

B. AIR QUALITY/GLOBAL CLIMATE CHANGE

1. INTRODUCTION

This section addresses the air emissions generated by the construction and operation of the proposed project, and the potential impacts to air quality and global climate change. The analysis also addresses the consistency of the proposed project with the air quality policies set forth within the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan. The analysis of project-generated air emissions focuses on whether the proposed project would cause an exceedance of an ambient air quality standard or SCAQMD significance threshold.¹ Air quality technical data utilized in this section is included as Appendix B of this EIR.

2. ENVIRONMENTAL SETTING

a. Regulatory Framework

A number of statutes, regulations, plans, and policies have been adopted that address air quality issues. The proposed project site and vicinity are subject to air quality regulations developed and implemented at the federal, state, and local levels. At the federal level, the United States Environmental Protection Agency (USEPA) is responsible for implementation of the Federal Clean Air Act (CAA). Some portions of the CAA (e.g., certain mobile source and other requirements) are implemented directly by the USEPA. Other portions of the CAA (e.g., stationary source requirements) are implemented by state and local agencies.

(1) Federal Clean Air Act

The CAA was first enacted in 1955 and has been amended numerous times in subsequent years, with the most recent major amendments having been enacted in 1990. The CAA requires national air quality standards, known as National Ambient Air Quality Standards (NAAQS) (see **Table IV.B-1, Ambient Air Quality Standards**, below) and specifies dates for achieving compliance.

Title II of the CAA pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms the USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have strengthened in recent years to improve air quality. For example, the standards for NO_x emissions have lowered substantially and the specification requirements for cleaner burning gasoline are more stringent.

As the proposed project would generate air emissions during construction and operation of proposed uses, the CAA is applicable to the proposed project.

¹ Emissions estimation worksheets are provided in Appendix B of this EIR.

Table IV.B-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ^a		Federal Standards ^b		
		Concentration ^c	Method ^d	Primary ^{c,e}	Secondary ^{c,f}	Method ^g
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)		
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		—		
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—	—	—
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.03 ppm (56 µg/m ³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m ³)		0.10 ppm	None	
Sulfur Dioxide (SO ₂)	24 Hour	0.04 ppm (105 µg/m ³)	Ultraviolet Fluorescence	0.14 ppm (365 µg/m ³)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method) ⁹
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	
	1 Hour	0.25 ppm (655 µg/m ³)		0.075 ppm (196 µg/m ³)	—	
Lead (Pb) ^h	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m ³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3- Month Average	—		0.15 µg/m ³		

Table IV.B-1 (Continued)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ^a		Federal Standards ^b		
		Concentration ^c	Method ^d	Primary ^{c,e}	Secondary ^{c,f}	Method ^g
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates (SO₄)	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride^h	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

^a California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter (PM₁₀ and PM_{2.5}) and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

^b National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.

^c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

^d Any equivalent procedure which can be shown to the satisfaction of the California Air Resources Board (CARB) to give equivalent results at or near the level of the air quality standard may be used.

^e National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

^f National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

^g Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

^h 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.

Source: California Air Resources Board (<http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>, dated 09/08/10), and U.S. Environmental Protection Agency (<http://www.epa.gov/air/criteria.html> and http://www.epa.gov/air/lead/pdfs/20081015_pb_naaqs_final.pdf [see “FR Notices” at http://www.epa.gov/ttn/naaqs/standards/pb/s_pb_index.html], accessed November 2008]

(2) California Clean Air Act

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the State to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. Table IV.B-1 shows the CAAQS currently in effect for each of the criteria pollutants as well as the other pollutants recognized by the State. As shown in Table IV.B-1, the CAAQS include more stringent standards than the NAAQS for most of the criteria air pollutants. In general, the California standards are more health protective than the corresponding NAAQS. In addition, the California Air Resources Board (CARB) has established standards for other pollutants recognized by the State, such as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

As the proposed project would generate air emissions during construction and operation of proposed uses, the CCAA is applicable to the proposed project.

Table IV.B-2, South Coast Air Basin (SoCAB) Attainment Status, below, provides a summary of the SoCAB's attainment status with respect to state standards. The SoCAB is designated as attainment for the California standards for sulfates, and unclassified for hydrogen sulfide and visibility-reducing particles. Because vinyl chloride is a carcinogenic toxic air contaminant, the CARB does not classify attainment status for this pollutant.

Table IV.B-2

South Coast Air Basin Attainment Status

Pollutant	National Standards	California Standards
Ozone (1-hour standard)	N/A ^a	Non-attainment
Ozone (8-hour standard)	Extreme	N/A
Carbon Monoxide	Attainment	Attainment ^b
Nitrogen Dioxide	Attainment ^b	Attainment ^b
Sulfur Dioxide	Attainment ^b	Attainment ^b
PM ₁₀ (24-hour standard)	Serious	Non-attainment
PM ₁₀ (annual standard)	N/A ^c	Non-attainment
PM _{2.5}	Serious	Non-attainment
Lead	Attainment ^b	Attainment ^b
Visibility Reducing Particles	N/A	Unclassified
Sulfates	N/A	Attainment ^b
Hydrogen Sulfide	N/A	Unclassified
Vinyl Chloride	N/A	N/A ^d

N/A = not applicable

^a The NAAQS for 1-hour ozone was revoked on June 15, 2005 for all areas except Early Action Compact areas.

^b An air basin is designated as being in attainment for a pollutant if the standard for that pollutant was not violated at any site in that air basin during a three year period.

^c The NAAQS for annual PM₁₀ was revoked on September 21, 2006.

^d In 1990 the CARB identified vinyl chloride as a toxic air contaminant and determined that it does not have an identifiable threshold. Therefore, the CARB does not monitor or make status designations for this pollutant.

Source: USEPA Region 9 and California Air Resources Board, 2007.

(3) California Air Resources Board Air Quality and Land Use Handbook

CARB published a draft version of the *Air Quality and Land Use Handbook* on February 17, 2005, to serve as a general guide for considering impacts to sensitive receptors from facilities that emit toxic air contaminant (TAC) emissions. The recommendations provided therein are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. The goal of the guidance document is to protect sensitive receptors, such as children, the elderly, acutely ill, and chronically ill persons, from exposure to TAC emissions. Some examples of CARB's siting recommendations include the following: (1) avoid siting sensitive receptors within 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; (2) avoid siting sensitive receptors immediately downwind of ports in the most heavily impacted zones; (3) avoid siting sensitive receptors within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week); and (4) avoid siting sensitive receptors within 300 feet of any dry cleaning operation using perchloroethylene, and for operations with two or more machines provide 500 feet.

The proposed project would generate TAC emissions during construction and operation, and therefore the *Air Quality and Land Use Handbook* is relevant to the proposed project.

(4) California Air Resources Board Emission Control Measures

In 2004, CARB adopted a control measure to limit commercial heavy duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter (DPM) and other air contaminants.² The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. In general, it prohibits idling for more than 5 minutes at any location.

In addition to limiting exhaust from idling trucks, CARB promulgated emission standards for off-road diesel construction equipment such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. A CARB regulation that became effective on June 15, 2008, aims to reduce emissions by installation of diesel soot filters and encouraging the replacement of older, dirtier engines with newer emission controlled models.³ A prohibition against acquiring certain vehicles began on March 1, 2009, and a reporting requirement started on April 1, 2009. Implementation of some provisions is staggered based on fleet size, with the largest operators to begin compliance in 2010. By 2020, CARB estimates that DPM will be reduced by 74 percent and smog forming NO_x (another important pollutant emitted from diesel engines) by 32 percent, compared to what emissions would be without the regulation. In January 2010, the Associated General Contractors of America filed a petition requesting CARB to adopt an emergency amendment to delay the fleet average target dates of this regulation for a period of two years. Consequently, the following relief was granted: CARB will "not take any enforcement action for noncompliance with the regulation's March 1, 2010 emission standards or other emission related requirements before it receives authorization from U.S. EPA."⁴

² *Calif. Code of Regulations, Title 13, Sec. 2485. See <http://www.arb.ca.gov/regact/idling/idling.htm> (accessed July 2008).*

³ *Calif. Code of Regulations, Title 13, Secs. 2449, 2449.1, 2449.2 and 2449.3.*

⁴ *California Regulatory Notice Register, February 2010. <http://www.oal.ca.gov/res/docs/pdf/notice/9z-2010.pdf> (accessed April 2010).*

The proposed project would be subject to the control measures adopted by CARB, as the project would involve heavy diesel vehicle use during construction and operation.

(5) South Coast Air Quality Management District

The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County, Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The SoCAB is a subregion of the SCAQMD jurisdiction. While air quality in this area has improved, the SoCAB requires continued diligence to meet air quality standards.

The SCAQMD has adopted a series of Air Quality Management Plans (AQMP) to meet the CAAQS and NAAQS. The 2007 AQMP employs the most up-to-date science, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. Policies and measures currently contemplated by responsible agencies to achieve federal standards for healthful air quality in the SoCAB are built upon in the 2007 AQMP Plan. It also incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources and area sources.

The 2007 AQMP Plan builds upon improvements accomplished from previous plans, and aims to incorporate all feasible control measures while balancing costs and socioeconomic impacts for the attainment of air quality standards. However, it highlights the significant amount of reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the CAA.

The 2007 AQMP relies on a comprehensive and integrated control approach aimed at achieving the PM_{2.5} standard by 2015, through implementation of short-term and mid-term control measures, and achieving the 8-hour ozone standard by 2024 based on implementation of additional long-term measures. These reductions are expected to be achieved through implementation of new and advanced control technologies as well as improvement of existing control technologies. Control techniques requiring substantial levels of committed funding for implementation would also fall under this category of long-term emission reductions. The 2007 AQMP control measures consist of four components: (1) the District's Stationary and Mobile Source Control Measures; (2) CARB's Proposed State Strategy; (3) District Staff's Proposed Policy Options to Supplement CARB's Control Strategy; and (4) Regional Transportation Strategy and Control Measures provided by Southern California Association of Governments (SCAG). Overall, the Plan includes 31 stationary and 30 mobile source measures. The SCAQMD's control strategy for stationary and mobile sources is based on the following approaches: (1) facility modernization; (2) energy efficiency and conservation; (3) good management practices; (4) market incentives/compliance flexibility; (5) area source programs; (6) emission growth management; and (7) mobile source programs.

The SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the project. For example, SCAQMD Rule 403 requires the implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from on-site earth-moving activities, construction/deconstruction activities, and construction equipment travel on paved and unpaved roads. The full text of SCAQMD Rule 403 is included in the Air Quality Appendices.

The SCAQMD published the *CEQA Air Quality Handbook* in November 1993 to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The *CEQA Air Quality Handbook* provides standards, methodologies, and procedures for conducting air quality analyses in EIRs and was used extensively in the preparation of this analysis. However, the SCAQMD is currently in the process of replacing the *CEQA Air Quality Handbook* with the Air Quality Analysis Guidance Handbook. While this process is underway, the SCAQMD recommends that the lead agency avoid using the screening tables in the *CEQA Air Quality Handbook's* Chapter 6, because the tables were derived using an obsolete version of CARB's mobile source emission factor inventory, and the trip generation characteristic of the land uses identified in these screening tables were based on the fifth edition of the ITE Trip Generation Manual, instead of the most current eighth edition. Additionally, the lead agency should avoid using the on-road mobile source emission factors in Table A9-5-J1 through A9-5-L. The SCAQMD instead recommends using other approved models to calculate emissions from land use projects, such as the URBEMIS 2007 model.⁵

In addition, the SCAQMD has published a guidance document called the *Localized Significance Threshold Methodology for CEQA Evaluations* (June 2003) that is intended to provide guidance in evaluating localized effects from mass emissions during construction. This document was also used in the preparation of this analysis. Recently, the SCAQMD adopted additional guidance regarding PM_{2.5} in a document called *Final methodology to Calculate Particulate Matter (PM) 2.5 and PM_{2.5} Significance Thresholds* (October 2006).

The SCAQMD has also adopted land use planning guidelines in the *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning* (May 2005), which considers impacts to sensitive receptors from facilities that emit TAC emissions. SCAQMD's distance recommendations are the same as those provided by CARB (e.g. a 500-foot siting distance for sensitive land uses proposed in proximity of freeways and high-traffic roads, and the same siting criteria for distribution centers and dry cleaning facilities). The SCAQMD document introduces land use related policies that rely on design and distance parameters to minimize emissions and lower potential health risk. SCAQMD's guidelines are voluntary initiatives recommended for consideration by local planning agencies.

The project site is located within the SoCAB, and therefore the proposed project is under the jurisdiction of the SCAQMD.

(6) Regional Comprehensive Plan and Guide

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG is the federally designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. As the designated MPO, SCAG is mandated by the federal government to develop and implement regional plans that address transportation, growth management, hazardous waste management, and air quality issues. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG) for the SCAG region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation components of the AQMP and are utilized in the preparation of air quality forecasts and the consistency analysis that is included in the AQMP.

⁵ <http://www.aqmd.gov/ceqa/oldhdbk.html>.

The project site is located within the southern California region, and therefore the proposed project is subject to the requirements of the AQMP.

(7) City of Long Beach

As there exists an overlap between land use and greenhouse gas (GHG) emissions, the City of Long Beach (City) has developed interim Green Building Requirements for Private Development that apply to all new projects that include at least 50 dwelling units or 50,000 square feet of building area. The policy uses the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED™) Green Building Rating System as the standard for which a project will be measured as a green building. Applicable projects must register with the USGBC with the intent of achieving a minimum of the “Certified” level or provide third party verification that they meet the minimum requirements of LEED™ certification.

As the proposed project involves a private development project in the City of Long Beach that includes more than 50 dwelling units and over 50,000 square feet of building area, the project is subject to the City’s Green Building Requirements.

(8) Global Climate Change

In response to growing scientific and political concern regarding global climate change, California adopted a series of laws to reduce both the level of GHGs in the atmosphere and to reduce emissions of GHGs from commercial and private activities within the State. In September 2002, Governor Gray Davis signed Assembly Bill (AB) 1493, requiring the development and adoption of regulations to achieve “the maximum feasible reduction of greenhouse gases” emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State. It should be noted that setting emission standards on automobiles is solely the responsibility of the federal EPA. The federal CAA allows States to set state-specific emission standards on automobiles if they first obtain a waiver from the USEPA. The USEPA initially denied California’s request for a waiver, thus delaying CARB’s proposed implementation schedule for setting emission standards on automobiles to help reduce GHGs. However, on June 30, 2009, the USEPA granted the waiver to California for GHG emission standards for motor vehicles beginning with the 2009 model year.

In June 2005, Governor Schwarzenegger signed Executive Order S-3-05, which established GHG emissions targets for the state, as well as a process to ensure the targets are met. The order directed the Secretary for California EPA to report every two years on the State’s progress toward meeting the Governor’s GHG emission reduction targets. As a result of this executive order, the California Climate Action Team (CAT), led by the Secretary of the California EPA, was formed. The CAT is made up of representatives from a number of State agencies and was formed to implement global warming emission reduction programs and reporting on the progress made toward meeting statewide targets established under the Executive Order. State agency members include the Business, Transportation and Housing Agency; Department of Food and Agriculture; Resources Agency; Air Resources Board; California Energy Commission; the Public Utilities Commission; and Department of Water Resources. The CAT published its Climate Action Team Report to Governor Schwarzenegger and the Legislature in March 2006, in which it laid out forty-six specific emission reduction strategies for reducing GHG emissions and reaching the targets established in the executive order.

In September 2006, Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act of 2006, also known as AB 32, into law. AB 32 commits the State to achieving the following:

- 2000 GHG emission levels by 2010, which represents an approximately 11 percent reduction from business as usual (BAU).
- 1990 levels by 2020, approximately 30 percent below BAU.
- 80 percent below 1990 levels by 2050.

To achieve these goals, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. The following schedule outlines the CARB actions mandated by AB 32:

- By January 1, 2008, CARB adopts regulations for mandatory GHG emissions reporting, defines 1990 emissions baseline for California (including emissions from imported power), and adopts it as the 2020 statewide cap. CARB adopted 427 million metric tons of carbon dioxide equivalent (MMTCO_{2e}) as the total statewide greenhouse gas 1990 emissions level and the 2020 emissions limit in 2007.⁶
- By January 1, 2009, CARB adopts plan to effect GHG reductions from significant sources of GHG via regulations, market mechanisms and other actions.⁷ CARB approved the AB32 Scoping Plan in December 2008.
- During 2009, CARB drafts rule language to implement its plan and holds a series of public workshop on each measure (including market mechanisms).
- By January 1, 2010, early action measures will take effect.
- During 2010, CARB, after workshops and public hearings, conducts series of rulemakings to adopt GHG regulations including rules governing market mechanisms.
- By January 1, 2011, CARB completes major rulemakings for reducing GHGs, including market mechanisms. CARB may revise and adopt new rules after January 1, 2011 to achieve the 2020 goal.
- By January 1, 2012, GHG rules and market mechanisms adopted by CARB take effect and become legally enforceable.
- December 31, 2020 is the deadline for achieving 2020 GHG emissions cap.

