCAQMD has recommended that lead agencies not use the screening tables in the CEQA Handbook's Chapter 6 because the tables were derived using an obsolete version of CARB's mobile source emission factor inventory and are also based on outdated trip generation rates from a prior edition of the Institute of Transportation Engineer's *Trip Generation* handbook.[12] The SCAQMD has also recommended that lead agencies not use the on-road mobile source emission factors in Table A9-5-J1 through A9-5-L as they are obsolete, and instead recommends using on-road mobile source emission factors approved by CARB.[13] Consequently, the outdated and obsolete information were not used in this analysis. The applicable portions of the CEQA Handbook, the Guidance Handbook, and other revised methodologies were used in preparing the air quality analysis in this section, as discussed and referenced later in this section.

SCAQMD Air Quality Management Plan

The SCAQMD is required to produce Air Quality Management Plans (AQMPs) directing how the SoCAB's air quality will be brought into attainment with federal and state standards. The California Clean Air Act requires that these plans be updated triennially in order to incorporate the most recent available technical information. In addition, the US EPA requires that transportation conformity budgets be established based on the most recent planning assumptions (i.e., within the last five years). Plan updates are necessary to ensure continued progress toward attainment of the NAAQS and to avoid a transportation conformity lapse and associated federal funding losses. A multi-level partnership of governmental agencies at the federal, state, regional, and local levels implement the programs contained in these plans. Agencies involved include the US EPA, CARB, local governments, Southern California Association of Governments (SCAG), and the SCAQMD.

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10 South Coast Air Quality Management District, "Frequently Asked CEQA Questions," http://www.aqmd.gov/ceqa/faq.html. 2010.

11 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, (2008).

12 South Coast Air Quality Management District, "CEQA Air Quality Handbook," http://www.aqmd.gov/ceqa/oldhdbk.html. 2010.

13 South Coast Air Quality Management District, "EMFAC 2007 (v2.3) Emission Factors (On-Road)," http://www.aqmd.gov/CEQA/handbook/onroad/onroad.html. 2010.

Since 1979, the SCAQMD has prepared a number of AQMPs. The SCAQMD adopted the currently applicable 2007 AQMP on June 1, 2007. CARB approved the 2007 AQMP as the comprehensive SIP component for the SoCAB on September 27, 2007. The 2007 AQMP for the SoCAB (and those portions of the Salton Sea Air Basin under the SCAQMD's jurisdiction) sets forth a comprehensive program that will lead these areas into compliance with federal and state air quality planning requirements for ozone, PM10, and PM2.5. In addition, as part of the 2007 AQMP, the SCAQMD requested US EPA's approval of a "bump-up" to the "extreme" nonattainment classification of ozone for the SoCAB. The US EPA approved the extreme nonattainment request on April 15, 2010. The extreme nonattainment classification extends the ozone attainment date from 2021 to 2024 and allows for the attainment demonstration to rely on emission reductions from measures that anticipate the development of new technologies or improvement of existing control technologies.

The 2007 AQMP focuses on attainment strategies for the ozone and PM2.5 standards through stricter control of sulfur oxides and directly emitted PM2.5, NO_X, and VOCs. Although PM2.5 plans for nonattainment areas were due in April 2008, the SCAQMD has integrated PM2.5 and ozone reduction control measures and strategies in the 2007 AQMP. The need to commence PM2.5 control strategies before April 2008 was due to the attainment date for PM2.5 (2015) being much earlier than that for ozone (2024 for the extreme designation). Control measures and strategies for PM2.5 will also help control ozone generation in the region because PM2.5 and ozone share similar precursors (e.g., NO_X). In addition, the 2007 AQMP focuses on reducing VOC emissions, which have not been reduced at the same rate as NO_X emissions in the past. Hence, the SoCAB has not achieved the reductions in ozone as were expected in previous plans.

SCAQMD Rules and Regulations

The SCAQMD is responsible for limiting the amount of emissions that can be generated throughout the SoCAB by various stationary, area, and mobile sources. Specific rules and regulations have been adopted by the SCAQMD Governing Board, which limit the emissions that can be generated by various uses/activities and that identify specific pollution reduction measures that must be implemented in association with various uses and activities. These rules not only regulate the emissions of the federal and state criteria pollutants, but also toxic air contaminants and acutely hazardous materials. The rules are also subject to ongoing refinement by SCAQMD.

Among the SCAQMD rules applicable to the proposed project are Rule 403 (Fugitive Dust) and Rule 1186 (PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations). Rule 403 requires the use of stringent best available control measures to minimize PM10 emissions during grading and construction activities. Rule 1186 required the cleanup of materials to minimize PM10 emissions during construction activities. Additional details regarding these rules are presented below.

- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement Best Available Control Measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM10 emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust (see also Rule 1186).[14]

- **Rule 1186 (PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations)** – This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM10 emissions by requiring the cleanup of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also Rule 403).[15]

Southern California Association of Governments

SCAG is a council of governments for the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. As a regional planning agency, SCAG serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG also serves as the regional clearinghouse for projects requiring environmental documentation under federal and state law. In this role, SCAG reviews projects to analyze their impacts on SCAG's regional planning efforts.

Although SCAG is not an air quality management agency, it is responsible for several air quality planning issues. Specifically, as the designated Metropolitan Planning Organization for the Southern California region, it is responsible, pursuant to Section 176(c) of the 1990 amendments to the Clean Air Act, for providing current population, employment, travel, and congestion projections for regional air quality planning efforts. With respect to air quality, SCAG prepared the *2004 Regional Transportation Plan*[16] (2004 RTP) and the *2006 Regional Transportation Improvement Program*[17] (2006 RTIP) for the SCAG

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14 South Coast Air Quality Management District, "Rule 403 – Fugitive Dust," http://www.aqmd.gov/rules/reg/reg04/r403.pdf. 2010.

15 South Coast Air Quality Management District, "Rule 1186 – PM10 Emissions from Paved and Unpaved Road, and Livestock Operations," http://www.aqmd.gov/rules/reg/reg11/r1186.pdf. 2010.

16 Southern California Association of Governments, "Regional Transportation Plan," http://www.scag.ca.gov/rtp2004/2004/FinalPlan.htm. 2004.

17 Southern California Association of Governments, "Regional Transportation Improvement Program," http://www.scag.ca.gov/RTIP/rtip2006/adopted.htm. 2006.

region, which formed the basis for the transportation components of SCAQMD's 2007 AQMP and were utilized in the preparation of air quality forecasts and the consistency analysis that are included in the 2007 AQMP. While SCAG's 2008 RTP has been prepared, it has not yet been used for an adopted AQMP. Future AQMPs developed by the SCAQMD would take into account updated growth projections from more recent RTPs and RTIPs.

Local Governments

Local governments, such as the City of Santa Clarita, share the responsibility to implement or facilitate some of the control measures of the AQMP. These governments have the authority to reduce air pollution through local policies and land use decision-making authority. Specifically, local governments are responsible for the mitigation of emissions resulting from land use decisions and for the implementation of transportation control measures as outlined in the AQMP.[18] The AQMP assigns local governments certain responsibilities to assist the SoCAB in meeting air quality goals and policies. In general, the first step towards fulfilling a local government's assigned responsibility is the identification of air quality goals, policies, and implementation measures in the local government's general plan. The City of Santa Clarita has adopted air quality goals, policies, and implementation measures in its General Plan.

Through capital improvement programs, local governments can fund infrastructure that contributes to improved air quality by requiring such improvements as bus turnouts, energy-efficient streetlights and synchronized traffic signals.[19] In accordance with the CEQA requirements and the CEQA review process, local governments assess air quality impacts, require mitigation of potential air quality impacts by conditioning discretionary permits, and monitor and enforce implementation of such mitigation.[20]

EXISTING CONDITIONS

Regional Climate

The project is located in the northwestern portion of the SoCAB, which is shown in **Figure 4.1-1, South Coast Air Basin**. SoCAB consists of Orange County, Los Angeles County (excluding the Antelope Valley), and the western, non-desert portions of San Bernardino and Riverside Counties.

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18 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993. 2-2.

19 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993. 2-2.

20 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993. 2-2.

Air quality is affected by both the rate and location of pollutant emissions. Meteorological conditions such as wind speed, wind direction, solar radiation, atmospheric stability, along with local topography, heavily influence air quality by affecting the movement and dispersal of pollutants. Predominant meteorological conditions in the SoCAB include light winds and shallow vertical mixing due to low-altitude temperature inversion. These conditions, when coupled with the surrounding mountain ranges, hinder the regional dispersion of air pollutants. The strength and location of a semi-permanent, high-pressure cell over the northern Pacific Ocean is the primary climatological influence on the SoCAB, as is the ocean, which moderates the local climate by acting like a large heat reservoir. As a result of these influences, warm summers, mild winters, infrequent rainfall, and moderate humidity typify climatic conditions through most of the basin. These meteorological conditions, in combination with regional topography, are conducive to the formation and retention of ozone (O_3) and urban smog.

Annual average temperatures throughout the SoCAB vary from the low to middle 60s degrees Fahrenheit (°F). However, due to decreased marine influence, the eastern portion of the basin shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SoCAB, and annual average minimum temperatures are 56° F in downtown Los Angeles, 49° F in San Bernardino, and 55° F in Long Beach. July and August are the warmest months in the SoCAB, and annual average maximum temperatures are 83° F in downtown Los Angeles, 95° F in San Bernardino, and 85° F in Long Beach. All portions of the SoCAB have recorded maximum temperatures above 100° F.