CARB's list of discrete early action measures that can be adopted and implemented before January 1, 2010 was approved on June 21, 2007, and focuses on major State-wide contributing sources and industries, not on individual development projects or practices. These early action measures are: (1) a low-carbon fuel standard; (2) reduction of refrigerant losses from motor vehicle air conditioning system maintenance; and (3) increased methane capture from landfills. Recently, CARB released emissions inventory estimates for 1990 through 2004.

⁶ CARB has adopted 427 million metric tonnes of carbon dioxide equivalent (MMTCO_{2e}) as the total statewide greenhouse gas 1990 emissions level and the 2020 emissions limit. See <http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm> (last visited 04/06/2010).

⁷ CARB released the Climate Change Proposed Scoping Plan in October 2008, which details the strategies that the State will use to reduce GHG emissions. The Plan was approved at the Board hearing in December 2008.

A companion bill to AB 32, Senate Bill (SB) 1368, requires the California Public Utilities Commission (PUC) and California Energy Commission (CEC) to establish GHG emission performance standards for the generation of electricity. These standards will generally apply to power generated outside of California and imported into the State. SB 1368 provides a mechanism for reducing the emissions of electricity providers, thereby assisting ARB to meet its mandate under AB 32. On January 25, 2007, the CPUC adopted an interim GHG Emissions Performance Standard (EPS), a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have GHG emissions no greater than a combined cycle gas turbine plant. That level is established at 1,100 pounds of CO₂ per megawatt-hour (MW/hr). Further, on May 23, 2007, the CEC adopted regulations that establish and implement an identical EPS of 1,100 pounds of CO₂ per MW/hr (see CEC order No. 07-523-7).

An additional bill related to AB 32, SB 97 adopted in August 2007, requires the California Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by the California Environmental Quality Act (CEQA), including but not limited to, effects associated with transportation or energy consumption. OPR transmitted these guidelines by the July 1, 2009 deadline, and the Resources Agency certified and adopted the guidelines prior to the January 1, 2010 deadline. The Resource Agency will be required to periodically update the guidelines to incorporate new information or criteria established by the CARB pursuant to AB32.⁸ OPR does not identify a threshold of significance for GHG emissions, nor has it prescribed assessment methodologies or specific mitigation measures. The amendments encourage lead agencies to consider many factors in performing a CEQA analysis, but preserve the discretion granted by CEQA to lead agencies in making their own determinations based on substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

In November 2008, the California Building Standards Commission established the California Green Building Standards Code (CALGreen) which provides for building projects to reduce environmental impacts and encourage sustainable construction practices. Although CALGreen codes went into effect in 2009, the code was voluntary. As of January 1, 2011, the CALGreen code has become mandatory for all new buildings constructed in the state. The CALGreen code establishes mandatory measures for both residential and non-residential buildings developments. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design and overall environmental quality⁹.

There has also been California legislative activity acknowledging the relationship between land use planning and transportation sector GHG emissions. California Senate Bill 375, signed by the Governor on September 30, 2008, links regional planning for housing and transportation with the greenhouse gas reduction goals outlined in AB 32. Reductions in GHG emissions would be achieved by, for example, locating housing closer to jobs, retail, and transit. Under the bill, each MPO is required to adopt a sustainable community strategy to encourage compact development so that the region will meet a target, created by CARB, for reducing GHG emissions.

In August 2010, CARB released the draft CEQA Functional Equivalent Document (FED) which proposes GHG emission reduction targets specific to each MPO. The CARB recognizes that GHG reduction measures may be

⁸ *Senate Bill No. 97, Chapter 185, approved by Governor Schwarzenegger and filed with the Secretary of State, August 24, 2007.*

⁹ *California 2010 Green Building Standards code, California Code of Regulations Title 24, Part 11.*

unique to certain areas of California where GHG reduction measures in one area may not be feasible in another. The project is located in the SCAG MPO, which has proposed regional GHG reduction targets as required under SB375. Recently, SCAG proposed a goal of reducing per capita GHGs emissions by 8% for Year 2020 and 13% for Year 2035 compared to Year 2005. These reduction goals would be incorporated into the next version of the Regional Transportation Plan (RTP) which is expected to be adopted in 2012. Projects going through the CEQA process would be required to demonstrate consistency with SCAG (RTP) policies including specified GHG reduction targets. Additionally, SCAG is currently developing a Sustainable Communities Strategy (SCS) plan to meet emission reduction targets. One goal of the SCS plan is to comply with the provisions of SB375 by establishing a reduction target for cars and light trucks. This plan is currently in development and is expected to be finalized in 2012.

Although CARB and SCAG are tasked with setting GHG reduction targets, there is no regional agency responsible for the regulation of GHG emissions related to global climate change. The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Basin, but lacks the authority to directly regulate factors leading to global climate change or GHG emission issues associated with plans and new development projects throughout the SoCAB. In order to provide GHG emission analysis guidance to the local jurisdictions within the SoCAB, the SCAQMD has organized a Working Group to develop GHG emission analysis guidance and thresholds.

In 2007, the US Supreme Court ruled in *Massachusetts v. EPA* that GHG's are air pollutants covered under the Clean Air Act. Since the EPA is responsible for overseeing compliance with the CAA, emissions of GHGs fall under the jurisdiction of the EPA. As of January 2, 2011, the EPA requires GHG analyses to be performed as part of the permitting requirements for projects which are currently undergoing the permitting process.

On May 19, 2009, President Obama announced a new federal policy "aimed at both increasing fuel economy and reducing greenhouse gas pollution for all new cars and trucks sold in the United States." The policy proposes fuel efficiency standards that would apply to model years 2012 through 2016. These standards would be more aggressive than the federal Corporate Average Fuel Economy (CAFE) standards and would result in a reduction of approximately 900 million metric tons of GHG nationwide¹⁰.

Given that the proposed project would emit greenhouse gas emissions during construction and operation, the global climate change regulations and plans noted above are applicable to the project.

b. Existing Conditions

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment either directly or in reaction with other pollutants, due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in the prevalent air quality.

The following pollutants are regulated by the EPA and therefore are subject to emission reduction measures adopted by federal, state and other regulatory agencies.

¹⁰ http://www.whitehouse.gov/the_press_office/President-Obama-Announces-National-Fuel-Efficiency-Policy/

Ozone (O₃): Ozone is a secondary pollutant formed by the chemical reaction of volatile organic compounds and nitrogen oxides (NO_x) under favorable meteorological conditions such as high temperature and stagnation episodes. An elevated level of ozone irritates the lungs and breathing passages, causing coughing, and pain in the chest and throat thereby increasing susceptibility to respiratory infections and reducing the ability to exercise. Effects are more severe in people with asthma and other respiratory ailments. Long-term exposure may lead to scarring of lung tissue and may lower the lung efficiency.

Carbon Monoxide (CO): Carbon monoxide is primarily emitted from combustion processes and motor vehicles because of incomplete combustion of fuel. Elevated concentrations of CO weaken the heart's contractions and lower the amount of oxygen carried by the blood. It is especially dangerous for people with chronic heart disease. Inhalation of moderate levels of carbon monoxide can cause nausea, dizziness, and headaches, and can be fatal at high concentrations.

Nitrogen Oxides (NO_x): Major sources of NO_x include power plants, large industrial facilities, and motor vehicles. Nitrogen oxides are emitted from combustion processes and irritate the nose and throat. It increases susceptibility to respiratory infections, especially in people with asthma. The principal concern of NO_x is as a precursor to the formation of ozone.

Sulfur Dioxide (SO₂): Major sources of SO₂ include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of sulfur dioxide aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in asthmatics and people involved in moderate to heavy exercise. Sulfur dioxide potentially causes wheezing, shortness of breath, and coughing. High levels of particulate appear to worsen the effect of sulfur dioxide, and long-term exposures to both pollutants leads to higher rates of respiratory illness.

Lead (Pb): Lead is emitted from industrial facilities and from the sanding or removal of old lead-based paint. Smelting or processing the metal is the primary source of lead emissions, which is primarily a regional pollutant. Lead affects the brain and other parts of the body's nervous system. Exposure to lead in very young children impairs the development of the nervous system, kidneys, and blood forming processes in the body.

Particulate Matter (PM₁₀ and PM_{2.5}): The human body naturally prevents the entry of larger particles into the body. However, small particles, with an aerodynamic diameter equal to or less than ten microns (PM₁₀) and even smaller particles with a aerodynamic diameter equal to or less than 2.5 microns (PM_{2.5}), are trapped in the nose, throat, and upper respiratory tract. These small particulates enter the body and could potentially aggravate existing heart and lung diseases, change the body's defenses against inhaled materials, and damage lung tissue. The elderly, children, and those with chronic lung or heart disease are most sensitive to PM₁₀ and PM_{2.5}. Lung impairment can persist for two to three weeks after exposure to high levels of particulate matter. Some types of particulate could become toxic after inhalation due to the presence of certain chemicals and their reaction with internal body fluids.

“Fugitive dust” is atmospheric dust resulting from both natural and anthropogenic disturbance of soil and other granular material. Fugitive dust particles are comprised mainly of soil minerals (i.e. oxides of silicon, aluminum, calcium, and iron), but can also consist of sea salt, pollen, spores, etc. The most common

regulated forms of particulate matter are known as PM₁₀ (particulate matter with a diameter of 10 microns or less in size) and PM_{2.5} (particulate matter with a diameter of 2.5 microns or less in size).

PM₁₀ is predominately comprised of windblown dust or other operations involving solid particulate materials. PM_{2.5} is more likely the result of fuel combustion and photochemical reactions. PM_{2.5} is both directly emitted and formed via chemical reactions in the atmosphere from precursor pollutants such as NO_x, SO_x, and ammonia. However, most fugitive dust particles are larger than PM₁₀ particulates and thus would not comprise either PM₁₀ or PM_{2.5}.

Common sources of fugitive dust during construction include use of unpaved roads and construction operations. Fugitive dust emissions, a component of particulate matter (PM), have a negligible toxicity factor. As such, the inclusion of fugitive dust in a health risk assessment would not have a significant effect on the assessment's results. However, exposure to PM can lead to health problems.

PM₁₀ may accumulate in the lungs and irritate the respiratory tract, and may also lead to eye irritation, but fine particles (PM_{2.5}) are more likely than larger PM₁₀ particles to contribute to health effects. The CARB and the USEPA have recognized adverse health effects that may be associated with exposure to PM, including:

- Increased respiratory symptoms, such as the irritation of the airways, coughing, or difficulty breathing;
- Decreased lung function, particularly in children;
- Aggravated asthma;
- Development of chronic bronchitis;
- Irregular heartbeat;
- Increased respiratory and cardiovascular hospitalizations;
- Premature death in people with heart or lung disease.

Based on reviews of the latest scientific literature, CARB staff has concluded that exposure to PM_{2.5} has potential health impacts. In recognition, the USEPA and CARB have established NAAQS and CAAQS for PM emissions. The NAAQS and CAAQS have been set at levels considered safe to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly with a margin of safety.

Short-term exposure to fugitive dust during construction typically will not result in any considerable health effects. Health risk methodologies for operational impacts typically assume a conservative continuous exposure of 24-hours per day, for a 70-year lifetime, outdoors at the same location. In contrast, exposure during construction is substantially reduced because of the temporary nature of construction and because construction activities primarily occur during normal working hours. As a result of the limited exposure, health effects from fugitive dust during construction are minimized. Air quality standards and SCAQMD thresholds are developed for the purpose of protecting the health of sensitive populations.

Effects of Global Climate Change

The scientific community's understanding of the fundamental processes responsible for global climate change has improved over the past decade, and our predictive capabilities are advancing. However, there remain significant scientific uncertainties, for example, in predictions of local effects of climate change, occurrence of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system, the uncertainty surrounding climate change may never be completely eliminated. Because of these uncertainties, there continues to be significant debate as to the extent to which increased concentrations of GHGs have caused or will cause climate change, and with respect to the appropriate actions to limit and/or respond to climate change. In addition, it is impossible to label a single development project as the cause of future specific climate change impacts.

The IPCC, in its Fourth Assessment Report (FAR), stated that "it is likely that there has been significant anthropogenic warming over the past 50 years."¹¹ However, it is impossible to identify a single development project as the cause of future specific climate change impacts due to the global nature of climate change. Also in the FAR, the IPCC holds that the impacts of future climate change will vary across regions. While "large-scale climate events have the potential to cause very large impacts," the impacts of future climate change will be mixed across regions.

According to ARB, some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (ARB, 2007). Below is a summary of some of the potential effects reported by an array of studies that could be experienced in California as a result of global warming and climate change:

Air Quality. Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore, its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (CEC, February 2006).

Water Supply. Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. Studies have found that, "Considerable uncertainty about precise impacts of climate change on California hydrology and water resources will remain until we have more precise and consistent information about how precipitation patterns, timing, and intensity will change." (Kiparsky et al. 2003). For example, some studies identify little change in total annual precipitation in projections for California (California Climate Change Center, 2006). Other studies show significantly more precipitation (Climate Change and California Water Resources [(DWR 2006)]). Even assuming that climate change leads to long-term increases in precipitation, analysis of the impact of climate change is further complicated by the fact that no studies have identified or quantified the runoff impacts such an increase in precipitation would

¹¹ Intergovernmental Panel on Climate Change, *Fourth Assessment Report, Summary for Policy Makers, 2007.*

have in particular watersheds (California Climate Change Center, 2006). Also, little is known about how groundwater recharge and water quality will be affected (Id.). Higher rainfall could lead to greater groundwater recharge, although reductions in spring runoff and higher evapotranspiration could reduce the amount of water available for recharge (Ibid.).

The California Department of Water Resources (DWR 2006) report on climate change and effects on the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta. concludes that “[c]limate change will likely have a significant effect on California’s future water resources . . . [and] future water demand.” It also reports that “much uncertainty about future water demand [remains], especially [for] those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain” (DWR, 2006). The relationship between climate change and its potential effect on water demand is not well understood (DWR, 2006). DWR adds that “[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future.” Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows (Kiparsky 2003; DWR 2005; Cayan 2006, Cayan, D., et al, 2006).

Hydrology. As discussed above, climate changes could potentially affect: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of sea water as the oceans warm, and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California’s water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture. California has a \$30 billion agricultural industry that produces half the country’s fruits and vegetables. Higher CO₂ levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thus affect their quality (CCCC, 2006).

Ecosystems and Wildlife. Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists expect that the average global surface temperature could rise 1.0-4.5°F (0.6- 2.5°C) in the next fifty years, and 2.2-10°F (1.4-5.8°C) in the next century, with significant regional variation (EPA 2000). Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Sea level could rise as much as two feet along most of the U.S. coast. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species’ composition within communities; and (4) ecosystem processes such as carbon cycling and storage (Parmesan, 2004; Parmesan, C. and H. Galbraith 2004.)

(1) Regional Context

The proposed project is located within the South Coast Air Basin, an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SoCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Geronio Pass area in Riverside County. Its terrain and geographical location determine the distinctive climate of the SoCAB, as the SoCAB is a coastal plain with connecting broad valleys and low hills.

The southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SoCAB is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the SoCAB, making it an area of high pollution potential.

The greatest air pollution impacts throughout the SoCAB occur from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the SoCAB vary with location, season, and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in southern California.

The SCAQMD has released the final report of the third round of its Basin-wide Multiple Air Toxics Exposure Study (MATES III).¹² MATES III represents one of the most comprehensive air toxics studies ever conducted in an urban environment. The study was aimed at estimating the cancer risk from toxic air emissions throughout the SoCAB by conducting a comprehensive monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize health risks in the SoCAB. MATES III focused on carcinogenic risk from air toxics, and did not estimate other health effects from particulate exposures. Based on average measurements at ten fixed monitoring sites, the study estimated 70-year lifetime carcinogenic risk from air pollution in the SoCAB at approximately 1,200 in one million. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. Approximately 84 percent of the overall risk was attributed to diesel particulate emissions, approximately 10 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately six percent to stationary sources (which include industries and other certain businesses, such as dry cleaners and chrome plating operations).¹³

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation and storms. Historical records indicate that global climate changes have occurred in the past due to natural phenomena; however some data indicate that the current global conditions differ from past climate changes in rate and magnitude. Global climate change attributable

¹² <http://aqmd.gov/prdas/matesIII/MATESIIIFinalReportSept2008.html>, accessed November 2008.