Although the climate of the SoCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. The SCAQMD operates stations in SoCAB that monitor meteorological conditions and pollutant concentrations. Wind speeds and directions for the area are taken from the monitoring station located nearest to the project site, which is located at 22224 Placerita Canyon Road in the City of Santa Clarita (Station No. 090), approximately 1.8 miles southwest of the project site, and are shown in **Figure 4.1-2, Wind Rose for Source Receptor Area 13**. As shown, predominant winds are from the south and southeast up to 25 miles per hour (11 meters per second). The average maximum temperature in the City of Santa Clarita area is 92° F and the average minimum is 40° F.[21] The average annual rainfall is 18.2 inches.[22]

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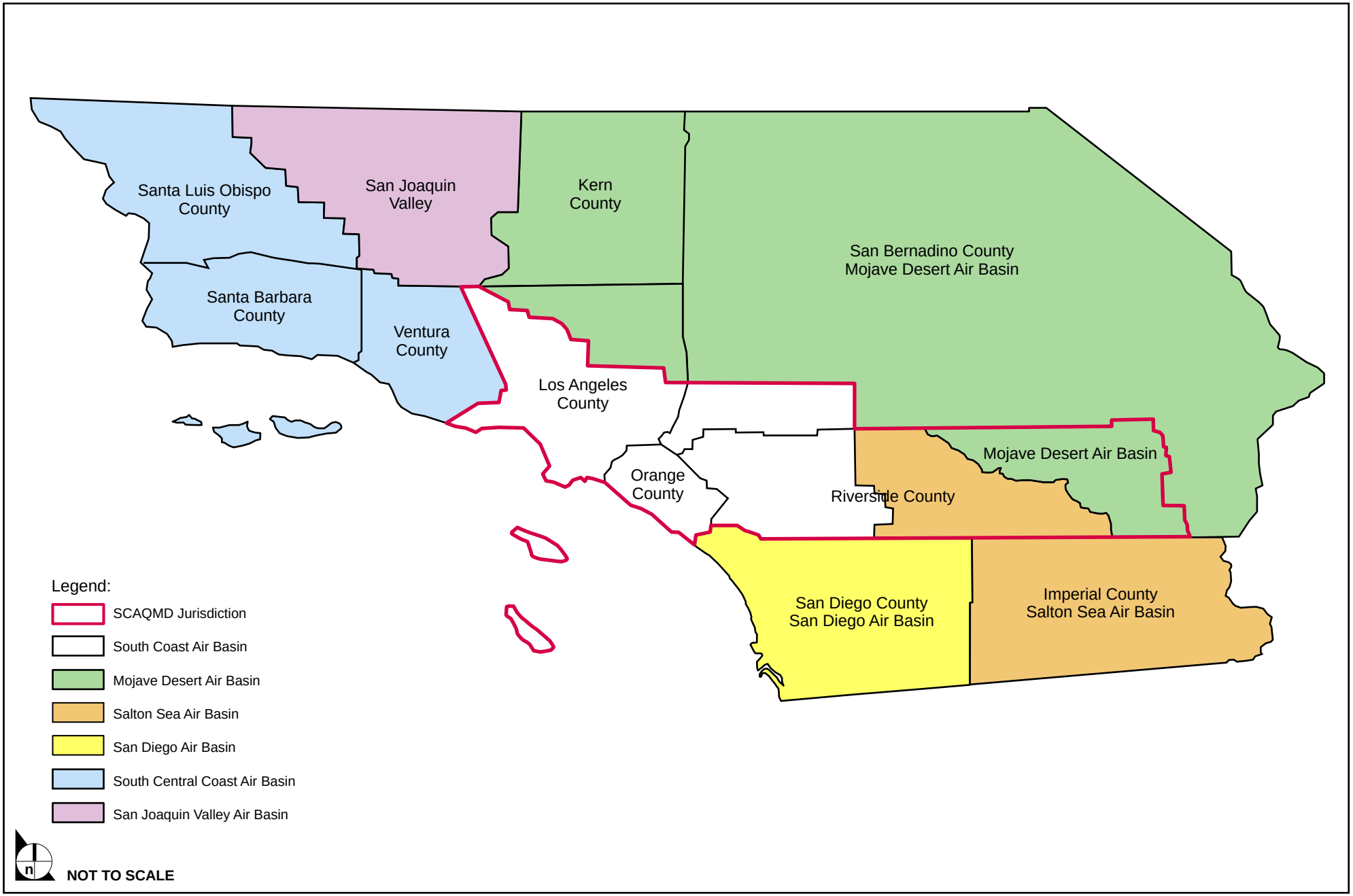
21 Western Regional Climate Center, "Newhall, California (Station 046165)," http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6165.

22 Western Regional Climate Center, http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6165.



SOURCE: Impact Sciences, Inc. – January 2011

FIGURE **4.1-1**

South Coast Air Basin

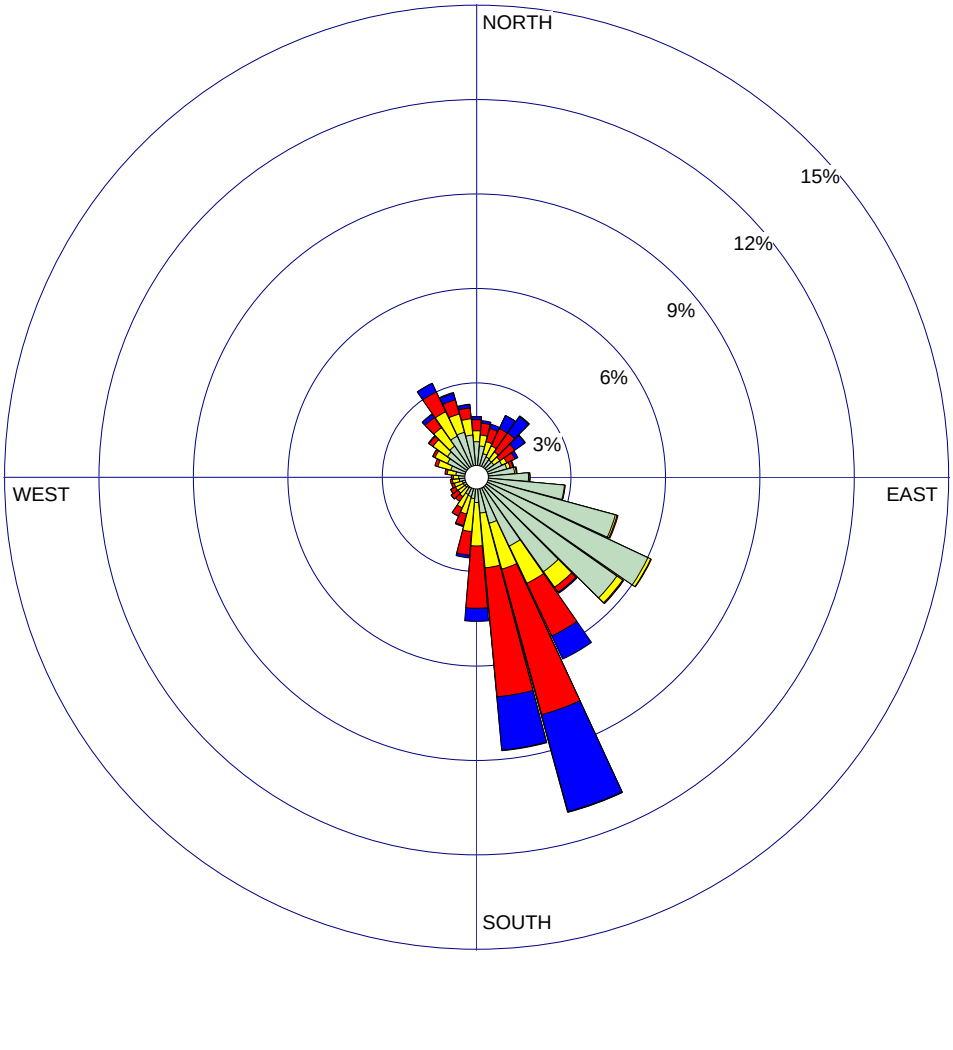
112-028•02/11

WIND ROSE PLOT:

SANTA CLARITA MONITORING STATION

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS: Meteorological Data File from the South Coast Air Quality Management District	DATA PERIOD: **2005-2007** **Jan 1 - Dec 31** **00:00 - 23:00**	COMPANY NAME:	
	CALM WINDS: **0.41%**	TOTAL COUNT: **26197 hrs.**	
	AVG. WIND SPEED: **2.76 m/s**	DATE: **5/17/2010**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

SOURCE: South Coast Air Quality M anagement District – May 2010

FIGURE **4.1-2**

Wind Rose for Source Receptor Area 13

Regional Air Quality

Air pollutants of concern in SoCAB are primarily generated by two categories of sources: stationary and mobile. Stationary sources include "point sources," which have one or more emission sources at a single facility, and "area sources," which are widely distributed emissions. Point sources are usually associated with manufacturing and industrial uses and include sources such as refineries, boilers, and combustion equipment that produce electricity or process heat. Examples of area sources include residential water heaters, painting operations, lawn mowers, agricultural fields, landfills, and consumer products, such as lighter fluid or hair spray. Mobile sources refer to operational and evaporative emissions from motor vehicles. Mobile sources account for approximately 59 percent of the VOC emissions, 90 percent of the NO_X emissions, 95 percent of the CO emissions, 55 percent of the SO_X emissions, 15 percent of the PM10 emissions, and 34 percent of the PM2.5 emissions found within the SoCAB.[23] Point, area, and stationary sources emit both criteria pollutants and TACs.

Criteria Pollutants

The US EPA is the federal agency responsible for setting the NAAQS. A region's air quality is considered to be in attainment of the NAAQS if the measured ambient air pollutant levels meet the criteria shown in **Table 4.1-3, Ambient Air Quality Standards and Health Effects**. The NAAQS for O_3, NO_2, SO_2, PM10, and PM2.5 are based on statistical calculations over one- to three-year periods, depending on the pollutant. CARB is the state agency responsible for setting the CAAQS. Regional air quality is considered to be in attainment of the CAAQS if the measured ambient air pollutant levels for O_3, CO, NO_2, SO_2, PM10, PM2.5, and lead are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive three-year period. The NAAQS and CAAQS for each of the monitored pollutants and their effects on health are summarized in **Table 4.1-3**. The Los Angeles County portion of the SoCAB is designated as nonattainment for the federal O_3, PM10, and PM2.5 standards and nonattainment for the state O_3, NO_2, PM10, PM2.5, and lead standards.

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23 California Air Resources Board, "2008 Estimated Annual Average Emissions – South Coast Air Basin," http://www.arb.ca.gov/ei/maps/basins/abscmap.htm. 2009.

Table 4.1-3
Ambient Air Quality Standards and Health Effects

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (CAAQS)	Federal Primary Standard (NAAQS)	
Ozone[1]	0.09 ppm, 1-hr. avg. 0.070 ppm, 8-hr avg.	0.075 ppm, 8-hr avg. (three-year average of annual 4th-highest daily maximum)	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage
Nitrogen Dioxide[1]	0.18 ppm, 1-hr avg. 0.030 ppm, annual arithmetic mean	0.100 ppm, 1-hr avg. (three-year average of the 98th percentile of the daily maximum 1-hr average) 0.053 ppm, annual arithmetic mean	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extrapulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration
Carbon Monoxide	20 ppm, 1-hr avg. 9.0 ppm, 8-hr avg.	35 ppm, 1-hr avg. (not to be exceeded more than once per year) 9 ppm, 8-hr avg. (not to be exceeded more than once per year)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses
Sulfur Dioxide[2]	0.25 ppm, 1-hr. avg. 0.04 ppm, 24-hr avg.	0.075 ppm, 1-hr avg. (three-year average of the 99th percentile)	Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in person with asthma
Respirable Particulate Matter (PM10)	50 μg/m^3, 24-hr avg. 20 μg/m^3, annual arithmetic mean	150 μg/m^3, 24-hr avg. (not to be exceeded more than once per year on average over three years)	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly
Fine Particulate Matter (PM2.5)	12 μg/m^3, annual arithmetic mean	35 μg/m^3, 24-hr avg. (three-year average of 98th percentile) 15 μg/m^3, annual arithmetic mean (three-year average)	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly
Lead[3]	1.5 μg/m^3, 30-day avg.	1.5 μg/m^3, calendar quarter 0.15 μg/m^3, three month rolling average	(a) Increased body burden, and (b) Impairment of blood formation and nerve conduction

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (CAAQS)	Federal Primary Standard (NAAQS)	
Visibility-Reducing Particles	Reduction of visual range to less than 10 miles at relative humidity less than 70%, 8-hr avg. (10:00 AM–6:00 PM)	None	Visibility impairment on days when relative humidity is less than 70%.
Sulfates	25 μg/m^3, 24-hr avg.	None	(a) Decrease in ventilatory function, (b) Aggravation of asthmatic symptoms, (c) Aggravation of cardio-pulmonary disease, (d) Vegetation damage, (e) Degradation of visibility, and (f) Property damage
Hydrogen Sulfide	0.03 ppm, 1-hr avg.	None	Odor annoyance
Vinyl Chloride[3]	0.01 ppm, 24-hr avg.	None	Known carcinogen

Source: South Coast Air Quality Management District, Final Program Environmental Impact Report for the 2007 Air Quality Management Plan, (2007) Table 3.1-1, p. 3.1-3.
μg/m^3 = microgram per cubic meter.
ppm = parts per million by volume.
[1] *On January 25, 2010, the US EPA promulgated a new 1-hour NO_2 standard. The new 1-hour standard is 0.100 parts per million (188 micrograms per cubic meter [μg/m^3]) and became effective on April 12, 2010.*
[2] *On June 3, 2010, the US EPA issued a new 1-hour SO_2 standard. The new 1-hour standard is 0.075 parts per million (196 μg/m^3). The US EPA also revoked the existing 24-hour and annual standards citing a lack of evidence of specific health impacts from long-term exposures. The new 1-hour standard became effective 60 days after publication in the Federal Register.*
[3] *CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.*

A brief description of the criteria pollutants relevant to the proposed project are provided below. While VOCs are not considered to be criteria pollutants, they are widely emitted from land use development projects and participate in photochemical reactions in the atmosphere to form O_3; therefore, VOCs are relevant to the project and are of concern in the SoCAB.

- **Ozone (O_3).** O_3 is a gas that is formed when VOCs and NO_X, both of which are byproducts of internal combustion engine exhaust and other sources, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.[24]

- **Volatile Organic Compounds (VOCs).** VOCs are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons, as are architectural coatings. Adverse effects on human health are not caused directly by VOCs, but rather by reactions of VOCs to form secondary air pollutants, including ozone. VOCs

24 California Air Resources Board, "Glossary of Air Pollution Terms," http://www.arb.ca.gov/html/gloss.htm. 2010.

are also referred to as reactive organic compounds (ROCs) or reactive organic gases (ROGs). VOCs themselves are not "criteria" pollutants; however, they contribute to formation of O_3.[25]

- **Nitrogen Dioxide (NO_2).** NO_2 is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). NO_2 is also a byproduct of fuel combustion. The principle form of NO_2 produced by combustion is NO, but NO reacts quickly to form NO_2, creating the mixture of NO and NO_2 referred to as NO_X. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_X is only potentially irritating. NO_2 absorbs blue light, the result of which is a brownish-red cast to the atmosphere and reduced visibility.[26]

- **Carbon Monoxide (CO).** CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, and motor vehicles operating at slow speeds are the primary source of CO in the basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.[27]

- **Sulfur dioxide (SO_2).** SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When sulfur dioxide oxidizes in the atmosphere, it forms sulfates (SO_4). In June 2006, the sulfur content of vehicle diesel fuel sold or used in California was reduced from 500 parts per million (ppm) to 15 ppm (by weight).[28] According to the Office of Environmental Health Hazard Assessment, "[t]he removal of additional sulfur to produce low-sulfur diesel will result in a decrease in sulfur-containing combustion products. These include oxides of sulfur, sulfuric acid, sulfate, and sulfite."[29]

- **Respirable Particulate Matter (PM10).** PM10 consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter. Some sources of PM10, like pollen and windstorms, are naturally occurring. However, in populated areas, most atmospheric PM10 is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.[30]

- **Fine Particulate Matter (PM2.5).** PM2.5 refers to particulate matter that is 2.5 micrometers or smaller in size. The sources of PM2.5 include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles such as buses and trucks. These fine

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25 California Air Resources Board, "Glossary of Air Pollution Terms," http://www.arb.ca.gov/html/gloss.htm. 2010.

26 California Air Resources Board, "Glossary of Air Pollution Terms," http://www.arb.ca.gov/html/gloss.htm. 2010.

27 California Air Resources Board, "Glossary of Air Pollution Terms," http://www.arb.ca.gov/html/gloss.htm. 2010.

28 Amendments to 13 C.C.R. § 2281.

29 Office of Environmental Health Hazard Assessment, *Memorandum – Health Impacts of Low-Sulfur Diesel Production and Use*, (2004) 2.

30 California Air Resources Board, "Air Pollution – Particulate Matter Brochure," http://www.arb.ca.gov/html/brochure/pm10.htm. 2010.

particles are also formed in the atmosphere when gases such as sulfur dioxide, NO_x, and VOCs are transformed in the air by chemical reactions.[31]

- **Lead (Pb).** Pb occurs in the atmosphere as particulate matter. The combustion of leaded gasoline was the primary source of airborne lead in the SoCAB. Because it was emitted from vehicles when leaded gasoline was used, Pb is present in many soils (especially urban soils) and can become re-suspended in the air. The use of leaded gasoline is no longer permitted for on-road motor vehicles, so combustion emissions are associated with off-road vehicles such as racecars that may still use leaded gasoline. Other sources of Pb include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and secondary lead smelters.[32]

The state standards for sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride do not have corresponding federal standards. Generally, sources of hydrogen sulfide emissions include decomposition of human and animal wastes and industrial activities, such as food processing, coke ovens, kraft paper mills, tanneries, and petroleum refineries. There are no such uses or sources associated with the proposed project. Similarly, the sources for vinyl chloride emissions include manufacturing of plastic products, hazardous waste sites, and landfills, which are also not associated with the proposed project. As a result, there is no need for any further evaluation of hydrogen sulfide or vinyl chloride emissions with respect to the proposed project. According to the SCAQMD's 2007 AQMP,[33] the sulfate and visibility-reducing particle standards have not been exceeded anywhere in the SoCAB. In addition, as the proposed project would not located sources of substantial sulfate emissions to the region and as sulfate is a byproduct of sulfur emissions, there is no need for any further evaluation of the sulfate emissions with respect to the proposed project (sulfur emissions are included in the analysis as SO_x). Furthermore, while the proposed project would result in particulate emissions, the emissions would not be of sufficient magnitude to result in a violation of the visibility-reducing particle standard and no further evaluation is required.