¹³ SCAQMD, *MATES-III Final Report, Executive Summary*, <http://aqmd.gov/prdas/matesIII/Final/Document/-ab-MATESIIIExecutiveSummary-Final92008.pdf>, accessed November 2008.

to anthropogenic (human) emissions of GHGs is currently one of the most important and widely debated scientific, economic and political issues in the United States and the world. There continues to be significant scientific uncertainty concerning the extent to which increased concentrations of GHGs have caused or will cause climate change, and over the appropriate actions to limit and/or respond to climate change.

GHGs are those compounds in the Earth's atmosphere that play a critical role in determining temperature near the Earth's surface. More specifically, these gases allow high-frequency shortwave solar radiation to enter the Earth's atmosphere, but retain some of the low frequency infrared energy, which is radiated back from the Earth towards space, resulting in a warming of the atmosphere. GHGs include carbon dioxide (CO₂), methane (CH₄), ozone (O₃), water vapor, nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). CO₂ is the most abundant GHG in the atmosphere. GHGs are the result of both natural and anthropogenic activities. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions.

Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified in the equivalent mass of CO₂, denoted as CO_{2e}. Mass emissions are calculated by converting pollutant specific emissions to CO_{2e} emissions by applying the proper global warming potential (GWP) value. These GWP ratios are available from the USEPA and are published in the California Climate Action Registry (CCAR) General Reporting Protocol. By applying the GWP ratios, project related CO_{2e} emissions can be tabulated in metric tons per year. The CO_{2e} values are calculated for construction years as well as existing and project build-out conditions in order to generate a net change in GHG emissions for construction and operation.

(2) Local Area Conditions

(a) Existing Pollutant Levels at Nearby Monitoring Stations

The SCAQMD maintains a network of air quality monitoring stations located throughout the SoCAB and has divided the SoCAB into air monitoring areas. The project site is located within the "Coastal" air monitoring area. The closest monitoring station to the project site is South Long Beach Monitoring Station (South Coastal Los Angeles County 2), Station Number 077, which is located at 1305 East Pacific Coast Highway, approximately 4.25 miles northwest of the project site. Criteria pollutants monitored at this station include PM_{2.5} and PM₁₀. The next closest monitoring station to the project site is North Long Beach Monitoring Station (South Coastal Los Angeles County 1), Station Number 072, which is located at 3648 North Long Beach Boulevard, approximately 7.8 miles northwest of the project site. Criteria pollutants monitored at this station include O₃, CO, and NO₂, and SO₂. The most recent data available from these monitoring stations which has been reviewed and summarized by the SCAQMD encompasses the years 2005 to 2009. The data shown in **Table IV.B-3, Pollutant Standards and Ambient Air Quality Data from Representative Monitoring Stations**, indicate the following pollutant trends:

Ozone, O₃. The maximum 1-hour O₃ concentration recorded at the monitoring station during the 2005-2009 period was 0.099 parts per million (ppm), recorded in 2007. During this period, the California standard was exceeded once, in 2007, and the national standard was not exceeded. The maximum 8-hour O₃ concentration was 0.074 ppm, recorded during 2008. The monitoring station found O₃ concentrations above the California 8-hour ozone standard of 0.070 ppm twice, in 2007 and 2008. The national standard was not exceeded between 2005 and 2009.

Table IV.B-3

Pollutant Standards and Ambient Air Quality Data from Representative Monitoring Stations

Pollutant Standard and Data	2005	2006	2007	2008	2009
Ozone					
<u>1-Hour: C=0.09 ppm; N=0.12 ppm^a</u>					
Max. Concentration (ppm)	0.091	0.08	0.099	0.093	0.089
Days > California Standard	0	0	1	0	0
Days > National Standard ^a	0	0	0	0	0
<u>8-Hour: C=0.070 ppm; N=0.08 ppm^b</u>					
Max. Concentration (ppm)	0.068	0.058	0.073	0.074	0.068
4 th Highest 8-hour Conc. (ppm)	0.059	0.058	0.056	0.064	0.064
Days > California Standard ^c	0	0	1	1	0
Days > National Standard ^b	0	0	0	0	0
Particulate Matter (PM₁₀)					
<u>24-Hour: C=50 µg/m³; N=150 µg/m³^d</u>					
Max. Concentration (µg/m ³)	66	78	75+	62	62
% of Samples ^e > Calif. Standard	5(8.5)	6(9.8)	5(9)+	1(2)	3(5.3)
% of Samples ^e > National Standard	0	0	0	0	0
<u>Annual: C=20 µg/m³; N=50 µg/m³^f</u>					
Annual Arithmetic Mean (µg/m ³)	29.6	31.1	30.2+	29.1	30.5
> California Standard?	Yes	Yes	Yes	Yes	Yes
> National Standard?	No	No	No	No	No
Particulate Matter (PM_{2.5})					
<u>24-Hour: N=65 or 35 µg/m³^g</u>					
Max. 24-hour Concentration (µg/m ³)	53.9	58.5	82.9	57.2	63.4
% of Samples ^h > National Standard ^g	0	0	6	8(2.3)	6(1.6)
<u>Annual: C=12 µg/m³; N=15 µg/m³^h</u>					
(AAM)					
Annual Arithmetic Mean (µg/m ³)	16.0	14.2	14.6	14.2	13.0
> California Standard?	Yes	Yes	Yes	Yes	Yes
> National Standard?	No	No	No	No	No
Carbon Monoxide					
<u>1-Hour: C=20 ppm; N=35 ppm</u>					
Max. Concentration (ppm)	4	4	3	3	3
Days > California Standard	0	0	0	0	0
Days > National Standard	0	0	0	0	0
<u>8-Hour: C=9 ppmⁱ; N=9 ppm</u>					
Max. Concentration (ppm)	3.5	3.4	2.6	2.6	2.2
Days > California Standard ⁱ	0	0	0	0	0
Days > National Standard	0	0	0	0	0
Nitrogen Dioxide					
<u>1-Hour: C=0.18 ppm; N=0.10 ppm^j</u>					
Max. Concentration (ppm)	0.14	0.10	0.11	0.13	0.11
Days ≥ California Standard	0	0	0	0	0
<u>Annual: C=0.03 ppm; N=0.053 ppm</u>					
Annual Arithmetic Mean (ppm)	0.0241	0.0215	0.207	0.0208	0.0212
≥ California Standard	No	No	No	No	No

Table IV.B-3 (Continued)

Pollutant Standards and Ambient Air Quality Data from Representative Monitoring Stations

Pollutant Standard and Data	2005	2006	2007	2008	2009
Sulfur Dioxide^k					
<u>1-Hour: C=0.25 ppm; N=0.075 ppm^l</u>					
Max. Concentration (ppm)	0.04	0.03	0.11	0.09	0.02
Days > California Standard	0	0	0	0	0
<u>24-Hour: C=0.04 ppm; N=0.14 ppm^m</u>					
Max. Concentration (ppm)	0.012	0.010	0.011	0.012	0.005
Days > California Standard	0	0	0	0	0
Days > National Standard	0	0	0	0	0
<u>Annual: N=0.03 ppm^m</u>					
Annual Arithmetic Mean (ppm)	0	0.0012	0.0027	0.0022	n/a
> National Standard?	0	0	0	0	0
Lead					
<u>30-Day (Monthly): C=1.5 µg/m³</u>					
Max. 30-Day Average Conc. (µg/m ³)	0.01	0.01	0.02	0.01	0.00
% of Samples ^l > Calif. Standard	0	0	0	0	0
<u>Calendar Quarter: N=1.5 µg/m³</u>					
Max. Quarterly Avg. Conc. (µg/m ³)	0.01	0.01	0.01	0.01	0.00
% of Samples ⁿ ≥ National Standard	0	0	0	0	0
Sulfate					
<u>24-hour: C=25 µg/m³</u>					
Max. 24-hour Concentration (µg/m ³)	16.8	18.8	11.7	11.0	12.1
% of Samples ^l > Calif. Standard	0	0	0	0	0

C = California ambient air quality standard; N = national ambient air quality standard; ppm = parts per million; µg/m³ = micrograms per cubic meter; N/A = not applicable; -- = not available or not reported.

^a The standard was attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm was ≥ 1. As of June 15, 2005, the USEPA revoked the 1-hour ozone standard in all areas except certain areas outside of California.

^b To attain this national standard, the 3-year average of the 4th-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year had to be ≤ 0.08 ppm. Effective May 27, 2008, that value became 0.075 ppm, although the 0.08 ppm standard has remained in effect during transition.

^c The California 8-hour standard for ozone went into effect in 2006.

^d May be exceeded once per year on average over 3 years.

^e At this monitoring station, PM₁₀ samples were collected every six days; each reflects a six-day period.

^f The USEPA revoked the national annual PM₁₀ standard, effective December 17, 2006.

^g In September 2006, the 24-hr PM_{2.5} standard was changed from 65 µg/m³ to 35 µg/m³. The exceedance data shown here for 2003-2005 relate to the old standard. The 2006 exceedance percentage relates to the new standard.

^h At this monitoring station, PM_{2.5} samples were collected every day.

ⁱ A different 8-hour California CO standard applies in the Lake Tahoe Air Basin.

^j There is a secondary national ambient air quality standard for SO₂ (0.5 ppm, 3-hour average) that is not listed in this table. Secondary standards are for protecting resources other than human health. SO₂ is the only substance for which a secondary standard is different than the primary standard. California does not have the two separate types of ambient air quality standard.

^k On January 22, 2010, the EPA established a new 1-hour NO₂ standard of 0.10 ppm.

^l On June 2, 2010, the EPA established a new 1-hour standard for SO₂ at a level of 75 parts per billion (ppb) or 0.075 ppm. The EPA also revoked its two primary existing standards the 24 hours standard of 0.14 ppm and the annual standard of 0.03 ppm as the new one hour standard is stricter and will protect health better. May be exceeded once per year.

ⁿ Samples were collected every six days; each reflects a six-day period.

Source: South Coast Air Quality Management District, Air Quality Data Tables (<http://aqmd.gov/smog/historicaldata.htm>); California Air Resources Board.

Particulate Matter, PM₁₀. The highest average 24-hour PM₁₀ concentration was 131 µg/m³, recorded in 2005. During the years 2005-2009, between 2 and 19 percent of the air samples taken at the monitoring station (representing samples collected every six days) showed concentrations above the California 24-hour average standard for PM₁₀. No sample showed an exceedance of the national standard. The maximum annual arithmetic mean was 45 µg/m³ in 2006. The annual average PM₁₀ concentration was above the California standard, but not the national standard, every year.

Particulate Matter, PM_{2.5}. The highest 24-hour PM_{2.5} concentration recorded was 68 µg/m³ in 2007. Between zero and 8 percent of the air samples (representing zero to 29 days, as samples were collected every day) showed concentrations above the year's most stringent national 24-hour average standard for PM_{2.5}. (The USEPA lowered the standard from 65 µg/m³ to 35 µg/m³ in 2006.) The maximum annual arithmetic mean was 14.7 µg/m³ in 2005.

Carbon Monoxide, CO. The highest 1-hour CO concentration recorded in 2004-2008 was 4 ppm in 2005 and 2006. The maximum 8-hour CO concentration was 3.5 ppm in 2005. There were no exceedances of the California or national 1-hour or 8-hour CO standards.

Nitrogen Dioxide, NO₂. The highest 1-hour NO₂ concentration was 0.14 ppm, recorded in 2005. The highest annual arithmetic mean was 0.0241 ppm in 2005.

Sulfur Dioxide, SO₂. The highest 1-hour concentration of SO₂ was 0.11 ppm, recorded in 2007. The maximum 24-hour concentration was 0.012, recorded in 2005 and 2008. The arithmetic annual average concentration ranged from 0.0012 ppm in 2006 and 0.0027 ppm in 2007. There were no exceedances of California or national standards.

Lead, Pb. The highest 30-day concentration of lead in 2005-2009 was 0.02 µg/m³, recorded in 2007; the highest calendar quarter concentrations of lead were 0.01 every year. The SoCAB is currently in compliance with California and national standards for lead and monitoring. It should be noted that the primary sources of atmospheric lead, leaded gasoline and lead-based paint, are no longer commercially available in the SoCAB due to regulations.

Sulfates. Samples were collected every six days. The highest (six-day average) 24-hour NO₂ concentration in 2005-2009 was 18.8 µg/m³, recorded in 2006. There were no exceedances of the California standard.

Visibility Reducing Particles. The SoCAB is currently designated as "unclassified" with respect to the State standard for visibility reducing particles. Continuous monitoring is not currently performed within the SoCAB for this standard.

Hydrogen Sulfide. The SoCAB is currently designated as "unclassified" with respect to the State standard for hydrogen sulfide. The California Air Resources Board (CARB) does not perform or require ambient monitoring of this pollutant.

Vinyl Chloride. The SoCAB is currently designated as “unclassified” with respect to the State standard for vinyl chloride. In 1990, CARB identified it as a toxic air contaminant and determined that it does not have an identifiable threshold. Therefore, CARB does not perform or require ambient monitoring for this pollutant.

(b) Existing Health Risk in the Project Vicinity

As part of MATES III, the SCAQMD has prepared an interactive map¹⁴ that shows estimated inhalation cancer risks in the SoCAB from ambient levels of air toxics, as part of an ongoing effort to provide insight into relative risks. When accessed via the Internet, the map displays estimated risks for discrete two-kilometer-by-two-kilometer grid cells. The map’s estimates assume 70-year lifetime exposure to the annual average levels estimated by the MATES III model.¹⁵ The project is in a grid cell with an estimated risk of from 1,201 to 3,692 in one million. In general, the MATES III data and map indicate that an increased cancer risk is associated with living in urbanized areas of the region, especially near highways and the ports, and that on- and off-road mobile sources represent the greatest contributors to the overall risk.

According to the SCAQMD MATES III Carcinogenic Risk Interactive Map, the project site is located within an estimated ambient air toxics cancer risk zone of 2,148 in one million.¹⁶ In general, the ambient air toxics cancer risk at the project site is comparable to that experienced by surrounding areas, which are also located near the ports and major transportation corridors.

(c) Greenhouse Gas Inventory

Worldwide anthropogenic emissions of GHG were approximately 40,000 million metric tons of CO₂e, including ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes (i.e., deforestation, biomass decay) (IPCC, 2007). CO₂ emissions from fossil fuel use accounts for 56.6% of the total emissions of 49,000 million metric tons CO₂e (includes land use changes) and all CO₂ emissions are 76.7% of the total. Methane emissions account for 14.3% and N₂O emissions for 7.9% (IPCC, 2007).¹⁷

Total U.S. greenhouse gas emissions in 2008 were 6,958 million metric tons CO₂e (USEPA, April 2010), or about 14% of world-wide GHG emissions. Overall, total U.S. emissions have risen by 14 percent from 1990 to 2008. However, U.S. emissions decreased by 2.9 percent (211.3 MMT CO₂e). from 2007 to 2008, due in large part to the record high costs of these fuels that occurred in 2008. Additionally, electricity demand declined in 2008 in part due to a significant increase in the cost of fuels used to generate electricity. The primary GHG emitted by human activities in the United States was CO₂, representing approximately 85.1% of total GHG emissions (USEPA, April 2010). The largest source of CO₂, and of overall GHG emissions, was fossil fuel combustion. Methane (CH₄) emissions, which have declined from 1990 levels, resulted primarily from enteric fermentation associated with domestic livestock, decomposition of wastes in landfills, and natural gas systems. Agricultural soil management and mobile source fossil fuel combustion were the major sources of N₂O emissions. The emissions of substitutes for ozone depleting substances and emissions of HFC-23

¹⁴ <http://www2.aqmd.gov/webappl/matesiii>, accessed April 2010.

¹⁵ <http://www.aqmd.gov/prdas/matesIII/risk.html>, accessed November 2008.

¹⁶ <http://www2.aqmd.gov/webappl/matesiii/>, accessed September 2009.

¹⁷ Carbon dioxide equivalent (CO₂e) is a quantity that describes, for a given mixture and amount of GHGs, the amount of CO₂ (usually in metric tons; million metric tons [megatonne] = MMTCO₂E = terragram [Tg] CO₂ Eq; 1,000 MMT = gigatonne) that would have the same global warming potential (GWP) when measured over a specified timescale (generally, 100 years).