CARB has determined that the CAAQS for lead was exceeded in Central Los Angeles County (Source Receptor Area [SRA] 1) based on monitoring data for 2006 through 2008.[34] The exceedance was primarily the result of lead emissions from an industrial lead-acid battery recycling facility in the City of Commerce. The SCAQMD currently maintains a network of three source-oriented lead monitors around the facility. Based on violations of the lead standard, the SCAQMD issued violation notices to the facility

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31 California Air Resources Board, "Particulate Matter Pollutant Monitoring," http://www.arb.ca.gov/aaqm/partic.htm. 2010.

32 U.S. Environmental Protection Agency, "Lead in Paint, Dust, and Soil," http://www.epa.gov/lead/pubs/leadinfo.htm. 2010.

33 South Coast Air Quality Management District, *2007 Air Quality Management Plan*, 2007.

34 California Air Resources Board, *Proposed 2010 Amendments to the State Area Designations, Criteria, and Maps*, 2010 23.

for exceeding the limit of 1.5 micrograms per cubic meter over a 30-day averaging period during five consecutive months (December 2007 through April 2008).[35] Concentrations during this period also exceeded the federal lead standard. Since this time, the SCAQMD monitors show concentrations that are much lower, although they still exceed the revised federal lead standard of 0.15 μg/m^3 calculated as a rolling three-month average. No other monitors in the SoCAB indicate lead exceedances.[36] The proposed project is not located in the vicinity of the lead exceedance in the City of Commerce. The project does not include any uses that would emit lead. Motor vehicles and paints used to be a source of lead; however, unleaded fuel and unleaded paints have virtually eliminated lead emissions from residential and commercial land use projects. As a result, there is no need for any further evaluation of lead emissions with respect to the proposed project.

Toxic Air Contaminants

In addition to criteria pollutants, the SCAQMD periodically assesses levels of TACs in the SoCAB. A toxic air contaminant (TAC) is defined by California Health and Safety Code Section 39655:

> *"Toxic air contaminant" means an air pollutant which may cause or contribute to an increase in mortality 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 pursuant to subsection (b) of Section 112 of the federal act (42 U.S.C. Sec. 7412(b)) is a toxic air contaminant.*

Between April 2004 and March 2006, the SCAQMD conducted the Multiple Air Toxics Exposure Study III (MATES III), which is a follow-up to previous MATES I and II air toxics studies conducted in the SoCAB. The MATES III Final Report was issued in September 2008. The MATES III study, based on actual monitored data throughout the SoCAB, consisted of several elements. These included a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize carcinogenic risk across the SoCAB from exposure to TACs. The MATES III study applied a 2-kilometer (1.24-mile) grid over the SoCAB and reported carcinogenic risk within each grid space (covering an area of 4 square kilometers or 1.54 square miles). The study concluded that the average of the modeled air toxics concentrations measured at each of the monitoring stations in the SoCAB equates to a background cancer risk of approximately 1,200 in 1,000,000 primarily due to diesel exhaust. The MATES III study also found lower ambient concentrations of most of the measured air toxics compared to the levels measured in the previous MATES II study conducted during 1998 and 1999. Specifically, benzene and 1,3-butadiene,

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35 South Coast Air Quality Management District, "Facility Information Detail (FIND)," http://www.aqmd.gov/webappl/fim/prog/novnc.aspx?fac_id=124838. 2010.

36 California Air Resources Board, *Proposed 2010 Amendments to the State Area Designations, Criteria, and Maps*, 2010. 23.

pollutants generated mainly from vehicles, were down 50 percent and 73 percent, respectively.[37] The reductions were attributed to air quality control regulations and improved emission control technologies.

Local Air Quality

Ambient Pollutant Concentrations

As mentioned above, the SCAQMD has divided the SoCAB into Source Receptor Areas in which air quality monitoring stations are operated. The project site is located in the Santa Clarita Valley (SRA 13). The monitoring station for this area is located at 22224 Placerita Canyon Road in the City of Santa Clarita (Station No. 090), approximately 1.8 miles southwest of the project site. This station monitors emission levels of O_3, NO_2, CO, and PM10. The nearest station that monitors PM2.5 emission levels is located in the West San Fernando Valley (SRA 6), at 18330 Gault Street in Reseda, California (Station No. 074), approximately 15 miles south of the project site. The nearest station that monitors SO_2 emission levels is located in the East San Fernando Valley (SRA 7), at 228 W Palm Avenue in the City of Burbank (Station No. 069), approximately 20 miles southeast of the project site.

Table 4.1-4, Summary of Ambient Air Pollutant Concentrations in Source Receptor Area 13, lists the ambient pollutant concentrations registered and the exceedances of state and federal standards that have occurred at the abovementioned monitoring station from 2007 through 2009, the most recent years in which data is available from the SCAQMD. As shown, the monitoring station has registered values above state and federal standards for O_3, the state standard for PM10, and the federal standard for PM2.5. As previously discussed, values for lead and sulfate are not presented in the table below since ambient concentrations are well below the state standards in the area. Hydrogen sulfide, vinyl chloride, and visibility reducing particles were not monitored by CARB or the SCAQMD in Los Angeles County during the period of 2006 to 2008.

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37 South Coast Air Quality Management District, *Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES III) – Draft Report*, 2008. ES-2.

Table 4.1-4
Summary of Ambient Air Pollutant Concentrations in Source Receptor Area 13

Pollutant	Standards[1]	Year		
		2007	2008	2009
OZONE (O_3)				
Maximum 1-hour concentration monitored (ppm)		0.135	0.160	0.140
Maximum 8-hour concentration monitored (ppm)		0.110	0.131	0.122
Number of days exceeding state 1-hour standard	0.09 ppm	31	54	57
Number of days exceeding state 8-hour standard	0.070 ppm	64	81	77
Number of days exceeding federal 8-hour standard[2]	0.075 ppm	44	60	64
NITROGEN DIOXIDE (NO_2)				
Maximum 1-hour concentration monitored (ppm)		0.08	0.07	0.13
Annual average concentration monitored (ppm)		0.020	0.017	0.015
Number of days exceeding state 1-hour standard	0.18 ppm	0	0	0
CARBON MONOXIDE (CO)				
Maximum 1-hour concentration monitored (ppm)		2	2	2
Maximum 8-hour concentration monitored (ppm)		1.2	1.1	1.4
Number of days exceeding 1-hour standard	20 ppm	0	0	0
Number of days exceeding 8-hour standard	9.0 ppm	0	0	0
SULFUR DIOXIDE (SO_2)				
Maximum 1-hour concentration monitored (ppm)		0.01	0.01	0.01
Maximum 24-hour concentration monitored (ppm)		0.003	0.003	0.003
Number of days exceeding state 1-hour standard	0.25 ppm	0	0	0
Number of days exceeding state 24-hour standard	0.04 ppm	0	0	0
RESPIRABLE PARTICULATE MATTER (PM10)				
Maximum 24-hour concentration monitored ($\mu g/m^3$)		131	91	56
Annual average concentration monitored ($\mu g/m^3$)		29.9	25.8	23.4
Number of samples exceeding state standard	50 $\mu g/m^3$	5	2	1
Number of samples exceeding federal standard	150 $\mu g/m^3$	0	0	0
FINE PARTICULATE MATTER (PM2.5)				
Maximum 24-hour concentration monitored ($\mu g/m^3$)		43.3	50.5	39.9
Annual average concentration monitored ($\mu g/m^3$)		13.1	11.9	11.4
Number of samples exceeding federal standard	35 $\mu g/m^3$	1	2	1

Source: South Coast Air Quality Management District, "Historical Data by Year," http://www.aqmd.gov/smog/historicaldata.htm. 2011.

[1] Parts by volume per million of air (ppm), micrograms per cubic meter of air ($\mu g/m^3$), or annual arithmetic mean (aam).

[2] The 8-hour federal O_3 standard was revised from 0.08 ppm to 0.075 ppm in March 2008. The statistics shown are based on the 2008 standard of 0.075 ppm.

Santa Clarita Subregional Analysis

In November 2004, the SCAQMD prepared a subregional analysis for the Santa Clarita Valley, which includes areas within the City of Santa Clarita and areas within unincorporated Los Angeles County. A copy of the subregional analysis is provided in **Appendix 4.1**. The purpose of a subregional analysis is to identify disproportionate air quality impacts in a specific geographic area, and if found, to address and mitigate these impacts. With regard to future development in the Santa Clarita Valley, the analysis concluded that:

- When simultaneous 25-year buildout of all recorded, pending and approved land parcels in the City and County portions of the valley is assumed, the simulated annual PM10 impact is projected to increase up to 5 micrograms per cubic meter ($\mu g/m^3$).
- The maximum regional annual average PM10 impact is projected to occur near Newhall Ranch.
- Future development would not cause violations of the federal annual average PM10 standard, but could cause possible violations of the state standard.
- The Santa Clarita Valley's air quality is more greatly influenced by pollutant emissions transported into the valley from areas to the south than by pollutant emissions generated in the valley itself. The overwhelming contribution of pollution transport to the Santa Clarita Valley comes from the San Fernando Valley and metropolitan Los Angeles. The major daytime wind vectors are from the south and upwind emission source areas. Additionally, field studies have confirmed the prevalent transport route through the Newhall Pass by tracing the northward movement of inert tracer gases released in the Metropolitan Los Angeles areas. As an example, the City of Santa Clarita is a relatively small contributor to the total emissions of the key pollutants in both Los Angeles County and the SoCAB as a whole. The report indicates that across the board, the emissions are typically less than 3 percent of the County total and 2 percent of the SoCAB total.