(trifluoromethane or CHF₃) during the production of HCFC-22 (chlorodifluoromethane or CHClF₂) were the primary contributors to aggregate HFC (hydrofluorocarbon) emissions. Electrical transmission and distribution systems accounted for most SF₆ (sulfur hexafluoride) emissions, while PFC (perfluorocarbons) emissions resulted from semiconductor manufacturing and as a by-product of primary aluminum production.¹⁸

The residential and commercial end-use sectors accounted for 21 and 19%, respectively, of CO₂ emissions from fossil fuel combustion in 2008 (USEPA, April 2010). Both sectors relied heavily on electricity for meeting energy demands, with 71 and 79%, respectively, of their emissions attributable to electricity consumption for lighting, heating, cooling, and operating appliances. The remaining emissions were due to the consumption of natural gas and petroleum for heating and cooking. California is a substantial contributor of global GHGs as it is the second largest contributor in the United States and the sixteenth largest in the world (AEP, 2007). Based upon the 2008 GHG inventory data (the latest year available) compiled by the CARB (CARB, 2008), California produced 474 MMT CO₂e. The major source of GHG in California is transportation, contributing 37% of the state's total GHG emissions. Electricity generation is the second largest source, contributing 25% of the state's GHG emissions (CARB, 2008). Most, 85%, of California's 2008 GHG emissions (in terms of CO₂e) were carbon dioxide produced from fossil fuel combustion, with 2.5% from other sources of CO₂, 6.0% from methane, and 2.8% from nitrous oxide (CARB, 2008). California emissions are due in part to its large size and large population. By contrast, California in 2001 had the fourth lowest CO₂ emissions per capita from fossil fuel combustion in the country, due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the state's GHG emissions rate of growth by more than half of what it would have been otherwise (CEC, December 2006).

(d) Existing Emissions

The project site contains a hotel, with commercial uses included therein. Emissions from such uses include criteria and precursor pollutants such as volatile organic compounds (VOCs), CO, NO_x, SO₂, PM₁₀ and PM_{2.5} as well as GHGs and TACs. The primary sources of these emissions are combustion of fossil fuels on-site for activities such as heating, hot water, emergency power, and cooking, consumption of consumer and maintenance products (spray can propellants, paint, etc.), combustion of fossil fuels off-site for power generation, and consumption of fossil fuels in mobile sources, such as employee and customer vehicles, delivery trucks, and landscape activities. An inventory of existing criteria pollutant emissions on the project site is presented in the Analysis of Project Impacts section below.

(e) Sensitive Receptors and Locations

The California Environmental Protection Agency and CARB consider some population groups, referred to as sensitive receptors, including children, elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases), more sensitive to air pollution than others.¹⁹ Sensitive land uses are those most frequently used by sensitive receptors, including homes, schools, hospitals and care facilities. The closest sensitive receptors include the following:

¹⁸ USEPA 2010 U.S. Greenhouse Gas Inventory Report (April 2010).

¹⁹ California Environmental Protection Agency and California Air Resources Board, "Air Quality and Land Use Handbook: A Community Health Perspective," April 2005.

- Residential units northwest of the project site. Single family residences located along Marina Pacifica Drive approximately 492 feet northwest of the project site.
- Residential units west of the project site. Single family residences located along East Appian Way approximately 1,662 feet west of the project site.
- Residential units south of the project site. Multi-family residences located on the northwest corner of First Street and Pacific Coast Highway, approximately 1,825 feet south of the project site.

3. ENVIRONMENTAL IMPACTS

a. Significance Thresholds

A project may have a significant impact on air quality if it would exceed the significance thresholds included in Section III, Air Quality, and Section VII, Green House Gas Emissions, in Appendix G to the *CEQA Guidelines*. As such, the proposed project would result in significant impact to air quality if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
4. Expose sensitive receptors to substantial pollutant concentrations;
5. Create objectionable odors affecting a substantial number of people;
6. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance; or
7. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

All of these significance thresholds (with the exception of threshold Nos. 6 and 7)²⁰ were preliminarily evaluated in the proposed project's Initial Study, which is included as Appendix A of this EIR. The Initial Study determined that the proposed project would have a less than significant impact with respect to threshold No. 5 and therefore no further study of that threshold was required in the EIR. Below, the remaining thresholds (i.e. Nos. 1-4, 6, and 7) are used to further analyze the severity of the proposed project's potential impacts on air quality and global climate change.

The significance criteria discussed below are currently recommended by the SCAQMD to translate the State *CEQA Guidelines* thresholds into numerical values or performance standards. The City utilizes the *CEQA Air*

²⁰ Threshold Nos. 6 and 7 were not evaluated in the project's Initial Study because at the time the Initial Study was prepared, greenhouse gas emissions thresholds were not included in Appendix G of the *CEQA Guidelines*.

Quality Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

(1) Construction Emissions

Based on criteria set forth in the *CEQA Air Quality Handbook*, the project would have a significant impact with regard to construction emissions if the following would occur:

- Regional emissions from both direct and indirect sources would exceed any of the following SCAQMD prescribed threshold levels: (1) 100 pounds per day for NO_x, (2) 75 pounds a day for VOC, (3) 150 pounds per day for PM₁₀, (4) 55 pounds per day PM_{2.5}, (5) 550 pounds per day for CO, and (6) 150 pounds per day for SO_x.²¹
- In addition, the SCAQMD has developed methodology to assess the potential for localized emissions to cause an exceedance of applicable ambient air quality standards. Impacts would be considered significant if the following would occur:
- Maximum daily localized emissions are greater than the Localized Significance Thresholds (LST) or are predicted to result in ambient concentrations in the vicinity of the project site greater than the most stringent ambient air quality standards for CO and NO₂.²²
- Maximum localized PM₁₀ or PM_{2.5} emissions during construction are greater than the applicable LSTs or are predicted to result in ambient concentrations in the vicinity of the site to exceed 50 µg/m³ over five hours (SCAQMD Rule 403 control requirement)²³.

(2) Operational Emissions

Thresholds of significance regarding operational emissions are set forth in the *CEQA Air Quality Handbook*, which states that a project would normally have a significant impact on air quality from project operations if any of the following would occur:

- Operational emissions exceed 10 tons per year of volatile organic gases or any of the following SCAQMD prescribed threshold levels: (1) 55 pounds a day for VOC, (2) 55 pounds per day for NO_x, (3) 550 pounds per day for CO, (4) 150 pounds per day for PM₁₀ or SO_x²⁴ and (5) 55 pounds per day for PM_{2.5}.²⁵
- Either of the following conditions would occur at an intersection or roadway within one-quarter mile of a sensitive receptor:
 - The proposed project causes or contributes to an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 ppm, respectively; or

²¹ <http://www.aqmd.gov/ceqa/handbook/signthres.doc>

²² South Coast Air Quality Management, LST Methodology: http://www.aqmd.gov/ceqa/handbook/lst/Method_final.pdf

²³ SCAQMD LST guidance states that the 50 microgram per cubic meter averaged over five hours is back calculated to an equivalent concentration of 10.4 micrograms per cubic meter over 24-hours.

²⁴ South Coast Air Quality Management District, *CEQA Air Quality Handbook, Chapter 6 (Determining the Air Quality Significance of a Project)*, 1993.

²⁵ South Coast Air Quality Management District, *Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM_{2.5} Significance Thresholds*, October 2006.

- The incremental increase due to the project is equal to or greater than 1.0 ppm for the California 1-hour CO standard, or 0.45 ppm for the 8-hour CO standard.
- The project creates an objectionable odor at the nearest sensitive receptor.
- The project would not be compatible with SCAQMD and SCAG air quality polices if it:
 - causes an increase in the frequency or severity of existing air quality violations;
 - causes or contributes to new air quality violations;
 - delays timely attainment of air quality standards or the interim emission reductions specified in the AQMP; or
 - exceeds the assumptions utilized in the SCAQMD's AQMP.

(3) Toxic Air Contaminants

The *CEQA Air Quality Handbook* provides specific guidance for assessing a project's impacts. The following factors are set forth in *CEQA Air Quality Handbook* for determining on a case-by-case basis whether the proposed project would have a potential impact:

- The regulatory framework for the toxic material(s) and process(es) involved;
- The proximity of the toxic air contaminants to sensitive receptors;
- The quantity, volume, and toxicity of the contaminants expected to be emitted;
- The likelihood and potential level of exposure; and
- The degree to which project design will reduce the risk of exposure.

Based on these factors and criteria set forth in the *CEQA Air Quality Handbook*, the project would have a significant toxic air contaminant impact, if:²⁶

- The project emits or exposes sensitive receptors to carcinogenic or toxic air contaminants that exceed the maximum incremental cancer risk of ten in one million or an acute or chronic hazard index of 1.0.
- Hazardous materials associated with on-site stationary sources result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety.
- The project would be occupied primarily by sensitive individuals within a quarter mile of any existing facility that emits air toxic contaminants which could result in a health risk for pollutants identified in SCAQMD Rule 1401.

(4) Greenhouse Gas Emissions

Section 15064.7 of the CEQA Guidelines defines a threshold of significance as an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the

²⁶ SCAQMD, *CEQA Air Quality Handbook*, Chapter 6 (Determining the Air Quality Significance of a Project) and Chapter 10 (Assessing Toxic Air Pollutants), April 1993.

effect normally will be determined to be less than significant. CEQA gives wide latitude to lead agencies in determining what impacts are significant and does not prescribe thresholds of significance, analytical methodologies, or specific mitigation measures. CEQA leaves the determination of significance to the reasonable discretion of the lead agency and encourages lead agencies to develop and publish thresholds of significance to use in determining the significance of environmental effects. However, neither the SCAQMD nor the City have not yet established specific quantitative significance thresholds for GHG emissions for residential, commercial, or mixed-use projects. In the latest CEQA Guidelines, effective March 18, 2010, OPR encourages lead agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses. However, the City has not yet developed a Greenhouse Reduction Plan meeting the requirements set forth in the latest OPR guidelines.

As discussed above, SCAG has proposed draft GHG reduction targets of eight percent reduction by 2020 and 13 percent total reduction by 2035 applicable to mobile source emissions from land use decisions in the SCAG MPO. The project is expected to be built and fully operational as early as 2015. Thus, the City will use the more stringent threshold of 13 percent for determining significance of project level emissions resulting from transportation-related sources. For on- and off-site stationary sources of GHGs, the City will use the State-wide goal of 28.5 percent below BAU for determining significance. A project's impacts will be considered significant if the reductions when compared to the BAU case does not achieve or exceed these numeric targets. Various regulatory agencies including the State Attorney General's office and CARB recommend that lead agencies require some level of mitigation even for projects that result in GHG emissions that are less than a target threshold. The City's Interim Green Building Requirements for Private Development serves to reduce GHG emissions from new projects and existing operations, is supportive of the goals of AB32 and is consistent with CARB recommendations. Thus, if a project results in emissions less than the applicable thresholds and implements design and operational strategies consistent with State guidelines, it is considered to have a less than significant impact with respect to its contribution to the cumulative impact of global climate change.

CAPCOA and the State of California's Attorney General recognize that potential GHG impacts are inherently and exclusively cumulative in nature. The analysis will also consider the cumulative impact of the identified related projects.

b. Methodology

(1) Construction Impacts

(a) Regional

Construction generates pollutant emissions both on- and off-site. The term "regional emissions" includes both. On-site emissions include exhaust emissions from diesel-powered equipment, volatile emissions from paint, construction materials, and asphalt, and fugitive dust generated by demolition, moving earth and driving on unpaved surfaces. Off-site emissions include diesel exhaust, tire wear and brake wear particulates from construction vehicles making their way to and from the site, and vehicle exhaust, tire and brake wear particulates from vehicles used for worker commuting.

Daily regional emissions during construction were forecast using a conservative²⁷ construction scenario (for example, assuming construction activities will occur within a short period of time, producing higher daily emissions than a prolonged schedule, and at an early date, when fewer construction fleet emission control requirements may have become effective, and fewer emission control technology innovations may have become available) for development of the residential and hotel options. URBEMIS 2007 provided the required mobile-source and fugitive dust emission factors.²⁸ Project design features incorporated into the construction emissions analysis include applying water to exposed surfaces at least twice daily and frequent application of water to unpaved roads, in compliance with SCAQMD Rule 403. The construction emissions analysis also takes into account SCAQMD Rule 1113 which limits the amount of VOC content in architectural coatings (paint). Details, including a complete listing of construction equipment by phase and duration, and other model input assumptions used in this analysis, are presented in Appendix B of this EIR. The forecast regional emission rates for construction were compared to mass daily thresholds of significance published by the SCAQMD.²⁹

(b) Local

The localized effects from the on-site portion of daily emissions are evaluated at sensitive receptor locations potentially impacted by the project according to the SCAQMD's LST methodology, which utilizes on-site mass emissions rate look up tables and project specific modeling, where appropriate. LSTs are only applicable to the following criteria pollutants: NO_x, CO, PM₁₀, and PM_{2.5}. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA) and distance to the nearest sensitive receptor. For PM₁₀ and PM_{2.5}, LSTs were derived based on requirements in SCAQMD Rule 403, Fugitive Dust. The mass rate look-up tables were developed for each SRA and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The LST mass rate look-up tables only apply to projects that are less than or equal to five acres.

If the project exceeds five acres then the SCAQMD recommends that project specific air quality modeling be performed. As a result, the analysis here employed SCAQMD LSTs as follows: Localized (on-site) emission rate estimates for construction activities were derived from the regional (on- and off-site) emission rate forecasts by subtracting off-site emissions (e.g., from construction worker commuting, and from delivery and haul truck trips). The localized dispersion analysis was conducted using the AERMOD model, a methodology that is consistent with the procedures outlined in the SCAQMD LST methodology document.³⁰ The dispersion model estimates localized pollutant concentrations at sensitive receptor locations surrounding the project site by utilizing the onsite emission factors generated by URBEMIS 2007, local meteorology data, and terrain elevations. The resulting concentrations are compared to significance thresholds developed based on local monitoring data and pollutant attainment status in the basin. A complete listing of the construction equipment by phase, construction phase duration, emissions estimation model and dispersion

²⁷ The term "conservative," as used in this document, means health-conservative. Methods that analysts consider conservative are more likely to produce emission and health risk estimates that are high, and thus, from a risk management perspective, to err on the side of health protection. Details are provided in Appendix B.

²⁸ URBEMIS 2007 is an emissions estimation/evaluation model developed by CARB, and based, in part, on SCAQMD CEQA Air Quality Handbook guidelines and methodologies.

²⁹ SCAQMD Air Quality Significance Thresholds (Rev. December 2007): <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>.

³⁰ *Ibid.*, passim.

model input assumptions used in this analysis is included within the emissions calculation worksheets that are provided in Appendix B of this EIR.

(2) Operational Impacts

The analysis of post-construction air pollution impacts considered the current use of the project site as a baseline. CEQA guidelines require assessment of changes in the existing environment but also give consideration to short-term and long-term effects. In order to assess changes to the existing environment, the baseline year will be established as 2009. In addition, a future year of 2015 will also be used to assess cumulative impacts which take into account related projects and ambient growth. The difference between future (planned) operation and current use served as the basis for evaluating the significance of operational impacts of the project. In this way, the analysis focused on net impacts.

(a) Regional

The analysis of the project's likely impact on regional air quality during long-term project operations (i.e., after construction is complete) looked at three types of sources: mobile, area and stationary. Mobile sources are off-site vehicle trips. Area sources involve multiple similar emissions on-site, within the area of the project, such as when residents use natural gas for hot water, heat, or cooking, or use consumer products that contain volatiles and solvents. Landscaping equipment which burn fossil fuel used on-site is also considered an area source. The stationary sources included in the analysis of regional impacts are those involved with generating electricity for the project.³¹

The URBEMIS 2007 software was used to forecast the daily regional emissions from mobile and area-sources that would occur during project operations, and also to estimate emissions associated with current uses of the site. In calculating mobile-source emissions, the URBEMIS 2007 default trip length assumptions were applied to the average daily trip (ADT) estimates from the traffic study (Appendix K) to arrive at vehicle miles traveled (VMT). Stationary source emissions were compiled using procedures outlined in the *CEQA Air Quality Handbook*.³² The forecast regional emission rates for operation of the project were compared to mass daily thresholds of significance published by the SCAQMD.³³

(b) Local

Operational emissions have the potential to impact local air pollutant levels at nearby receptors in two ways. New or modified on-site stationary sources, such as those fired by diesel or natural gas, may increase ambient levels of criteria pollutants and TACs at adjacent sensitive land uses. The increase in vehicular travel, especially if the project-level activity contributes substantively to an increase in congestion, may generate localized "hot spots," localized areas of elevated ambient levels, at sensitive receptors (pedestrians) located near to roadways and intersections in the project vicinity. Analysis methods differ for each of these potential impacts and are described in detail below.

³¹ A review of the proposed project's site plan and related project description did not identify any new or modified individually significant stationary source on-site.

³² See SCAQMD, *CEQA Air Quality Handbook* (April 1993; portions "Changed November 1993"), Chapter 9 and Appendix 9.

³³ SCAQMD *Air Quality Significance Thresholds* (April 1993, Rev. March 2009): <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>. These SCAQMD based these thresholds in part on the federal Clean Air Act, and, to enable defining "significant" for CEQA purposes, defined the setting as the South Coast Air Basin. (See SCAQMD, *CEQA Air Quality Handbook*, April 1993, pp. 6-1 – 6-2.)