The study recommended mitigation measures to reduce fugitive dust and diesel exhaust beyond those measures already required by the SCAQMD's Rule 403:

- Potential Mitigation Measures for PM10 Fugitive Dust:
  - Installation of monitoring devices around perimeter of site to collect samples during the construction and operation of the project to ensure that the PM10 levels do not exceed 50 μg/m3 pursuant to requirements under Rule 403.
  - Signs posted with a phone number for the public to report dust problems.
  - Apply water three times daily, or non-toxic soil stabilizers according to manufacturers' specifications, to all unpaved parking or staging areas or unpaved road surfaces (compared to watering twice daily as the minimum required by Rule 403).

  - Pave construction roads that have a traffic volume of more than 50 daily trips by construction equipment, 150 total daily trips for all vehicles (compared to watering twice daily as the minimum required by Rule 403).

  - Pave all construction access roads at least 100 feet onto the site from the main road (for sites 5 acres or 100 cubic yards daily import/export of bulk material).

  - Pave construction roads that have a daily traffic volume of more than 50 vehicular trips (compared to watering twice daily as the minimum required by Rule 403).

- Potential Mitigation from Diesel Mobile Sources:

  - Use of after treatment control technologies such as diesel oxidation catalysts.

  - Use of alternative diesel fuels such as emulsified diesel fuel.

  - Provide a minimum buffer zone of 300 meters between truck traffic and/or and sensitive receptors.

  - Re-route truck traffic by adding direct off-ramps for the truck traffic or by restricting truck traffic on certain sensitive routes.

  - Improve traffic flow by signal synchronization.

  - Enforce truck parking restrictions.

  - Develop park-and-ride programs.

  - Restrict truck engine idling.

  - Restrict operation to "clean" trucks.

  - Provide electrical hook-ups for trucks that need to cool their load.

  - Electrify auxiliary power units.

  - Provide on-site services to minimize truck traffic in or near residential areas, including, but not limited to, the following services: meal or cafeteria service, automated teller machines, etc.

  - Require or provide incentives to use low-sulfur diesel fuel with particulate traps.

  - Conduct air quality monitoring at sensitive receptors.

PROJECT IMPACTS

Significance Threshold Criteria

New and modified projects will often affect regional air quality, both directly and indirectly. When determining the extent of a project's environmental impact and the significance of such impact, the project should be compared with established thresholds of significance. The following discusses the thresholds set forth by the SCAQMD for both construction and operational emissions that would be generated by the project. In accordance with Appendix G of the *State CEQA Guidelines*, the project would have a significant impact on 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; or
- create objectionable odors affecting a substantial number of people.

The *State CEQA Guidelines* (Section 15064.7) provide that, when available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make determinations of significance. The potential air quality impacts of the proposed project are, therefore, evaluated according to thresholds developed by the SCAQMD in their *CEQA Air Quality Handbook*, *Air Quality Analysis Guidance Handbook*, and subsequent guidance, which are listed below. While the SCAQMD has established significance thresholds for lead, construction and operation of the proposed project will not exceed the established thresholds as previously discussed above. Therefore, lead emissions from the project will not cause an air quality violation and will not be analyzed further.

Construction Emissions Thresholds

Impacts related to construction emissions associated with the proposed project would be considered significant when the project exceeds the limits specified in **Table 4.1-5, SCAQMD Daily Construction Emission Thresholds**.

Table 4.1-5
SCAQMD Daily Construction Emission Thresholds

	Pollutant (pounds per day)					
Significance Threshold	**VOC**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Construction	75	100	550	150	150	55

Source: South Coast Air Quality Management District, Air Quality Significance Thresholds*, (2011).*

Construction Health Risk Assessment

The proposed project would result in short-term construction activity. Construction of the proposed project would require the use and operation of diesel-fueled construction equipment that would result in emissions of diesel particulate matter. On August 27, 1998, CARB designated diesel particulate matter emissions from diesel-fueled engines as a toxic air contaminant. An increase in the concentrations of diesel particulate matter and its associated health effects may therefore occur in the project vicinity. While construction would be temporary, the proposed project has the potential to result in diesel particulate matter emissions. The SCAQMD has adopted health-based thresholds for evaluating a project's potential cancer risk and non-cancer impacts. The thresholds are primarily focused on assessing operational, or long-term, toxic air contaminant emissions.

However, the Office of Environmental Health Hazard Assessment (OEHHA) has developed methodologies for assessing shorter-term impacts.[38] OEHHA recommends evaluating cancer risk for diesel particulate matter by multiplying the dose (i.e., amount of compound inhaled) by the inhalation Cancer Potency Factor. The dose is calculated using population characteristics for exposure (e.g., breathing rates, exposure time, etc.). The Cancer Potency Factor describes the cancer risk associated with an exposure to 1 milligram (mg) of a given carcinogenic compound per kilogram (kg) of body weight per day $(mg/kg\text{-}day)^{-1}$. The resulting calculations yield a statistical cancer risk for the characterized population. The non-cancer impacts are evaluated based on the ratio of the incremental increase in diesel particulate matter to the Reference Exposure Level. This ratio is known as the Hazard Index. OEHHA recommends a chronic (i.e., long-term) inhalation Reference Exposure Level of 5 micrograms per cubic meter ($\mu g/m^3$) for diesel particulate matter. OEHHA has not identified an acute (i.e., short-term) Reference Exposure Level for diesel particulate matter. The Reference Exposure Level is the concentration at or below which no adverse non-cancer health effects are anticipated.

38 Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, 2003.

Construction of the proposed project would result in a significant impact on air quality if construction related emissions exceed the SCAQMD health risk public notification threshold of 10 excess cancer cases in 1 million for cancer risk, and/or exceed the SCAQMD non-cancer public notification threshold of a Hazard Index of more than 1.0 for non-cancer impacts. [39]

Operational Emissions Thresholds

The SCAQMD has recommended two sets of air pollution thresholds to assist lead agencies in determining whether or not the operational phase of a project's development would be significant. These are identified in the following discussion under Primary Thresholds and Secondary Thresholds. The SCAQMD recommends that a project's impacts be considered significant if thresholds are exceeded for either primary or secondary effects.

Primary Thresholds

Impacts related to operational emissions associated with the project would be considered significant when the project's operational emissions exceed the limits specified in **Table 4.1-6, SCAQMD Daily Operation Emission Thresholds**. As previously discussed, this analysis relies on methodologies prescribed by the SCAQMD, including revisions and supplemental information that have been adopted since the *CEQA Air Quality Handbook*.

Table 4.1-6
SCAQMD Daily Operation Emission Thresholds

	Pollutant (pounds per day)					
Significance Threshold	**VOC**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Operation	55	55	550	150	150	55

Source: South Coast Air Quality Management District, Air Quality Significance Thresholds*, (2011).*

The SCAQMD established the operational emission thresholds, in part, based on Section 182(e) of the federal Clean Air Act that identifies 10 tons per year of VOCs and NOx as the significance level for stationary sources of emissions in extreme nonattainment areas for O_3. As discussed earlier, VOC and NOx undergo photochemical reactions in sunlight to form O_3, and, at the time these thresholds were established, the Basin was the only extreme nonattainment area for O_3 in the United States. This emission threshold has been converted to a pound per day threshold for the operational phase of a project. Thresholds for other emissions have been identified based on regulatory limits adopted by the SCAQMD.

39 South Coast Air Quality Management District, *Air Quality Significance Thresholds*, 2006.

Because the thresholds are converted from a Clean Air Act threshold, the SCAQMD has determined that these thresholds are based on scientific and factual data.[40] Therefore, the SCAQMD recommends that the following thresholds be used by lead agencies in making a determination of operation-related project significance.

Secondary Thresholds

Project impacts would be considered significant if operation of the project meets any of the SCAQMD secondary thresholds listed below.

- The project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation.
- The project could result in population increases within an area, which would be in excess of that projected by SCAG in the AQMP, or increase the population in an area where SCAG has not projected that growth for the project's buildout year.
- The project could generate vehicle trips that cause a CO hotspot or project could be occupied by sensitive receptors that are exposed to a CO hotspot.
- The project will have the potential to create, or be subjected to, an objectionable odor that could impact sensitive receptors.
- The project will have hazardous materials on site and could result in an accidental release of toxic air emissions or acutely hazardous materials posing a threat to public health and safety.
- The project could emit a toxic air contaminant regulated by SCAQMD rules or that is on a federal or state air toxic list.
- The project could be occupied by sensitive receptors and be located within 0.25 mile of an existing facility that emits air toxics identified in SCAQMD Rule 1401.
- The project could emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of 10 in 1 million.

Localized Significance Thresholds

In addition to the above listed emission-based thresholds, the SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project site as a result of construction activities. This evaluation requires that anticipated ambient air concentrations, determined using a computer-based air quality dispersion model, be compared to localized significance

40 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993. 6-1.

thresholds for PM10, PM2.5, NO_2, and CO.[41] The significance threshold for PM10 represents compliance with Rule 403 (Fugitive Dust), while the thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of the project that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The significance threshold for PM2.5 is intended to constrain emissions so as to aid in progress toward attainment of the ambient air quality standards.[42]

For project sites of 5 acres or less, the SCAQMD *Localized Significance Threshold Methodology* (LST Methodology) includes screening tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., not cause an exceedance of the applicable concentration limits) without project-specific dispersion modeling. The allowable emission rates depend on (a) the SRA in which the project is located, (b) the size of the project site, and (c) the distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals).