Effects related to operation of stationary-source combustion equipment and associated emissions at the project site, are evaluated by conducting a screening-level analysis followed by a more detailed analysis (i.e., dispersion modeling) as necessary. The screening-level analysis consists first of reviewing the proposed project's site plan and related project description to identify any new or modified stationary-source combustion equipment. Then, if such equipment is identified, the potential significance of its impact is evaluated qualitatively in light of applicable regulations and operating parameters. If the qualitative evaluation does not rule out significant impacts, a more detailed analysis is conducted. A more detailed analysis can utilize either LST methodology, described above, or for projects greater than five acres, dispersion modeling. LST methodology entails evaluating the localized effects of on-site emissions at sensitive receptor locations potentially impacted by the project. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. When dispersion modeling is used to estimate proposed project impacts, downwind sensitive receptor locations are identified for potential impacts. For this project, the screening-level analysis was determined to be sufficient.

With respect to mobile source emissions, CO is the primary pollutant of concern. Localized impacts from mobile source CO were evaluated using data from the traffic study (Appendix K) and the CALINE4 microscale dispersion model developed by Caltrans,³⁴ in combination with CARB's EMFAC2007³⁵ emission factors. In traffic studies, the term "level of service" (LOS) describes traffic performance at intersections or along roadway segments, and is generally expressed as a letter grade (A through F, with an A grade meaning the freest-flowing traffic). Traffic researchers and planning agencies generally assign LOS ratings to intersections based on the ratio of traffic volume (or demand) to capacity (V/C).³⁶ Lower V/C ratios correspond to better performance (freer-flowing traffic). SCAQMD suggests conducting a CO hotspots analysis according to a state Department of Transportation (Caltrans) protocol for any intersection where a project would worsen the LOS below C, and for any intersection rated LOS D or worse where the project would increase the V/C ratio by 2 percent or more. Projected CO concentrations were compared to ambient air quality standards and incremental increase thresholds to determine whether CO impacts from operation would be significant.

(3) Toxic Air Contaminants

Analysis of potential TAC impacts must be performed from two viewpoints: (1) TAC emissions from the project impacting off-site receptors and (2) ambient TAC concentrations impacting new on-site (project) sensitive receptors. Potential TAC impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis (i.e., dispersion modeling), as necessary. The off-site screening-level analysis consists of reviewing the proposed project's site plan and project description to identify any new or modified TAC emissions sources. The on-site (project) screening-level analysis consists of reviewing the project area for any major sources of TACs and their potential to impact on-site sensitive receptors, such as the proposed residential uses. CARB provides siting recommendations for sensitive receptors which specify the distance at which they should be located from major sources of TACs. Examples of major sources of TACs include high traffic roadways, freeways, gasoline stations, railroads and ports. Because the proposed project will

³⁴ See California Department of Transportation, *CALINE4 Manual*, <http://www.dot.ca.gov/hq/env/air/pages/calinemn.htm>.

³⁵ See California Air Resources Board (CARB), California Environmental Protection Agency, *EMFAC2007 Release*, http://www.arb.ca.gov/msei/onroad/latest_version.htm.

³⁶ For an example LOS rating system for signalized intersections, see the City of Roseville, CA, *Level of Service (LOS) Policy*: [http://www.roseville.ca.us/pw/engineering/transportation_planning/level_of_service_\(los\).asp](http://www.roseville.ca.us/pw/engineering/transportation_planning/level_of_service_(los).asp).

introduce sensitive receptors in close proximity to a major source of TAC emissions, a review of existing health risk data is conducted to determine potential project impacts.

(4) Greenhouse Gas Emissions

Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified in the equivalent mass of CO₂, denoted as CO₂e. Mass emissions are calculated by converting pollutant specific emissions to CO₂e emissions by applying the proper global warming potential (GWP) value. These GWP ratios are available from the USEPA and published in the California Climate Action Registry (CCAR) General Reporting Protocol. By applying the GWP ratios, project related CO₂e emissions can be tabulated in metric tons per year. The CO₂e values are calculated for construction years as well as existing and project build-out conditions in order to generate a net change in GHG emissions for construction and operation.

Construction output values used in this analysis are adjusted to represent a CO₂e value representative of CO₂, CH₄, and N₂O emissions from project construction activities. HFCs, PFCs, and SF₆ are not byproducts of combustion, the primary source of construction-related GHG emissions, and therefore are not included in the analysis. Construction CH₄ and N₂O values are derived from factors published in the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories. These values are then converted to metric tons of CO₂e for consistency. Detailed CO₂e conversion factors and calculations are provided in Appendix B.

Our understanding of the fundamental processes responsible for global climate change has improved over the past decade, and our predictive capabilities are advancing. However, there remain significant scientific uncertainties, for example, in predictions of local effects of climate change, occurrence of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system, the uncertainty surrounding climate change may never be completely eliminated. Because of these uncertainties, there continues to be significant debate as to the extent to which increased concentrations of GHGs have caused or will cause climate change, and with respect to the appropriate actions to limit and/or respond to climate change. In addition, it is impossible to label a single development project as the cause of future specific climate change impacts.

The IPCC, in its Fourth Assessment Report (FAR), stated that "it is likely that there has been significant anthropogenic warming over the past 50 years." However, it is impossible to identify a single development project as the cause of future specific climate change impacts due to the global nature of climate change. Also in the FAR, the IPCC holds that the impacts of future climate change will vary across regions. While "large-scale climate events have the potential to cause very large impacts," the impacts of future climate change will be mixed across regions.

The California Climate Action Registry (CCAR) has prepared a protocol for calculating and reporting GHG emissions from a number of general and industry-specific activities. This guidance was used to address GHG emissions from the project. Construction emissions are calculated using the URBEMIS 2007 model, which is based on OFFROAD2007 model outputs. OFFROAD 2007 is an emissions estimation model developed by CARB to calculate emissions from construction activities. The output values used in this analysis were adjusted to be project-specific, based on usage rates of construction equipment, type of fuel, and

construction schedule. These values were then applied to the construction phasing assumptions used in the criteria pollutant analysis to generate GHG emissions values for each construction year (refer to Appendix B). The URBEMIS 2007 model outputs CO₂ emissions only. Therefore, CH₄ and N₂O emissions were estimated based on the emissions ratios for construction and industrial equipment from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

The GHG emissions resulting from the incremental increase in usage of on-road mobile vehicles, electricity, and natural gas after construction of the project were also considered as project-related. Finally, since potential impacts resulting from GHG emissions are long-term rather than acute, GHG emissions were calculated on an annual basis.

Mobile source emission calculations associated with operation of the proposed project utilize a projection of trip rate and annual VMT, which is derived from URBEMIS 2007 defaults. Mobile source emissions are generated from vehicle traffic traveling to and from the project site. Mobile source calculations also utilize EMFAC2007 and the CCAR General Reporting Protocol (GRP), Version 3.1 to generate emission factors for CO₂ and CH₄, and N₂O. It should be noted that greenhouse gas reduction factors from *Alternative Compliance Strategies*, contained in AB 1493, were not applied in the EMFAC2007 software. As a result of a lawsuit from automakers, a federal waiver was granted on June 30, 2009, which delays the regulations contained in AB 1493 to reduce GHG emissions from taking effect until 2012. Therefore, project-related emissions are likely overstated as emission factors for fleet mixes containing post 2012 vehicles would not emulate reductions that would otherwise go into effect as a result of AB 1493.

Emission calculations for the project include credits or reductions for the project design features set forth in this EIR, such as reductions in energy or water demand. Since the project is subject to the City of Long Beach Green Building Ordinance and CALGreen standards, project features will be incorporated to achieve a LEED™ certified rating. In addition, as mobile source GHG emissions are directly dependent on the number of vehicle trips, a decrease in the number of project generated trips as a result of project features will provide a proportional reduction in mobile source GHG emissions.

The consumption of fossil fuels to generate electricity and to provide heating and hot water creates GHG emissions. Future fuel consumption rates and water demand are estimated based on square footage of the project. Natural gas and electricity usage factors derived from the *CEQA Air Quality Handbook* (1993)³⁷ are used to project fuel consumption rates. Embodied energy rates associated with the proposed project's future water supply needs are calculated using factors derived from the California Energy Commission (CEC).³⁸ GHG emission factors from the CCAR GRP are then applied to the respective usage rates, to calculate annual greenhouse gas emissions in metric tons. Because water conveyance associated with the proposed project is regional in nature, the emission factors used in this component of the analysis represent a State-wide average of known power producing facilities, utilizing various technologies and emission control strategies. The CCAR GRP emission factors do not reflect targeted future reductions in GHG emissions under SB 1368. Thus, these emission factors are considered conservative and representative.

³⁷ *South Coast Air Quality Management District, California Environmental Quality Act Handbook, 1993.*

³⁸ *California Energy Commission, Refining Estimates of Water Related Energy Use in California, 2006.*

c. Project Design Features

As discussed in Section II, Project Description, of this EIR, the proposed project includes various project design features that address air quality and global climate change. These project design features include aspects of the project that either must be incorporated as part of the conditions of approval, or that the applicant has committed to include to reduce impacts associated with the project. The project design features that address air quality and global climate change impacts include the following:

- The project would comply with SCAQMD Rule 403 which requires implementation of best available dust control measures during construction activities which generate fugitive dust, such as earth-moving activities, grading, demolition and equipment travel on unpaved roads. Dust control measures include frequent application of water or chemical surfactants, providing dirt track-out prevention devices, covering stockpiles and sweeping of streets adjacent to the construction site.
- The project would be designed to increase energy efficiency and reduce GHG emissions and would be constructed to achieve LEED™ certification, as required by the City of Long Beach's green building ordinance. The expected project features and LEED™ credits would directly or indirectly result in lower emissions of criteria pollutants, toxic air contaminants, or GHGs than "business as usual,"
- **Building Energy Use**
 - Buildings Exceed Title 24 Building Envelope Energy Efficiency Standards By 15 percent
 - Install Programmable Thermostat Timers
 - Obtain Third-Party HVAC Commissioning and Verification of Energy Savings
 - Install Energy Efficient Appliances
 - Install Energy Efficient Boilers
- **Lighting**
 - Install Higher Efficacy Public Street and Area Lighting
 - Limit Outdoor Lighting Requirements
- **Alternative Energy Generation**
 - Establish On-Site Renewable Energy Systems – Solar Power
 - Establish On-Site Renewable Energy Systems – Wind Power
- **Land Use/Location**
 - Increase Density
 - Increase Location Efficiency (i.e., project located near employment centers, universities, or neighborhood-serving retail uses)
 - Increase Diversity of Urban and Suburban Developments (Mixed Use)
 - Increase Destination Accessibility (i.e., distance to Downtown or major job center)
 - Increase Transit Accessibility (e.g., high density project near transit services)
 - Locate Project Near Bike Path/Bike Lane
 - Improve Design of Development

- **Neighborhood/Site Enhancements**
 - Provide Pedestrian Network Improvements (i.e., pedestrian network that connects all uses and all existing and planned external streets)
 - Provide Traffic Calming Measures (Reduce vehicle speeds with measures such as crosswalks, raised crosswalks, on-street parking, etc.)
 - Create Urban Non-Motorized Zones
 - Incorporate Bike Lane Street Design (On-Site)
 - Provide Bike Parking in Non-Residential Projects
 - Provide Bike Parking with Multi-Unit Residential Projects
 - Provide Electric Vehicle Parking
 - Provide Showers for Non-residential uses
- **Parking Policy/Pricing**
 - Limit Parking Supply
 - Unbundle Parking Costs from Property Cost
 - Require Residential Area Parking Permits
 - Provide Preferential Parking to Ride-Sharing Vehicles
- **Commute Trip Reduction Programs**
 - Implement Voluntary Commute Trip Reduction Program
 - Provide Ride-Sharing Programs
 - Implement Subsidized or Discounted Transit Program
 - Provide End of Trip Facilities
 - Implement Preferential Parking Permit Program
 - Implement Car-Sharing Program
 - Implement Bike-Sharing Programs
- **Transit System Improvements**
 - Implement Transit Access Improvements
 - Provide Bike Parking Near Transit
 - Provide Local Shuttles
- **Vehicles**
 - Electrify Loading Docks and/or Require Idling-Reduction Systems
 - Utilize Electric or Hybrid Vehicles
- **Water Supply**
 - Use Reclaimed Water
 - Use Gray Water

- **Water Use**
 - Install Low-Flow Water Fixtures (e.g., bathroom and kitchen faucet aerators, low-flow showerheads, energy star dishwashers, and high-efficiency clothes washers, toilets, and urinals)
 - Design Water-Efficient Landscapes
 - Use Water-Efficient Landscape Irrigation Systems
 - Reduce Turf in Landscapes and Lawns
 - Plant Native or Drought-Resistant Trees and Vegetation
- **Landscaping Equipment**
 - Prohibit Gas Powered Landscape Equipment
 - Electric Yard Equipment Compatibility
- **Solid Waste**
 - Institute or Extend Recycling Services
 - Recycle Demolished Construction Material
- **Vegetation**
 - Urban Tree Planting
 - Create New Vegetated Open Space
- **Construction**
 - Use Alternative Fuels for Construction Equipment
 - Use Electric and Hybrid Construction Equipment
 - Limit Construction Equipment Idling beyond Regulation Requirements
 - Institute a Heavy-Duty Off-Road Vehicle Plan
 - Implement a Construction Vehicle Inventory Tracking System

d. Analysis of Project Impacts

(1) Conflict with or obstruct implementation of the applicable air quality plan?

In accordance with the procedures established in the SCAQMD *CEQA Air Quality Handbook*, the following criteria are required to be addressed in order to determine the project's consistency with SCAQMD and SCAG policies.

- (a) Impacts from the project to implementation of applicable air quality plan would occur if the project resulted in any of the following: (1) an increase in the frequency or severity of existing air quality violations; or (2) cause or contribute to new air quality violations; or (3) delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.**

With respect to this criterion, the SCAQMD requires that an air quality analysis for a project include forecasts of project emissions in a regional context during construction and project occupancy. These forecasts are provided later in this section (refer to page IV.B-37). Since the criterion pertains to ambient pollutant

concentrations, rather than to emissions, an analysis of the project's effects on pollutant concentrations is used as the basis for evaluating project consistency.³⁹

As discussed below, localized concentrations of PM₁₀, PM_{2.5}, CO, and NO₂ resulting from construction have been analyzed for the project with reference to localized significance thresholds. SO₂ emissions are typically negligible during construction and long-term operations. The SCAQMD has not established localized significance thresholds for SO₂, and therefore regional mass emissions thresholds will be used to assess the potential for conflict with applicable ambient air standards. There is no practicable way to predict localized or Basin-wide ozone formation resulting from a project's incremental increase in NO_x and VOC emissions. Therefore, mass emission thresholds may be used to predict potential impacts to regional ozone standards.

As shown below, construction activities result in emissions of NO_x which exceed regional mass emissions thresholds. All other pollutants studied are below applicable mass emission thresholds. Emissions of NO_x and CO are not predicted to result in localized exceedances of the applicable NO₂ and CO standards. SO₂ emissions were shown to be negligible, and therefore would not have potential to cause or affect a violation of the SO₂ ambient air quality standard. The project's PM₁₀ and PM_{2.5} emissions during construction were analyzed (1) to ascertain potential effects on localized concentrations and (2) to determine if there is a potential for such emissions to cause or affect a violation of the ambient air quality standards for PM₁₀ and PM_{2.5}. Results of the analyses indicate that the increases in PM₁₀ and PM_{2.5} emissions would exceed applicable SCAQMD localized construction thresholds, even with compliance with SCAQMD Rule 403 and implementation of feasible mitigation measures. Thus, the project's temporary impact on localized PM₁₀ and PM_{2.5} concentrations would be significant and the project has the potential to conflict with attainment of Basin-wide ozone standards

Because the project would not introduce any substantial stationary sources of on-site emissions, CO is the benchmark pollutant for assessing local area air quality impacts from post-construction operations. As indicated below (see section 4.b.i), no violations of the State and federal carbon monoxide standards are projected to occur as a result of the project's long-term motor vehicle emissions, based on the magnitude of traffic the project is anticipated to create. However, Basin-wide mass emissions from on-and off-site operations exceed regional thresholds for VOC, NO_x, and PM₁₀. Therefore, the project is conservatively considered to result in potential conflicts with the attainment of ozone and PM₁₀ standards under the AQMP.

Overall, the project would result in less than significant impacts with regard to localized concentrations of CO, NO₂, and SO₂ during project construction and operations. However, as discussed above, construction activities result in localized emissions which are predicted to violate air quality standard for PM₁₀ and PM_{2.5} and long-term operational activities result in regional PM₁₀ emissions which could contribute substantially to an existing or projected air quality violation. In addition, regional emissions of NO_x during construction and operation and regional emissions of VOC during operations could contribute substantially to an existing or projected air quality violation or delay attainment of ozone standards. As such, the project does not meet the first consistency criterion.

³⁹ South Coast Air Quality Management District, *CEQA Air Quality Handbook* (1993), p. 12-3.

(b) Will the project exceed the assumptions utilized in preparing the AQMP?

With respect to this second criterion for determining consistency with SCAQMD and SCAG air quality policies, air quality planning within the SoCAB focuses on the attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing and employment growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the project exceeds the assumptions utilized in preparing the forecasts presented in the AQMP. Determining whether or not a project exceeds the assumptions reflected in the AQMP involves the evaluation of three additional criteria: (1) consistency with the population, housing, and employment growth projections; (2) project mitigation measures; and (3) appropriate incorporation of AQMP land use planning strategies. The following discussion provides an analysis of each of these three criteria.

Criterion (1) - Is the project consistent with the population, housing, and employment growth projections upon which AQMP forecasted emission levels are based?

A project is consistent with the AQMP in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the AQMP. In the case of the 2007 AQMP, three sources of data form the basis for the projections of air pollutant emissions: SCAG's Growth Management Chapter of the RCPG, and SCAG's *2004 Regional Transportation Plan*. On May 8, 2008, SCAG has adopted the 2008 Regional Transportation Plan which is not incorporated into the 2007 AQMP. It is expected that the next update to the AQMP will be based on the 2008 RTP. The RTP also provides socioeconomic forecast projections of regional population growth. The project is consistent with the types, intensity and patterns of land use envisioned for the site vicinity in the RCPG. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the specific area; these are used by SCAG in all phases of implementation and review. For purposes of using the most current available data, the 2008 RTP data will be used in this analysis. Please refer to Section IV.H, *Land Use*, of this EIR for additional information regarding land use consistency.

The RTP projects that population in the City of Long Beach (Local Area) will grow by about 14,302 persons between 2010 and 2015. The proposed project, which contains 325 residential units, is projected to result in a net population increase of approximately 1,386 persons, which is 9.6 percent of the total population growth projected for the Local Area. The RTP estimates that employment in the Local Area will grow by about 3,317 jobs between 2010 and 2015. The proposed project is projected to result in a net increase of approximately 613 full-time equivalent jobs, or approximately 18 percent of the total job growth for the area. Such levels of population and employment growth are consistent with the population and employment forecasts for the Local Area as adopted by SCAG. Because the SCAQMD has incorporated these same projections into the AQMP, it can be concluded that the project would be consistent with, and would meet the first AQMP criterion.

Criterion (2) - Does the project implements all feasible air quality mitigation measures?

Implementation of all feasible mitigation measures is recommended to reduce air quality impacts to the extent feasible. Construction of the proposed project would result in significant impacts to air quality on both a regional and a local level. Operation of the proposed project would result in significant impacts to air quality on a regional level as well. Consequently, mitigation will be required. As such, the project meets this

AQMP consistency criterion, with implementation of required mitigation measures (see Subsection B.4., Mitigation Measures, below).

Criterion (3) – Is project development consistent with the land use policies set forth in the AQMP?

With regard to land use developments, such as the project, air quality policies including the AB 32 scoping plan and SB 375 focus on the reduction of vehicle trips and vehicles miles traveled. The project by virtue of its location and design, exhibits many attributes that have a positive direct and indirect benefit with regard to the reduction of vehicle trips and vehicles miles traveled. Specifically, the project is accessible to the I-710 freeway. In addition, public transit service near the project site is available on bus lines provided by Long Beach. With easy accessibility to a number of local and regional transit facilities – with stops roughly 100 yards away, the project would also implement important air quality policies that contribute to reducing vehicle trips and vehicle miles traveled.

Additional means by which project development reduces vehicle trips and vehicle miles traveled is by providing bicycle storage areas. Furthermore, the project represents a redevelopment of underutilized property with existing public infrastructure and in proximity to adequate services and facilities (e.g., retail, banking, restaurants, entertainment and office uses, as well as bus and shuttle services). Thus, project would also reduce costs of infrastructure construction and make better use of existing facilities and in so doing would support the sustainability of the community, all of which are desirable relationships from the perspective of promoting both land use and air quality policies. As the project implements the SCAQMD's objective of reducing vehicle miles traveled and their related vehicular air emissions, the project would be consistent with AQMP land use policy.

In conclusion, the determination of AQMP consistency is primarily concerned with the long-term influence of the project on air quality in the SoCAB. Project development could have a long-term impact on the region's ability to meet State and federal air quality standards. Although the project would comply with SCAQMD Rule 403 and would implement all feasible mitigation measures for control of PM₁₀ and PM_{2.5}, emissions of PM₁₀ and PM_{2.5} during construction have the potential to create exceedances of localized ambient air standards. Although the project would be consistent with the assumptions, goals and policies of the AQMP, the project's long-term regional emissions of NO_x, VOC, and PM₁₀ contribute substantially to an existing or projected air quality violation or delay attainment of ozone and PM10 standards, which is inconsistent with the SCAQMD's AQMP. As such, impacts would be significant and unavoidable.

(2) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

(a) Regional Construction Impacts

Construction of the project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the project site. In addition, fugitive dust emissions would result from demolition and construction activities. Mobile source emissions, primarily PM and NO_x, would result from the use of construction equipment such as bulldozers, loaders, and cranes. During the finishing phase, paving operations and the application of architectural coatings (e.g., paints) and other building materials would release VOCs. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific

type of operation and, for dust, the prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources.

In order to provide a conservative analysis, it is assumed that all construction activities would be completed in 30 months. The construction is expected occur in three phases, and would occur for a period of approximately 30 months. This timeframe is of particular importance as construction emissions are directly related to the intensity of construction activities (emissions increase as the overall amount of construction activity increases). Actual construction may proceed at a less intensive pace, which would result in lower daily emissions.

Daily emissions during construction were forecasted using a 30-month construction schedule and applying the mobile-source and fugitive dust emissions factors derived from URBEMIS 2007. The URBEMIS 2007 model separates the construction process into multiple stages. The first stage is building demolition, which results in emissions from demolition dust, debris haul truck trips, equipment exhaust, and worker commute exhaust. The second stage of construction, site grading, includes general site preparation activities; emissions from this stage include fugitive dust, equipment exhaust, and worker commute exhaust. Emissions from the third stage of construction, building construction, include equipment exhaust from construction equipment and worker commute exhaust. The last two stages, architectural coating and asphalt paving include VOC emissions from architectural coating and asphalt paving, and worker commute exhaust. A complete listing of the construction equipment by phase and construction phase duration assumptions used in this analysis is included within the URBEMIS 2007 printout sheets that are provided in the Appendix B of this EIR.

The analysis assumed that all construction activities would comply with SCAQMD Rule 403 regarding the control of fugitive dust. A summary of unmitigated maximum daily regional emissions by construction phase are presented in **Table IV.B-4, *Unmitigated Regional Construction Emissions***, below, along with the regional significance thresholds for each air pollutant. As shown therein, maximum regional construction emissions would exceed the daily thresholds for NO_x. Thus, regional construction emissions would result in a significant short-term air quality impact.

These emission forecasts reflect a specific set of assumptions in which the entire project would be built out over 30 months, using equipment subject only to current, less stringent emission standards than those applicable in future years. Because of these conservative assumptions, the emissions levels in Table IV.B-1 represent the highest daily emissions projected to occur on any one day, and actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive build-out schedule (i.e., lower daily emissions occurring over a longer time interval).

(b) Regional Operation Impacts

The analysis of the project's potential impact on regional air quality during long-term project operations (i.e., after construction is complete) addresses three types of sources: mobile, area, and stationary. Mobile sources are off-site vehicle trips. Area source emissions are generated on-site within the area of the project, and include natural gas used for hot water, heat, or cooking, in addition to consumer products, which contain volatiles and solvents. Landscaping equipment that burns fossil fuels on-site is also considered an area

Table IV.B-4

**Unmitigated Regional Construction Emissions^a
(pounds per day)**

	VOC	NO_x	CO	SO₂	PM₁₀^b	PM_{2.5}^b
Maximum Regional Emissions (On-site + Off-site) By Stage						
Demolition	5	40	23	<1	12	4
Site Preparation/Excavation	18	180	87	<1	114	30
Building Foundation	13	141	63	<1	7	6
Building Construction ^c	69	60	73	<1	4	4
Maximum Regional Emissions	69	180	87	<1	114	30
Regional Construction Daily Significance Threshold	75	100	550	150	150	55
Over/(Under)	(6)	80	(463)	(150)	(36)	(25)
Exceed Threshold?	No	Yes	No	No	No	No

^a Compiled using the URBEMIS2007 emissions inventory model. The equipment mix and use assumption for each phase is provided in the Air Quality Appendices.

^b PM₁₀ and PM_{2.5} emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

^c Asphalt paving and architectural coating would occur during the building stage.

Source: PCR Services Corporation, 2011.

source. The stationary sources included in the analysis of regional impacts are those involved with generating electricity for the project.⁴⁰

Mobile-source emissions were calculated using the URBEMIS 2007 emissions inventory model, which multiplies the estimated daily vehicle miles traveled (VMT) by applicable EMFAC2007 emissions factors. Area source emissions were also calculated by URBEMIS 2007, and include emissions from natural gas fuel combustion, landscape fuel combustion, consumer products, and architectural coatings. The URBEMIS 2007 model output and worksheets for calculating regional operational daily emissions are provided in the Appendix B of this EIR. Stationary source emissions were compiled using procedures outlined in the *CEQA Air Quality Handbook*.⁴¹ The project was analyzed for two horizon years in order to determine impacts to the existing (plus project) environment and build-out conditions. As described above, 2009 is to be used to define the existing conditions. The existing plus project impacts was analyzed to determine potential impacts to the existing environment which assumes that the project will be built out “tomorrow”. The actual build out year of 2015 was also analyzed to determine impacts to the existing environment and related projects which are expected to be operational at that time.

Regional operational emissions for the existing and build-out year are presented in **Table IV.B-5** and **Table IV.B-6** respectively. As shown therein, the net increase in regional emissions resulting from operation of the project is expected to exceed the SCAQMD thresholds for VOC, NO_x, CO, and PM₁₀ for both the existing

⁴⁰ A review of the proposed project’s site plan and related project description did not identify any new or modified individually significant stationary source on-site.

⁴¹ See SCAQMD, *CEQA Air Quality Handbook* (April 1993; portions “Changed November 1993”), Chapter 9 and Appendix 9.

Table IV.B-5

**Existing plus Project (2009)
Regional Operational Emissions
(Pounds per Day)**

Emission Source	VOC	NO_x	CO	SO_x	PM₁₀	PM_{2.5}
Existing Use Emissions						
Mobile ^a	11	17	119	0	19	4
Area	1	1	3	<1	<1	<1
Stationary ^b	<1	5	1	1	<1	<1
Total Existing	12	23	122	1	19	4
Proposed Use Emissions						
Mobile ^a	116	180	1,300	1	205	34.7
Area	20	6	15	<1	<1	<1
Stationary ^b	<1	25	4	2	1	<1
Total Project	137	211	1,319	3	206	40
Net Project Emissions						
Mobile ^a	105	164	1,182	1	186	36
Area	19	4	12	<1	<1	<1
Stationary ^b	<1	21	3	2	<1	<1
Total Net	125	189	1,196	3	187	36
SCAQMD Significance Thresholds	55	55	550	150	150	55
Over/(Under)	70	134	646	(147)	37	(19)
Exceed Threshold?	Yes	Yes	Yes	No	Yes	No

^a Area sources include natural gas consumption, landscape fuel consumption, residential consumer products and miscellaneous sources (e.g., among other things, commercial solvent usage, architectural coatings).

^b Stationary emissions include electricity usage at the project site and emissions associated with regional power generation.

Source: PCR Services Corporation, 2011.

and future build-out years. Therefore, the project would result in a significant impact with regard to regional operational emissions and therefore mitigation is required.

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

A significant impact would occur if the project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. Because the SoCAB is currently in nonattainment for ozone, PM₁₀ and PM_{2.5}, emissions from this project could exceed an air quality standard or contribute to an existing or projected air quality exceedance.

Table IV.B-6

**Future Build-Out (2015)
Regional Operational Emissions
(Pounds per Day)**

Emission Source	VOC	NO_x	CO	SO_x	PM₁₀	PM_{2.5}
Existing Use Emissions						
Mobile ^a	11	17	119	0	19	4
Area	1	1	3	<1	<1	<1
Stationary ^b	<1	5	1	1	<1	<1
Total Existing	12	23	122	1	19	4
Proposed Use Emissions						
Mobile ^a	65	99	754	1	187	36
Area	20	6	13	<1	<1	<1
Stationary ^b	<1	21	3	2	<1	<1
Total Project	85	125	770	3	187	36
Net Project Emissions						
Mobile ^a	54	82	635	1	168	33
Area	19	4	10	<1	<1	<1
Stationary ^b	<1	21	3	2	<1	<1
Total Net	73	102	647	2	168	33
SCAQMD Significance Thresholds	55	55	550	150	150	55
Over/(Under)	18	47	97	(148)	18	(23)
Exceed Threshold?	Yes	Yes	Yes	No	Yes	No

^a Mobile and area emissions are calculated using the URBEMIS 2007 emissions model. Area sources include natural gas consumption, landscape fuel consumption, residential consumer products and miscellaneous sources (e.g., among other things, commercial solvent usage, architectural coatings). Emissions due to project-related electricity generation are calculated based on guidance provided in the CEQA Air Quality Handbook. Worksheets and modeling output files are provided in Appendix B.

^b Stationary emissions include electricity usage at the project site and emissions associated with regional power generation.

Source: PCR Services Corporation, 2011.

As discussed above, unmitigated regional construction emissions would exceed the SCAQMD regional significance thresholds for the O₃ precursor NO_x. By applying SCAQMD's cumulative air quality impact methodology, project construction would result in an addition of criteria pollutants such that cumulative impact in conjunction with construction of related projects in the region would occur for a short term. Therefore, the emissions of non-attainment pollutants, in this case NO_x, generated by project construction in excess of the SCAQMD project-level thresholds would result in cumulatively significant air quality impacts for a short time.

As discussed above, peak daily operation-related emissions would exceed the SCAQMD regional significance thresholds for VOC, NO_x, CO, and PM₁₀. By applying SCAQMD's cumulative air quality impact methodology, implementation of the project would result in an addition of criteria pollutants such that cumulative impacts, in conjunction with related projects in the region, would occur. Therefore, the emissions of non-attainment

pollutants and precursors generated by operation under the project in excess of the SCAQMD project-level thresholds would be cumulatively significant.

(4) Would the project expose sensitive receptors to substantial pollutant concentrations?

(a) Construction Impacts

(i) Localized Construction Impacts

The conservative estimate of maximum on-site daily construction emissions for NO_x, PM₁₀, PM_{2.5}, and CO was compiled for each Project Phase, as shown below in **Table IV.B-7, Unmitigated Localized Construction Emissions**. The proposed project is approximately 11 acres and SCAQMD LST screening level thresholds⁴² are not applicable for project sites larger than five acres. Therefore the localized effects from the on-site construction emissions of CO, NO_x (NO₂), PM₁₀ and PM_{2.5} were analyzed using the SCAQMD-recommended AERMOD dispersion model. Results are presented in **Table IV.B-8, Unmitigated Localized Construction Dispersion Analysis**.

Table IV.B-7

Unmitigated Localized Construction Emissions^a
(pounds per day)

	VOC	NO _x	CO	SO ₂	PM ₁₀ ^b	PM _{2.5} ^b
Maximum Localized Emissions^c (On-site) By Stage						
Demolition	4	34	18	<1	12	4
Site Preparation/Excavation	8	64	37	<1	109	25
Building Foundation	4	26	15	<1	2	2
Building Construction ^d	67	51	31	<1	3	3
Maximum Localized Emissions	67	64	37	<1	109	25

^a Compiled using the URBEMIS2007 emissions inventory model. The equipment mix and use assumption for each phase is provided in the Air Quality Appendices.

^b PM₁₀ and PM_{2.5} emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

^c The construction site exceeds 5 acres and therefore has no applicable LST emission thresholds. Localized pollutant concentrations are analyzed using dispersion modeling discussed below.

^d Asphalt paving and architectural coating would occur during the building stage.

Source: PCR Services Corporation, 2011.

As Table IV.B-8 shows, PM₁₀ and PM_{2.5} emissions are predicted to result in concentrations of 48.6 µg/m³ and 11.3 µg/m³, respectively, at residential uses on the north side of the project site, approximately 150 meters north of the project boundary. These concentrations would exceed the SCAQMD recommended thresholds, resulting in a potentially significant impact. However, the maximum PM₁₀ and PM_{2.5} concentrations are expected to occur primarily from fugitive dust emissions during site grading activities. Localized CO and NO₂

⁴² See SCAQMD Localized Significance Thresholds at <http://www.aqmd.gov/ceqa/handbook/LST/LST.html>, SCAQMD, Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology at <http://www.aqmd.gov/ceqa/handbook/PM2.5/PM2.5.html>, the Methodology section above, and Localized Significance Threshold Mass Rate Look-Up Tables at <http://www.aqmd.gov/ceqa/handbook/LST/appC.pdf> (accessed July 2008).