Even though the project site is approximately 25.2 acres, a maximum of 1 acre would be disturbed on a daily basis. The nearest sensitive receptor is a residential community adjacent to and to the east of the project site. The distance used to determine the mass-rate emissions from the screening tables is 25 meters (82 feet) for a 1-acre project site, as specified in the LST Methodology. The applicable thresholds are shown in **Table 4.1-7**, **Localized Significance Thresholds for a 1-Acre Site located in SRA 13**.

Table 4.1-7
Localized Significance Thresholds for a 1-Acre Site located in SRA 13

	Criteria Pollutants			
LST Thresholds (Pounds/Day)	**NOx**	**CO**	**PM10**	**PM2.5**
Construction	106	590	4	3

Source: South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, (2008).

While the SCAQMD has developed operational LSTs, the project would not generate on-site operational emissions. In addition, according to the SCAQMD LST Methodology, "the LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways." As a result, the project would not have any localized impacts during project operation as defined by the SCAQMD LST Methodology.

41 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008.

42 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008.

Cumulative Thresholds

In large part, the SCAQMD 2007 AQMP was prepared to accommodate growth, to meet state and federal air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. According to the SCAQMD *CEQA Air Quality Handbook*, projects that are within the emission thresholds identified above should be considered less than significant on a cumulative basis unless there is other pertinent information to the contrary.[43]

If a project is not within the emission thresholds above, the SCAQMD *CEQA Air Quality Handbook* identifies three possible methods to determine the cumulative significance of land use projects.[44] The SCAQMD's methods are based on performance standards and emission reduction targets necessary to attain the federal and state air quality standards identified in the 2007 AQMP. However, one method is no longer recommended and supported by the SCAQMD, and another method is not applicable as the SCAQMD repealed the underlying regulation (Regulation XV) after the *CEQA Air Quality Handbook* was published.[45] Therefore, the only viable SCAQMD method for determining cumulative impacts is based on whether the rate of growth in average daily trips exceeds the rate of growth in population and whether the project is consistent with the AQMP. The proposed project is a roadway extension project and would not increase average daily trips or population within the City; therefore, cumulative impacts would be identified based on whether the project's emissions are within the SCAQMD thresholds identified above.

Methodology

Air quality impacts resulting from the implementation of the proposed project would result in short-term impacts due to construction activities. Construction activities would affect air quality due to fugitive dust emissions and exhaust emissions associated with construction activities. The proposed project would not result in operational activities other than periodic maintenance of the roadway; therefore, operational impacts are qualitatively analyzed.

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43 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, (1993) 9–12.

44 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993. 9–12., Personal communication with Dr. Steve Smith, South Coast Air Quality Management District, November 20, 2003.

45 The two methods that are no longer recommended and supported by the SCAQMD are: (1) demonstrating a 1 percent per year reduction in project emissions of VOC, NO_x, CO, SO_x, and PM10 and (2) demonstrating a 1.5 average vehicle ridership, or average vehicle occupancy for a transportation project.

The Roadway Construction Emissions Model, Version 6.3.2 established by the SMAQMD was used to quantify construction emissions that would result from the development of the proposed project.[46] The Roadway Construction Emissions Model is used to assess the emissions of linear construction projects. It uses CARB's EMFAC2007 model for on-road vehicle emissions and CARB's OFFROAD2007 model for off-road vehicle emissions. The model is approved for use by the SCAQMD for estimating air pollutant emissions for environmental analyses pursuant to CEQA.[47] The URBEMIS2007 Environmental Management Software was also used to estimate fugitive dust emissions from grading/excavation activities as well as operational of maintenance trucks and street sweepers.

Design Measures Already Incorporated Into the Project

DM 4.1-1 The proposed project consists of the extension of the Via Princessa roadway to make it one of the primary east-west arterials through the City of Santa Clarita, which would improve traffic flow within the City.

DM 4.1-2 The proposed project includes a two-lane bike path along the south side of the project.

DM 4.1-3 The proposed project includes sidewalks for pedestrians on each side of the roadway.

Impact Analysis

Impact Threshold 4.1-1 The proposed project would conflict with or obstruct the implementation of the applicable air quality plan.

The 2007 AQMP, discussed previously, was prepared to accommodate growth, to reduce the high levels of pollutants within the area under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Projects that are considered consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

The proposed project would develop a roadway extension to improve traffic flow within the City of Santa Clarita. It would not develop land uses that would result in population growth within the area.

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46 Sacramento Metropolitan Air Quality Management District, *Roadway Construction Emissions Model Version 6.3.2*, 2009.

47 Spoken communication with Daniel Garcia, air quality specialist at SCAQMD. The Sacramento Metropolitan Air Quality Management's Roadway Construction Emissions Model can be used as long as emission factors are current and accurate.

Moreover, as discussed in **Section 8.0, Growth Inducement**, the proposed project would not result in growth inducement within the City. Therefore, the proposed project would be consistent with SCAQMD's 2007 AQMP and would have a less than significant impact with respect to this criterion.

Impact Threshold 4.1-2 **The proposed project would violate air quality standard or contribute substantially to an existing or projected air quality violation as a result of construction and operational activity.**

Construction Emissions

Development of the proposed project would involve clearing, grading, excavation, trenching, and asphalt paving. Construction would require cut and fill of debris and soil associated with grading and excavation. During periods of construction activity, on-site stationary sources, heavy-duty construction vehicles, construction worker vehicles, and energy use would generate emissions. In addition, fugitive dust would be generated by grading, excavation, and other construction activities. However, construction impacts would be short-term in nature and limited only to the period when construction activity is taking place on the project site.

The project site is 25.2 acres in size and consists of natural land area. A maximum of approximately 1 acre would be disturbed daily during the development of the proposed project. Clearing and Grubbing of the area is expected to begin in May 2013 and last through August 2013. Site grading and excavation would require on-site cut and fill of 762,120 cubic yards, as estimated by the project Applicant. Grading and excavation is expected to begin in September 2013 and last through January 2015. Trenching for drainage and utilities is expected to begin in February 2015 and last through December 2015. Asphalt paving would follow in January 2016 and last through June 2016.

The emission calculations assume the use of standard construction practices, such as compliance with SCAQMD Rule 403 (Fugitive Dust), to minimize the generation of fugitive dust. Compliance with Rule 403 is mandatory for all construction projects. In the Road Construction Emissions Model, Version 6.3.2, the emission calculations take into account compliance with Rule 403 by incorporating watering of the site during construction. In the URBEMIS2007 model, the emission calculations take into account compliance with Rule 403 by incorporating the following measures: watering of exposed surfaces and unpaved roads three times daily, which is estimated to reduce fugitive dust emissions from this source (PM10 and PM2.5) by 61 percent, per guidance from the SCAQMD; use of soil stabilization measures during equipment loading and unloading, which is estimated to reduce fugitive dust emissions from this source (PM10 and PM2.5) by 69 percent, per guidance from the SCAQMD; and managing haul road dust

by watering three times daily, which is estimated to reduce fugitive dust emissions from this source (PM10 and PM2.5) by 61 percent.

Table 4.1-8, Estimated Construction Emissions, identifies the maximum daily emissions for each pollutant during each phase of project construction. Construction emissions include all emissions associated with the construction equipment, grading and demolition activities, worker trips, and on-road diesel trucks. The emissions are considered to be conservative, that is, the emissions presented in **Table 4.1-8** likely over-predict the actual emissions that would occur during project construction.

Table 4.1-8
Estimated Construction Emissions

	Maximum Emissions in Pounds per Day[1]				
Construction Year	**VOC**	**NOx**	**CO**	**PM10**	**PM2.5**
Grubbing/Land Clearing	8.4	72.5	37.3	13.1	4.9
Grading/Excavation	8.3	70.1	36.4	57.19	14.1
Drainage/Utilities/Sub-Grade	3.0	22.5	13.5	11.1	3.1
Paving	1.9	11.4	8.7	1.0	0.9
Maximum pounds per day:	**8.4**	**72.5**	**37.3**	**57.19**	**14.1**
SCAQMD Threshold:	**75**	**100**	**550**	**150**	**55**
Exceeds Threshold?	NO	NO	NO	NO	NO

*Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix 4.1**.*
Totals in table may not appear to add exactly due to rounding in the computer model calculations.
[1] *PM10 and PM2.5 fugitive dust emissions reflect SCAQMD Rule 403 compliance.*

As shown in the above table, construction emissions would not exceed SCAQMD significance thresholds. Therefore, construction of the proposed project would have a less than significant impact with respect to this criterion.

Operational Emissions

Due to the nature of the project, operational emissions would only be generated due to periodic maintenance and street-cleaning trucks visiting the project site to maintain the roadway extension. The emissions from periodic maintenance and street cleaning vehicles were estimated using URBEMIS2007. Assuming that operation of the project would require a maximum total of two street sweepers and maintenance trucks during any single day and up to four per week (up to four trips per day, eight trips per week), the operational emissions would result in less than 1 pound per day of any criteria pollutant. Therefore, the project would not exceed the SCAQMD operational thresholds. Therefore, operational emissions would have a less than significant impact with respect to this criterion.