Table IV.B-8

Unmitigated Localized Construction Dispersion Analysis

Pollutant and Averaging Period	Closest Sensitive Receptor (Residential Northwest)
PM₁₀ (24-hr) - (ug/m³)	
Project Incremental Concentration	48.6
LST Threshold	10.4
Over/(Under)	38.2
Exceed Threshold?	Yes
PM_{2.5} (24-hr) - (ug/m³)	
Project Incremental Concentration	11.3
LST Threshold	10.4
Over/(Under)	0.9
Exceed Threshold?	Yes
CO (1-hr) - (ug/m³)	
Project Incremental Concentration	100
LST Threshold	19,550
Over/(Under)	(19,450)
Exceed Threshold?	No
CO (8-hr) - (ug/m³)	
Project Incremental Concentration	31
LST Threshold	3,967
Over/(Under)	(3,936)
Exceed Threshold?	No
NO₂ (1-hr) - (ug/m³)	
Project Incremental Concentration	17
LST Threshold	94
Over/(Under)	(77)
Exceed Threshold?	No

Source: PCR Services Corporation, 2010.

concentrations would remain below thresholds. Localized pollutant concentrations at nearby receptor locations can be found in Appendix B of this EIR.

(ii) Toxic Air Contaminants

In addition to criteria and precursor pollutants, TAC emissions are also created by the combustion of fossil fuels. Diesel Particulate Matter (DPM) has been recognized by the State of California as a human carcinogen for over 10 years, and is the TAC of greatest potential concern from heavy-duty diesel powered equipment expected to be used during grading and excavation activities, due to its prevalence in the emission exhaust and its toxicity. The Office of Environmental Health Hazard Assessment (OEHHA) has developed a methodology for estimating health risk from TAC pollutants such as diesel exhaust, recognizing the potential for carcinogenic and non-cancer long-term effects in humans from exposure to DPM. No non-cancer acute (short-term) effects have been recognized for DPM.

OEHHA cancer risk factors assume a continuous exposure over a 70-year time frame; however the proposed project requires only three years of construction. Neither OEHHA nor the SCAQMD have developed guidance to accurately and scientifically estimate the incremental increase in cancer risk for such short exposure duration. Additionally, the SCAQMD CEQA guidance does not require a health risk assessment for short-term construction emissions. It is therefore, not meaningful to evaluate long-term cancer impacts from construction activities which occur over a short duration. In addition, there would be no residual emissions after construction and thus no corresponding individual cancer risk. As such, Project-related toxic air contaminant emission impacts during construction would be less than significant. It is therefore not meaningful to evaluate long-term cancer impacts from construction activities that occur over a short duration. As such, project-related toxic emission impacts during construction would be less than significant.

(b) Operational Impacts

(i) Localized Operational Impacts

Operational emissions have the potential to impact local air pollutant levels at nearby receptors. An increase in vehicular travel may generate localized “hot spots,” localized areas in the project vicinity where sensitive receptors (pedestrians) located near to roadways and intersections may be exposed to elevated ambient pollutant levels.

The SCAQMD recommends an evaluation of potential localized CO impacts when a project would increase V/C ratios by two percent or more at intersections with an LOS of D or worse. As indicated in Section 4.L of this EIR, Traffic and Circulation, traffic would incrementally increase with project under future traffic scenarios when compared to existing traffic levels, and would meet these criteria at project build-out.

Criteria for potential localized CO impacts were met at seven intersection locations. CO concentration levels at the five intersections with the greatest LOS and V/C ratios were forecast using the CALINE4 dispersion model developed by the California Department of Transportation, using peak-hour traffic volumes and conservative meteorological assumptions. Conservative meteorological conditions include low wind speed, stable atmospheric conditions, and the wind angle producing the highest CO concentrations for each case. CO concentrations were modeled under Existing Plus Project (2009) and Future Build-Out (2015) Project Conditions.

As shown in **Table IV.B-9**, *Existing Plus Project (2009) Local Area Carbon Monoxide Dispersion Analysis*, below, project-generated traffic volumes are forecasted to have a negligible effect on the projected 1-hour and 8-hour CO concentrations at the intersections studied for the Existing Plus Project scenario. Since a significant impact would not occur at the intersections operating at the highest V/C ratio, no significant impacts would occur at any other analyzed roadway intersection as a result of hotel or residential option-generated traffic volumes. Thus, the proposed project would not cause any new or exacerbate any existing CO hotspots, and, as a result, impacts related to localized mobile-source CO emissions would be less than significant.

As shown in **Table IV.B-10**, *Future Build-out (2015) Local Area Carbon Monoxide Dispersion Analysis*, below, baseline concentrations are projected to decrease approximately three percent by 2015 as compared to 2009 reflecting the turnover of older more polluting vehicles within the basin-wide inventory of vehicles. Project-generated traffic volumes are shown to add negligibly to the 1-hour and 8-hour CO baseline concentrations at the intersections studied in 2015. Since a significant impact would not occur at the

Table IV.B-9
Existing plus Project (2009)
Local Area Carbon Monoxide Dispersion Analysis

Intersection	Peak Period	Maximum	Maximum	Significant 1-Hour Impact? ^d	Maximum	Maximum	Significant 8-Hour Impact? ^d
		1-Hour 2009 Baseline Concentration ^b (ppm)	1-Hour 2009 Baseline Plus Project Concentration ^c (ppm)		8-Hour 2009 Baseline Concentration ^e (ppm)	8-Hour 2009 Baseline Plus Project Concentration ^f (ppm)	
Bay Shore Avenue and 2 nd Street	A.M.	6.9	7.7	No	4.87	5.29	No
	P.M.	7.0	7.0	No	5.01	5.01	No
Pacific Coast Highway and 2 nd Street	A.M.	7.3	7.4	No	5.22	5.22	No
	P.M.	7.3	7.6	No	5.15	5.36	No
Pacific Coast Highway and 7 th Street	A.M.	8.0	8.0	No	5.29	5.29	No
	P.M.	7.9	8.1	No	5.50	5.57	No
Pacific Coast Highway and Loynes Drive	A.M.	7.0	7.0	No	4.94	4.94	No
	P.M.	6.8	6.9	No	4.87	4.94	No
Studebaker Road and 2 nd Street	A.M.	8.4	8.5	No	5.57	5.64	No
	P.M.	8.6	8.8	No	5.78	5.92	No

ppm = parts per million

^a Peak hour traffic volumes are based on the Traffic Study prepared for the project by LLG, April 2010.
^b SCAQMD 2009 1-hour ambient background concentration (5.26 ppm) + Existing 2009 Base traffic CO 1-hour contribution.
^c SCAQMD 2009 1-hour ambient background concentration (5.26 ppm) + Existing Plus Project traffic CO 1-hour contribution.
^d The most restrictive standard for 1-hour CO concentrations is 20 ppm and for 8-hour concentrations is 9.0 ppm.
^e SCAQMD 2009 8-hour ambient background concentration (4.03 ppm) + Existing 2009 Base traffic CO 8-hour contribution.
^f SCAQMD 2009 8-hour ambient background concentration (4.03 ppm) + Existing Plus Project traffic CO 8-hour contribution.

Emission factor and dispersion modeling output sheets are provided in Appendix B.

Source: PCR Services Corporation, 2011.

intersections operating at the highest V/C ratio, no significant impacts would occur at any other analyzed roadway intersection as a result of hotel or residential option-generated traffic volumes. Thus, the proposed project would not cause any new or exacerbate any existing CO hotspots in 2015, and, as a result, impacts related to localized mobile-source CO emissions would be less than significant.

The project may include the installation and operation of diesel-fired generators for emergency power generation. Unless a blackout occurs, these generators would be operated for only a few hours per month for routine testing and maintenance purposes. The project applicant would be required to obtain a permit to construct and a permit to operate any standby generators under SCAQMD Rules 201, 202, and 203. Under SCAQMD Regulation XIII, all generators must meet Best Available Control Technology (BACT) requirements to minimize emissions of PM₁₀ (as well as CO, VOC, and NO_x emissions). Compliance with SCAQMD Rules and Regulations regarding stationary-source combustion equipment would ensure that contributions to localized PM₁₀ concentrations remain below the 2.5 µg/m³ significance threshold. As such, any potential localized operational impacts from on-site stationary equipment would be less than significant.

Table IV.B-10
Future Build-Out (2015)
Local Area Carbon Monoxide Dispersion Analysis

Intersection	Peak Period	Maximum	Maximum	Significant 1-Hour Impact? ^d (>20 ppm)	Maximum	Maximum	Significant 8-Hour Impact? ^d (>9 ppm)
		1-Hour 2015 Baseline Concentration ^b (ppm)	1-Hour 2015 Baseline Plus Project Concentration ^c (ppm)		8-Hour 2015 Baseline Concentration ^e (ppm)	8-Hour 2015 Baseline Plus Project Concentration ^f (ppm)	
Bay Shore Avenue and 2 nd Street	A.M.	6.1	6.1	No	4.39	4.46	No
	P.M.	6.1	6.2	No	4.46	4.53	No
Pacific Coast Highway and 2 nd Street	A.M.	6.3	6.5	No	4.60	4.67	No
	P.M.	6.3	6.6	No	4.60	4.74	No
Pacific Coast Highway and 7 th Street	A.M.	6.7	6.9	No	4.67	4.74	No
	P.M.	6.7	6.9	No	4.81	4.88	No
Pacific Coast Highway and Loynes Drive	A.M.	6.1	6.3	No	4.46	4.53	No
	P.M.	6.0	6.1	No	4.39	4.46	No
Studebaker Road and 2 nd Street	A.M.	6.9	7.1	No	4.81	4.95	No
	P.M.	7.0	7.3	No	4.95	5.09	No

ppm = parts per million

^a Peak hour traffic volumes are based on the Traffic Study prepared for the project by LLG, April 2010.

^b SCAQMD 2020 1-hour ambient background concentration (5.1 ppm) + 2015 Base traffic CO 1-hour contribution.

^c SCAQMD 2020 1-hour ambient background concentration (5.1 ppm) + 2015 w/ project traffic CO 1-hour contribution.

^d The most restrictive standard for 1-hour CO concentrations is 20 ppm and for 8-hour concentrations is 9.0 ppm.

^e SCAQMD 2020 8-hour ambient background concentration (3.9 ppm) + 2015 Base traffic CO 8-hour contribution.

^f SCAQMD 2020 8-hour ambient background concentration (3.9 ppm) + 2015 w/ project traffic CO 8-hour contribution.

Emission factor and dispersion modeling output sheets are provided in Appendix B.

Source: PCR Services Corporation, 2011.

(ii) Toxic Air Contaminants

Operational TAC Impacts

The primary sources of potential air toxics to neighboring properties from project operations include DPM from delivery trucks (e.g., truck traffic on local streets and on-site truck idling), diesel fueled emergency generators and TACs from char-broilers and large boilers. Based on the low incremental increase in the number and long-term (annual average) activity of the potential on-site toxic air contaminant sources, the proposed project would not warrant the need for a refined quantitative health risk assessment.

CARB adopted an Airborne Toxic Control Measure (ATCM) in 2004 which limits heavy duty diesel engines from idling for more than 5 minutes at any given time, applicable to diesel powered vehicles with gross vehicle weight ratings greater than 10,000 pounds which are licensed to operate on highways, regardless of where they are registered. Thus, the increase in potential localized air toxic impacts from on-site sources of diesel particulate emissions would be minimal, since only a limited number of heavy-duty trucks would access the project site and the trucks that visit the site would not idle on the project site for extended periods

of time. Although the proposed improvements would result in an increase in the retail square footage and presumably an increase in the number of delivery trucks, this ATCM would significantly limit potential incremental increase in emissions from loading dock activity. Thus, delivery and service trucks would not be a consistent long-term source of operational TACs.

The SCAQMD strictly regulates the installation and operation of diesel-fueled generators, requiring applicants to demonstrate that the operation would not result in unacceptable localized TAC impacts. For a mixed-use development such as the proposed project, operational limits of 200 hours annually would likely be imposed by the SCAQMD. If the installation of new generators would result in multiple-generator groups (as defined by the SCAQMD), the installation would also be required to comply with recently promulgated Rule 1472 as part of Regulation XIV mentioned above, to ensure that localized risk remains below thresholds. Compliance with Rule 1472, if applicable, along with the low operational hours would result in substantially reduced potential impacts.

Major stationary sources, such as large industrial boilers (which may be installed within the hotel component of the proposed project), would be subject to SCAQMD's Regulation XIV (New Source Review for Toxic Air Contaminants) which requires a health risk assessment to be performed to demonstrate that no unacceptable TAC impacts would occur. An increase in hotel amenities and commercial space may result in an increase in char-broilers and other sources of TACs. However, due to the intermittent use of restaurant equipment, and the height of vents and stacks, exposure to emitted TACs would likely be well-dispersed and not result in a measureable increase in human health risk.

Typical sources of acutely and chronically hazardous TACs include industrial manufacturing processes, automotive repair facilities, and dry cleaning facilities. The project would not include any of these potential sources, although minimal emissions may result from the use of consumer building products for maintenance purposes (e.g. painting). It is expected that quantities of any hazardous TACs located on-site would be below thresholds warranting further study under CARB. As such, the project would not release a substantial amount of toxic contaminants, and no significant impact on human health would occur.

Given the concern with exposure to TACs, any substantial potential increase in sources of operational TAC emissions from mobile or stationary equipment will be subject to CARB and/or SCAQMD regulations which stringently control the installation and operation of such sources, as detailed above. Thus, potential air toxic impacts to on- and off-site receptors from on-site sources would be less than significant.

TAC Impacts to On-Site Sensitive Receptors

The ambient air environment that currently exists on and around the project site would also have the potential to impact the residential uses that would be developed as part of the project. Based on CARB siting recommendations, sensitive receptors should not be sited within 1,000 feet of a warehouse distribution center which have extensive heavy-duty truck activity, within 500 feet of a freeway or similar high traffic roadway (i.e., roads within urbanized areas carrying more than 100,000 vehicles per day), within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater), 50 feet for typical gas dispensing facilities or within 300 feet of a dry cleaning facility that uses perchloroethylene, among other siting recommendations. CARB siting recommendations do not provide specific siting recommendations for ports.

The proposed project lies over four miles away from the Port of Long Beach (POLB). The most recent health risk assessment performed for the POLB (Middle Harbor) demonstrates that the project and the residences in the surrounding area are located within the 100 in a million cancer risk contour, which is mainly attributed to exhaust emissions from marine vessels. Many existing residential uses are located within the 100 in a million cancer risk contour, including the Marina Pacifica residential community located northwest of the project site. As mentioned previously, the MATES III study demonstrates that existing total cancer risk in the vicinity of the proposed project ranges from 1,200 to 3,700 in one million, and that the cancer risk at the project site is approximately 2,148 in one million. It should be noted that the MATES III study includes risks resulting from emissions related to the Middle Harbor as well as many other TAC sources in the region.

As mentioned previously, the SCAQMD recommends a maximum incremental cancer risk of ten in one million as a threshold for sensitive receptors. Although the project would place receptors in an area which would exceed this threshold, the POLB is currently engaged in a Clean Air Action Plan which aims to significantly reduce health risks and air pollution from port-related sources. Pollution reduction measures include replacing or retrofitting older polluting diesel trucks, provide electricity to hostelling ships, and electrification of cargo moving equipment. Such reductions in port emissions would also reduce the POLB health risk contribution.

Because the project does not include a distribution warehouse and is not located sufficiently proximate to the listed source types, the siting of residential uses on the project site would result in a less than significant impact with regard to the exposure of on-site residents to the TAC emission sources identified in ARB's siting recommendations (i.e., the project would not place residential uses in a high cancer risk area due to ambient air quality).

(5) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment based on any applicable threshold of significance?

Construction of the project is estimated to emit a total of 5,442 tons of CO₂e over the 30 months of construction. When amortized over 30 years, per SCAQMD methodology, construction results in approximately 181 tons per year of CO₂e. Results of this analysis are presented in **Table IV.B-11, Construction Greenhouse Gas Emissions**, below. Due to the potential persistence of GHGs in the environment, impacts are based on annual emissions and, in accordance with SCAQMD methodology, construction-period impacts are not assessed independent of operational-period impacts.

Table IV.B-11

Construction Greenhouse Gas Emissions

Emission Source	CO₂e (Metric Tons)
Construction (Total)	5,442
Construction (Amortized – 30 years)	181

Source: PCR Services Corporation

Construction and operation emissions will be analyzed together, and therefore, significance of construction-related GHG emissions will be discussed in conjunction with operational GHG emissions below.