The US EPA requires PM hot-spot analyses for projects of local air quality concern, which include certain highway and transit projects that involve significant levels of diesel vehicle traffic or any other project identified in the PM2.5 or PM10 SIP as localized air quality concern. The conformity rule requires that the emissions from the proposed project, when considered with background concentrations, will not produce a new violation of the NAAQS, increase the frequency or severity of existing violations, or delay timely attainment of the NAAQS or any required interim reductions or milestones. PM hot-spot analyses include only directly emitted PM2.5 and PM10 emissions, and emissions from construction-related activities are not required to be included in PM hot-spot analyses if such emissions are considered temporary as defined in 40 CFR 93.123(c)(5) (i.e., emissions that occur only during the construction phase and last five years or less at any individual site). Operation-related activities are not required to be included in PM hot-spot analysis if the project would improve traffic flow and vehicle speeds and would not involve any increases in idling. Thus, the project would be expected to have a neutral or positive influence on PM emissions. The proposed project would be constructed in 38 months and operation of the project would result in improvement of traffic flow to nearby roadways in the region. Therefore, the proposed project would have a positive influence on PM emissions and would not require a PM hot-spot analysis. The proposed project would have a less than significant impact with respect to this criterion.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact would occur.

Impact Threshold 4.1-3 The proposed project would expose sensitive receptors to substantial pollutant concentrations.

Construction Emissions

The SCAQMD recommends the evaluation of localized NO_x, CO, PM10, and PM2.5 impacts as a result of on-site construction activities to sensitive receptors in the immediate vicinity of the project site. This analysis determines the ambient air quality impacts due to construction activities on the day with the highest estimated daily mass emission rates as presented in **Table 4.1-8**. The project-specific localized significance thresholds for SRA 13 (Santa Clarita Valley) are shown in **Table 4.1-9, Localized Significance Thresholds Analysis**, and are compared with the maximum daily on-site construction emissions.

Table 4.1-9
Localized Significance Thresholds Analysis

Significance Threshold	On-Site Emissions in Pounds per Day			
	NOx	CO	PM10	PM2.5
Construction Maximum Daily On-site Emissions	**72.5**	**37.3**	**54.18**	**11.33**
Localized Significance Threshold	**106**	**590**	**4**	**3**
Exceeds Threshold?	NO	NO	**YES**	**YES**

Source: South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, *(2008), Appendix C.*

[1] *LST thresholds are interpolated from the values in this document, based on the project, location, project size, and the distance to the nearest sensitive receptor.*

[2] *The NOx LST thresholds contained in the SCAQMD lookup tables are based on emissions of NOx from construction of the project and assume gradual conversion to NO_2 based on the distance from the project site boundary.*

The proposed project would exceed the localized significance thresholds for PM10 and PM2.5. Therefore, the proposed project would have a significant impact with respect to this criterion. Implementation of **Mitigation Measure MM 4.1-1** would reduce the on-site project construction emissions.

Operational Emissions

As noted above, the proposed project would improve traffic conditions within the Santa Clarita Valley. The proposed project would not generate new vehicle trips with the exception of periodic trips for the purpose of roadway maintenance and street cleaning. The project would not result in any on-site stationary or area sources of emissions. Therefore, the project would not result in any impacts based on the SCAQMD's localized significance thresholds.

Carbon monoxide is produced in greatest quantities from vehicle combustion, and is usually concentrated at or near ground level because it does not readily disperse into the atmosphere. As a result, potential air quality impacts to sensitive receptors are assessed though an analysis of localized CO concentrations. Areas of vehicle congestion have the potential to create "pockets" of CO called "hotspots." These pockets have the potential to exceed the state ambient air quality 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. Note that the federal levels are based on 1- and 8-hour standards prior to exceedance of the federal standard. As such, exceedance of the state ambient air quality 1-hour standard of 20 ppm or 8-hour standard of 9.0 ppm would constitute a significant air quality impact from the creation of substantial concentrations of CO.

The *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) was established by the California Department of Transportation in 1997 to deal with project-level air quality analysis needed for federal conformity determinations, NEPA, and CEQA. The CO Protocol specifically applies to FHWA

transportation projects. Certain projects are exempt from all emissions analyses according to the CO Protocol, including those projects that enhance transportation activities. Since the proposed project would result in the improvement of traffic flow, which is considered a transportation enhancement activity, it would be exempt from all emissions analyses under the CO Protocol.

Nevertheless, the project was evaluated to determine if it would cause a CO hotspot utilizing a simplified CALINE4 screening model developed by the Bay Area Air Quality Management District (BAAQMD). The simplified model is intended as a screening analysis that identifies a potential CO hotspot. If a hotspot is identified, the complete CALINE4 model is then utilized to determine precisely the CO concentrations predicted at the intersections in question. This methodology assumes worst-case conditions (i.e., wind direction is parallel to the primary roadway and 90 degrees to the secondary road, wind speed of less than 1 meter per second and extreme atmospheric stability) and provides a screening of maximum, worst-case, CO concentrations. The simplified approach is acceptable to the SCAQMD as long as it is used consistently with the BAAQMD guidelines. This model is utilized to predict existing and future CO concentrations 0 feet from the intersections in the study area based on projected traffic volumes from these intersections contained in the project traffic study. Interim year no-project, interim year with-project, and long-range with-project conditions CO concentrations were calculated for peak hour traffic volumes for those intersections that are anticipated to operate at LOS D or worse, based on the traffic analysis for the project.[48] Background (existing) ambient CO concentrations were included in the analysis. The results of these CO concentration calculations are presented in **Table 4.1-10, Maximum Carbon Monoxide Concentrations**, for representative receptors located 0 feet from the intersection.

As shown, the CALINE4 screening procedure predicts that, under worst-case conditions, future CO concentrations at each intersection would not exceed the state 1-hour and 8-hour standards with or without the development of the project. No significant CO hotspot impacts would occur to sensitive receptors in the vicinity of these intersections. As a result, no significant project-related impacts would occur relative to future carbon monoxide concentrations. Therefore, the proposed project would have a less than significant impact with respect to this criterion.

48 Austin-Foust Associates, *Via Princessa Extension, Traffic Analysis*, (2011).

Table 4.1-10
Maximum Carbon Monoxide Concentrations

Intersection	0 Feet	
	1-Hour[1]	8-Hour[2]
Interim Year without Project - 2020		
Rainbow Glen and Via Princessa	2.6	1.8
Gregory and Via Princessa	2.5	1.7
Interim Year with Project - 2020		
Golden Valley and Via Princessa	3.7	2.6
Gregory and Via Princessa	2.5	1.8
Long-Range Project Buildout Conditions - 2040		
Golden Valley and Via Princessa	2.8	2.0
Sheldon and Via Princessa	2.3	1.6
Isabella and Via Princessa	2.4	1.6
Rainbow Glen and Via Princessa	2.4	1.7
Gregory and Via Princessa	2.4	1.7
Via Princessa and Whites Canyon	2.2	1.5
Exceeds state 1-hour standard of 20 ppm?	NO	—
Exceeds federal 1-hour standard of 35 ppm?	NO	—
Exceeds state 8-hour standard of 9.0 ppm?	—	NO
Exceeds federal 8-hour standard of 9 ppm?	—	NO

*Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix 4.1**.*
[1] *State standard is 20 parts per million. Federal standard is 35 parts per million.*
[2] *State standard is 9.0 parts per million. Federal standard is 9 parts per million.*

Mitigation Measures

MM 4.1-1 Prior to grading permit issuance, the project applicant and/or contractor shall develop a Construction Emission Management Plan to minimize construction-related emissions. At a minimum, the Plan shall require the following:

- Suspend the use of all construction equipment during first-stage smog alerts.
- Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 mph.
- Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 horsepower shall meet Tier 4 off-road emissions standards. In addition, all construction equipment shall be outfitted with the Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine

as defined by CARB regulations. A copy of each unit's certified tier specification, BACT determination, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

- Use electric welders to avoid emissions from gas or diesel welders, to the extent feasible. Equipment that is commercially available shall be considered to be feasible. Equipment that is in the development, testing, or demonstration stage shall be considered not feasible.

- Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment, to the extent feasible. Equipment that is commercially available shall be considered to be feasible. Equipment that is in the development, testing, or demonstration stage shall be considered not feasible.

- Use on-site electricity or alternative fuels rather than diesel-powered or gasoline-powered generators, to the extent feasible. Equipment that is commercially available shall be considered to be feasible. Equipment that is in the development, testing, or demonstration stage shall be considered not feasible.

- Maintain construction equipment by conducting regular tune-ups according to the manufacturers' recommendations.

- Minimize idling time either by shutting equipment when not in use or reducing the time of idling to 5 minutes as a maximum.

- Minimize the hours of operation of heavy-duty equipment and/or the amount of equipment in use at any one time.

- Apply water three times daily, or non-toxic soil stabilizers according to manufacturers' specifications, to all unpaved parking or staging areas, unpaved road surfaces, and active construction areas.

- Apply non-toxic soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for four days or more).

- Install wheel washers or shaker plates to minimize dirt track out and dust generation where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.

- Traffic speeds on all unpaved roads to be reduced to 15 mph or less.

- All trucks hauling dirt, sand, soil, or other loose materials are to be covered.

- Sweep streets at the end of the day if visible soil is carried onto adjacent public paved roads (recommend water sweepers with reclaimed water).

Residual Impacts

Mitigation Measure MM 4.1-1 would reduce the on-site project construction emissions; however, on-site construction emissions of PM10 and PM2.5 would continue to have a significant impact with respect to this criterion.

Impact Threshold 4.1-4 The proposed project would create objectionable odors affecting a substantial number of people.

Construction Emissions

The proposed project could have the potential to create objectionable odors that could impact sensitive receptors. During construction, certain pieces of construction equipment could emit odors associated with exhaust. However, odors emitted from certain pieces of construction equipment would dissipate quickly and be short term in duration. Compliance with SCAQMD rules and permit requirements would ensure that no objectionable odors are created during construction. Therefore, construction activities would have a less than significant impact with respect to this criterion.

Operational Emissions

The SCAQMD lists land uses primarily associated with odor complaints as waste transfer and recycling stations, wastewater treatment plants, landfills, composting operations, petroleum operations, food and byproduct processes, factories, and agricultural activities, such as livestock operations. The proposed project does not consist of these types of land uses and operation of the project would not be expected to create objectionable odors.

In addition, any unforeseen odors generated by the project will be controlled in accordance with SCAQMD Rule 402 (Nuisance). Rule 402 prohibits the discharge of air contaminants that 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." Failure to comply with Rule 402 could subject the offending facility to possible fines and/or operational limitations in an approved odor control or odor abatement plan. Adherence to Rule 402 would mitigate unforeseen odors to a less than significant impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact would occur.

Impact Threshold 4.1-5 The proposed project would result in the release of toxic air emissions or acutely hazardous materials posing a threat to public health and safety.

Construction Emissions

On August 27, 1998, the CARB designated diesel particulate matter (DPM) emissions from diesel-fueled engines as a toxic air contaminant. A toxic air contaminant is defined by California Health and Safety Code Section 39655:

> *"Toxic air contaminant" means an air pollutant which may cause or contribute to an increase in mortality 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 pursuant to subsection (b) of Section 112 of the federal act (42 U.S.C. Sec. 7412(b)) is a toxic air contaminant.*

OEHHA and CARB have developed methodologies to evaluate the potential health impacts from toxic air contaminants. OEHHA establishes cancer potency factors for toxic air contaminants that are found through scientific research to have carcinogenic properties. Cancer potency factors vary depending on the exposure pathway – typically through contact, ingestion, or inhalation. The cancer potency factor for DPM considers exposure via the inhalation pathway only. The potential exposure through other pathways (e.g., ingestion) requires substance and site-specific data, and the specific parameters for diesel exhaust are not known for these other pathways.[49] Cancer risk is assessed for long-term emissions and assumes a 70-year exposure. The OEHHA Guidance recommends that shorter-term exposures (i.e., less than a maximum theoretical exposure duration of 70 years) be adjusted by no less than 9 years:[50]

> *[A]s the exposure duration decreases the uncertainties introduced by applying cancer potency factors derived from very long-term studies increases. Short-term high exposures are not necessarily equivalent to longer-term lower exposures even when the total dose is the same. OEHHA therefore does not support the use of current cancer potency factor to evaluate cancer risk for exposures of less than 9 years. If such risk must be evaluated, we recommend assuming that average daily dose for short-term exposure is assumed to last for a minimum of 9 years.*

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49 California Air Resources Board, *Report to the Air Resources Board on the Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Part A Exposure Assessment*, 1998.

50 California Air Resources Board, *Report to the Air Resources Board on the Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Part A Exposure Assessment*, 1998. 8-4.

In addition to the potential cancer risk, DPM has chronic (i.e., long-term) non-cancer health impacts.[51] The OEHHA Guidance has recommended an ambient concentration of 5 micrograms per cubic meter ($\mu g/m^3$) as the chronic inhalation Reference Exposure Level for DPM. The Reference Exposure Level is the concentration at or below which no adverse non-cancer health effects are anticipated. Chronic non-cancer health impacts are evaluated for target organs or target systems (i.e., toxicological endpoint), such as the respiratory system and the central/peripheral nervous system. The ratio of the annual concentration of the toxic air contaminant to the Reference Exposure Level is called the Hazard Quotient. The Hazard Index is the sum of the Hazard Quotients for substances that affect the same toxicological endpoint. OEHHA has not established an inhalation Reference Exposure Level for acute (i.e., short-term) effects for DPM.

Construction of the proposed project would result in emissions of DPM from heavy-duty construction equipment and haul trucks. Based on the emissions estimated from URBEMIS2007 and the Road Construction Emissions Model, on-site construction equipment would emit 3.1 pounds per day of DPM during clearing, 3.99 pounds per day of DPM during grading and excavation, 1.1 pounds per day of DPM during trenching for drainage and utilities, and 1.0 pounds per day of DPM during asphalt paving.

The proposed project would result in short-term and temporary emissions of DPM. Construction is scheduled to last 38 months, which is much less than the minimum exposure period of nine years for assessing health impacts as recommended by OEHHA. Because of the short-term nature of the proposed project and the minor level of DPM emissions, the project would not result in a lifetime probability of contracting cancer that is greater than 10 in 1 million at nearby sensitive receptors. Furthermore, the minor level of diesel particulate matter emissions would not result in a Health Hazard Index of 1 or greater when evaluating for chronic non-carcinogenic impacts. Therefore, the proposed project would have a less than significant impact with respect to this criterion.

Operational Emissions

The CARB *Air Quality and Land Use Handbook* recommends that lead agencies, where possible, avoid sitting new sensitive land uses within 500 feet of a freeway, urban roadways with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. Air pollution studies indicate that living close to high traffic and the associated emissions may lead to adverse health effects beyond those associated with regional air pollution in urban areas. Although the proposed project does not consist of the development of sensitive land uses, such as residential units, next to high traffic roadways, the proposed project includes the roadway extension of Via Princessa, which will be one of the primary east-west arterials

[51] OEHHA has not identified an acute (i.e., short-term) non-cancer inhalation Reference Exposure Level for diesel particulate matter.

through the City of Santa Clarita, and would locate a new roadway adjacent to existing residential areas. The traffic analysis for the proposed project did not identify any urban roads with 100,000 vehicles or more per day. Via Princessa, under long-range buildout conditions, is expected to have between 27,000 and 52,000 vehicles per day. Therefore, the proposed project would not expose sensitive land uses to higher than normal health impacts concerning this criterion.

In 2006, the US Department of Transportation Federal Highway Administration adopted the *Interim Guidance on Air Toxic Analysis in NEPA Documents* to establish methodology on how to analyze MSAT in the NEPA process for highways, which was updated in 2009. The FHWA developed a tiered approach for analyzing MSAT in NEPA documents, depending on specific project circumstances. Under this tiered approach, projects with no potential for meaningful MSAT effects would not need to undergo qualitative or quantitative analysis, projects with low potential MSAT effects would need to undergo a qualitative analysis, and projects with higher potential MSAT effects would need to undergo qualitative analysis and identify alternatives.

The proposed project would have low potential MSAT effects. The type of projects that are considered to have low potential MSAT effects include those projects that serve to improve operations of highway, transit or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. In addition, projects that result in increased travel speeds will reduce MSAT emissions per vehicle miles traveled basis. The proposed project would have an overall decreasing effect on traffic by 6,000 daily vehicles traveling nearby residential land uses in the vicinity of the proposed project. Furthermore, the proposed project would improve the level of service of nearby roadway intersections, resulting in less idling time and increased travel speeds, which would reduce MSAT emissions. Therefore, the proposed project would not expose sensitive land uses to higher than normal health impacts concerning this criterion. The proposed project would have a less than significant impact with respect to this criterion.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact would occur.

Impact Threshold 4.1-6 **The proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emission, which exceed quantitative thresholds for ozone precursors).**

According to the SCAQMD *CEQA Air Quality Handbook*, projects that are within the mass-based emission thresholds identified above should be considered less than significant on a cumulative basis unless there is other pertinent information to the contrary.[52] As shown in **Table 4.1-8**, construction emissions of the proposed project would not exceed the SCAQMD thresholds of significance. As discussed above, operational emissions would not exceed the SCAQMD thresholds of significance. Therefore, it is anticipated that the proposed project would not result in a cumulatively considerable contribution to air quality in the SoCAB. The proposed project would have a less than significant impact with respect to this criterion.

While the proposed project would result in on-site construction emissions that would exceed the SCAQMD LSTs for PM10 and PM2.5, these impacts are localized to the areas immediately adjacent to the project site. According to the SCAQMD, LSTs are applicable to a project-level analysis and are generally not applicable for assessing cumulative impacts. An exceedance of the LSTs does not necessarily indicate that a project would have a cumulatively considerable contribution to air quality impacts in the SoCAB. With respect to the proposed project, construction would result in localized significance impacts for PM10 and PM2.5, but because the project would not exceed the mass-based emission thresholds, it would not result in a cumulatively considerable contribution to regional air quality impacts in the SoCAB.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact would occur.

CUMULATIVE IMPACTS

As discussed above, according to the SCAQMD *CEQA Air Quality Handbook*, projects that are within the project-level emission thresholds identified above should be considered less than significant on a

52 South Coast Air Quality Management District, *CEQA Air Quality Handbook.* 9–12.

cumulative basis unless there is other pertinent information to the contrary.[53] As shown in **Table 4.1-8**, the project's construction emissions would not exceed the SCAQMD project-level thresholds for VOC, NO_X, CO, SO_X, PM10, and PM2.5. Therefore, construction of the project would not contribute substantially to an existing or projected air quality violation with respect to ozone, NO_2, CO, SO_X, PM10, and PM2.5 (NO_X is an ozone precursor emission and also converts to NO_2 in the atmosphere). The project's construction mass criteria pollutant emissions would not be cumulatively considerable and would result in a less than significant cumulative impact.

As discussed above, the project's operational emissions would not exceed the SCAQMD project-level thresholds for VOC, NO_X, CO, SO_X, PM10, and PM2.5. Therefore, operation of the project would not contribute substantially to an existing or projected air quality violation with respect to ozone, NO_2, CO, SO_X, PM10, and PM2.5. The project's operational mass criteria pollutant emissions would not be cumulatively considerable and would result in a less than significant cumulative impact.

UNAVOIDABLE SIGNIFICANT IMPACTS

The proposed project would have an unavoidable significant localized impact due to on-site construction emissions of PM10 and PM2.5.

53 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1992. 9–12.