As stated above, the project is subject to the City's Green Building Ordinance which requires that the project at a minimum meets the intent of the "certified" performance level under the US Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED™) program. As required by the Green Building Ordinance, the project design includes GHG-reduction measures that have been included in the quantitative analysis, such as improved energy efficiency, improved accessibility to alternative modes of transportation (walking, biking, mass transit), bicycle parking, designated recycling areas and roofs designed to be solar-ready. The project has also committed to incorporating sustainable landscape features such as selecting plant types accustomed to the southern California climate, planting shade trees, and installing high-efficiency irrigation systems to reduce water demand. There are many uncertainties involved in the quantification of GHG emissions from individual development project. Newer building materials and practices, current energy efficiency requirements, and newer appliances tend to emit lower levels of air pollutant emissions, including GHGs, as compared to those built years ago, but the net effect is difficult to quantify.

Emissions of GHGs were calculated for the existing and projected future uses with implementation for the project. In order to calculate a reduction in operational GHG emissions due to the measures discussed above, a BAU scenario, representing emissions for a similar development with only the regulations in place in 2006, was also developed. As mentioned previously, SCAG is responsible for achieving the CARB and SB375 target through transportation and land use planning contained in the RTP. Since the RTP is limited only to transportation matters, separate target thresholds are applied to transportation and non-transportation (electricity, natural gas, water, etc.) emissions.

As shown below in **Table IV.B-12, Operational Greenhouse Gas Emissions (2015)**, the site-specific net increase in GHG emissions from mobile source, electrical, and natural gas usage associated with the project is 20,422 metric tons of CO₂e compared to existing uses. GHG emission from non-transportation energy usage is estimated to be 2,980 metric tons of CO₂e. Incorporation of the various project design features designed to reduce energy results in a 33.9 percent reduction in GHG emissions as compared to the non-transportation emissions under the BAU scenario. GHG emission from transportation-related emissions totals 19,428 metric tons of CO₂e annually, representing a 20.6 percent reduction compared to BAU transportation emissions. The GHG reductions of 33.9 and 20.6 percent for non-transportation and transportation related emissions, respectively, exceeds the applicable reduction targets of 28.5 and 13 percent. Thus, the project's impact to global climate change would be less than significant at the project level.

(6) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of green house gases?

The project is designed with a number of features that are consistent with the following City goals: promoting high density housing close to major transportation arteries; improving energy and water efficiency in buildings; reducing water per capita use; and increasing recycling rates to 70 percent by 2015, and eventually "zero waste."

Table IV.B-12

Operational Greenhouse Gas Emissions (2015)

Emission Source	CO ₂ e ^e (Metric Tons)
Existing	
On-Road Mobile Sources ^a	2,099
Electricity ^b	315
Water Conveyance ^c	58
Natural Gas ^d	136
Total Annual Operations	1,987
Proposed Project	
Construction (amortized)	181
On-Road Mobile Sources ^a	19,428
Electricity ^b	1,614
Water Conveyance ^c	611
Natural Gas ^d	574
Total Annual Operations	22,409
Net Increase in Annual GHG Emissions	20,422
Business as Usual	
Construction (amortized)	181
On-Road Mobile Sources ^a	24,484
Electricity	2,145
Water Conveyance ^c	810
Natural Gas ^d	1,370
Total Annual Operations	28,990
Energy Usage GHG Reduction	
Proposed Project GHG Emissions	2,980
Business as Usual GHG Emissions	4,507
Percent Reduction in GHG Emissions	33.9%
Greater than 28.5 percent?	Yes
Mobile Source GHG Reductions	
Proposed Project GHG Emissions	19,428
Business as Usual GHG Emissions	24,484
Percent Reduction in GHG Emissions	20.6%
Greater than 12 percent (SCAG 2035 Target)?	Yes

^a Mobile source values were derived using EMFAC2007 in addition to the CCAR General Reporting Protocol; Version 3.1, January 2009.

^b Electricity Usage Rates from Table A9-11-A, CEQA Air Quality Handbook, SCAQMD, 1993. Water conveyance energy rates from California Energy Commission Report: Refining Estimates of Water Related Energy Use in California, 2006.

^c Statewide Greenhouse Gas Emissions Inventory: <http://www.arb.ca.gov/cc/ccei/emsinv/emsinv.htm>.

^d Natural Gas Usage Rates from Table A9-12-A, CEQA Air Quality Handbook, SCAQMD, 1993.

^e All CO₂e factors were derived using the CCAR General Reporting Protocol; Version 3.1, January 2009.

^f Energy usage includes construction, electricity, water conveyance and natural gas usage.

Source: PCR Services Corporation, 2011.

In addition specific project features will further reduce GHG emissions. The project would be constructed to achieve a certified rating from the USGBC's LEED™ program. The LEED™ features that would be incorporated in the project would include building efficiency measures to reduce energy consumption and

water saving measures. The effectiveness in reducing GHG emissions of each of the project features varies. High performance windows can reduce energy demand for heating and cooling by over 20 percent per year.⁴³ Trees are able to sequester more carbon dioxide as they age and the average tree can sequester 330 pounds of carbon dioxide from the atmosphere every year. Reducing water consumption results in a reduction of GHG emissions from energy generation to operate water pumps and wastewater treatment facilities, which have been identified as major sources of GHGs statewide. Overall, the project's green building and sustainability features, as a result of its LEED™ certified rating, would reduce energy demand associated with the proposed project, resulting in a reduction of GHG emissions shown above.

As mentioned above, the project contains several GHG reducing project design features consistent with the City's Green Building Requirements. However, as of January 2011, the City of Long Beach has not yet developed a Greenhouse Gas Reduction Plan that meets the requirements set forth in the latest OPR guidelines. Since the project will employ project design features to achieve LEED™ certification, the proposed project results in GHG emissions consistent with SCAG reduction targets, and incorporates water conservation, energy conservation, planting trees and other sustainable features consistent with the City's Green Building Requirements. Therefore, the proposed project would not result in significant impacts as it would not conflict with any applicable plan, policy, or regulation to reduce GHG emission.

4. MITIGATION MEASURES

Even with the implementation of the project design features, project construction and operation would result in significant impacts with regard to air quality. Construction mitigation measures presented below would help reduce localized PM₁₀ and PM_{2.5} impacts during site preparation and grading. Operational mitigation measures are designed to minimize criteria pollutant emission from mobile sources.

The *CEQA Air Quality Handbook* suggests that the following mitigation measures set forth a program of air pollution control strategies designed to reduce the project's air quality construction impacts to the extent feasible. Mitigation Measure B-12 would serve to reduce significant regional operational impacts.

a. Construction

Mitigation Measure B-1: General contractors shall ensure that all construction equipment be properly tuned and maintained at an off-site location; in accordance with manufacturer's specifications. This mitigation measure would reduce all criteria pollutant emissions during construction.

Mitigation Measure B-2: General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.

Mitigation Measure B-3: Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

Mitigation Measure B-4: Electricity from power poles rather than temporary diesel- or gasoline-powered generators shall be used to the extent feasible.

⁴³ *Efficient Windows Collaborative, Annual Energy Use by Window Type in Los Angeles, CA.* http://www.efficientwindows.org/city_all.cfm?new=N&prodtype=WN&id=4.

Mitigation Measure B-5: All construction vehicles shall be prohibited from idling in excess of five minutes, both on- and off-site. Signs shall be posted limiting idling to five minutes.

Mitigation Measure B-6: The project applicant shall utilize coatings and solvents that are consistent with applicable SCAQMD rules and regulations, in particular Rule 1113 (Architectural Coatings).

Mitigation Measure B-7: Water exposed surfaces at least three times a day under calm conditions. Water as often as needed on windy days when winds are less than 25 miles per hour or during very dry weather in order to maintain a surface crust and prevent the release of visible emissions from the construction site. This mitigation measure would reduce PM₁₀ and PM_{2.5} emissions during construction.

Mitigation Measure B-8: All trucks hauling dirt, sand, soil or other loose materials off-site shall be covered or wetted or shall maintain at least two feet of freeboard (i.e., minimum vertical distance between the top of the material and the top of the truck). Wash mud-covered tires and under-carriages of trucks leaving construction sites. This mitigation measure would reduce PM₁₀ and PM_{2.5} emissions during construction.

Mitigation Measure B-9: Sweep adjacent streets, as needed, to remove dirt dropped by construction vehicles or mud that would otherwise be carried off by trucks departing the site. This mitigation measure would reduce PM₁₀ and PM_{2.5} emissions during construction.

Mitigation Measure B-10: Securely cover loads with a tight fitting tarp on any truck leaving the construction site. This mitigation measure would reduce PM₁₀ and PM_{2.5} emissions during construction.

Mitigation Measure B-11: Building walls shall be watered prior to use of demolition equipment. This mitigation measure would reduce PM₁₀ and PM_{2.5} emissions during construction.

Mitigation Measure B-12: All on-site construction equipment greater than 50 horsepower (hp) shall be designated as EPA Tier 3 certified engines or engine retrofits comparable to EPA Tier 3 certified engines. This mitigation measure would reduce NO_x emissions during construction.

Mitigation Measure B-13: Diesel-fueled vehicles which will be on-site for 3 or more consecutive days shall be equipped with a diesel particulate filter (DPF) or other control device or technology capable of achieving comparable reductions in particulate matter (PM) emissions. The device or technology shall be properly maintained and operational at all times when on-site. This mitigation measure applies to on- and off-road vehicles, but excludes delivery or haul trucks which visit the site intermittently.

b. Operation

Mitigation Measure B-14: The project applicant shall, as feasible, schedule deliveries during off-peak traffic periods to encourage the reduction of trips during the most congested

periods. This mitigation measure would reduce all criteria pollutant emissions during operation.

Mitigation Measure B-15: The proposed project would provide preferred parking to low-emission and flex fuel vehicles. The project applicant shall also post information on mass transit and alternative transportation options offered in the vicinity of the proposed project.

5. CUMULATIVE IMPACTS

a. Criteria Pollutants

(1) Construction

Of the five related projects (see Chapter III) identified within the project study area, several related projects have been approved or proposed or are currently under construction. Since the project applicant has no control over the timing or sequencing of the related projects, any quantitative analysis to ascertain daily construction emissions that assumes multiple, concurrent construction projects would be highly speculative.

With respect to the project's construction-period air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the AQMP pursuant to CAA mandates. In accordance with those strategies, the project would comply with SCAQMD Rule 403 requirements and implement all feasible mitigation measures. In addition, the project would comply with adopted AQMP emissions control measures. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects Basin-wide, which would include each of the related projects mentioned above. Nevertheless, the project's construction-period localized PM₁₀ and PM_{2.5} emissions are already projected to result in a significant impact to air quality. As such, cumulative impacts to air quality during proposed project construction would be significant.

(2) Operation

The SCAQMD's approach for assessing cumulative impacts related to operations is based on attainment of ambient air quality standards in accordance with the requirements of the Federal and State Clean Air Acts. As discussed earlier, the SCAQMD has developed a comprehensive plan, the 2007 AQMP, which addresses the region's cumulative air quality condition.

A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. Because the SoCAB is currently in nonattainment for ozone, PM₁₀ and PM_{2.5}, related projects could exceed an air quality standard or contribute to an existing or projected air quality exceedance. Cumulative impacts to air quality are evaluated under two sets of thresholds for CEQA and the SCAQMD. In particular, *CEQA Guidelines* Sections 15064(h)(3) provides guidance in determining the significance of cumulative impacts. Specifically, Section 15064(h)(3) states in part that:

A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or

substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency...

For purposes of the cumulative air quality analysis with respect to *CEQA Guidelines* Section 15064(h)(3), the project's incremental contribution to cumulative air quality impacts is determined based on compliance with the SCAQMD adopted 2007 AQMP.

A project is deemed inconsistent with air quality plans if it results in population and/or employment growth that exceeds growth estimates in the applicable air quality plan. The AQMP relies upon growth projections adopted by SCAG, which in turn, relies upon adopted General Plan growth projections. Consequently, compliance with the City's General Plan typically results in compliance with the AQMP. As discussed above, the project would not result in employment growth that exceeds growth estimates in the AQMP. Under this criterion, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan under the AQMP.

In addition, the project would comply with all rules and regulations as implemented by the SCAQMD and the CARB, and would conform to the standards and guidelines of the City of Long Beach General Plan. Therefore, under this criterion, it was determined that the project would be consistent with the AQMP. Nonetheless, SCAQMD no longer recommends relying solely upon consistency with the AQMP as an appropriate methodology for assessing cumulative air quality impacts. Instead, SCAQMD's approach to determining cumulative air quality impacts for criteria air pollutants is to first determine whether the proposed project would result in a significant project-level impact to regional air quality based on SCAQMD significance thresholds. If not, the lead agency needs to consider the additive effects of related projects only if the proposed project is part of an ongoing regulatory program or is contemplated in a Program EIR, and the related projects are located within approximately one mile of the project site. If related projects are within the vicinity (one-mile radius) of the project site, (i.e., that are part of an ongoing regulatory program or are contemplated in a Program EIR) then additive effects of the related projects should be considered.

The SCAQMD recommends that project specific air quality impacts be used to determine the potential cumulative impacts to regional air quality. As discussed above, peak daily operation-related emissions would exceed the SCAQMD regional significance thresholds for VOC, NO_x, CO, and PM₁₀. By applying SCAQMD's cumulative air quality impact methodology, implementation of the project would result in an addition of criteria pollutants such that cumulative impacts, in conjunction with related projects in the region, would occur. Therefore, the emissions of non-attainment pollutants and precursors generated by operation under the project in excess of the SCAQMD project-level thresholds would be cumulatively significant. Under this criterion, the project's incremental contribution to cumulative air quality effects would be cumulatively considerable, per *CEQA* Section 15064(h)(3). Therefore, the project would result in significant and unavoidable impacts with regard to AQMP consistency.

b. Toxic Air Contaminants

Similar to the TAC emission potential of the project, the greatest potential for cumulative TAC emissions would involve diesel particulate emissions associated with heavy equipment operations during construction.

Given that the project's contribution to cancer risk from construction activities would be less than significant and localized, it is reasonable to project that related projects would also not result in significant cancer risks from TAC emissions during construction (duration, transient), and that the areas of less-than-significant elevated cancer risks associated with construction of similar projects would not overlap to create a significant risk. Accordingly, the project's construction phase TAC emissions would not contribute to a cumulatively significant impact.

With respect to long-term TAC emissions, neither the project nor any of the identified related projects (which are largely residential, restaurant, retail/commercial, and institutional developments), would represent a substantial source of long-term TAC emissions. Uses typically associated with TAC emissions include large-scale industrial, manufacturing, and transportation hub facilities. Based on recommended screening level siting distances for TAC sources, as set forth in the CARB's Land Use Guidelines, the project and related projects would not result in a cumulative impact requiring further evaluation. However, the project and each of the related projects would likely generate minimal TAC emissions related to the use of consumer products, landscape maintenance activities, among other things. As mentioned previously, the project is not expected to include gasoline dispensing land uses or boilers. Pursuant to the law enacted in 1983 by California Assembly Bill 1807 (Tanner, Stats. 1983, ch. 1047), as amended,⁴⁴ which directs the CARB to identify substances such as TAC and adopt ATCMs to control such substances, the SCAQMD has adopted numerous rules (primarily in Regulation XIV) that specifically address TAC emissions. These SCAQMD rules have resulted in and will continue to result in substantial Basin-wide TAC emissions reductions. As such, cumulative TAC emissions during long-term operations would be less than significant. In addition, the project would not result in any sources of TACs that have been identified by Land Use Guidelines, and thus, would not contribute to a cumulative impact.

c. Global Climate Change

Typically a cumulatively considerable impact is the impact of a proposed project in addition to the related projects identified in the traffic study, and located in the project vicinity. However, in the case of global climate change, the proximity of the project to other GHG-generating activities is not directly relevant to the determination of a cumulative impact. Although the State requires MPOs and other planning agencies to consider how region wide planning decisions can impact GCC, there is currently no established non-speculative method to assess the cumulative impact of proposed independent private-party development projects.

Although AB-32 sets a statewide target for 2020 GHG emissions which equates to approximately 28.5 percent below statewide BAU emissions, the Scoping Plan and other implementing tools of the law are clear that the reductions are not expected to occur uniformly from all sources or sectors. CARB has set targets specific to the transportation sector, for example, and under SB375 SCAG must incorporate these GHG reduction goals into the next RTP and demonstrate that its SCS or alternative planning strategy is consistent with the Regional Housing Needs Assessment (RHNA). One of the goals of this process is to ensure that the efforts of State, regional and local planning agencies accommodate the contemporaneous increase in population and employment with a decrease in overall GHG emissions. For example, adopting zoning designations that reduce density in areas which are expected to experience growth in population and housing needs is seen as inconsistent with anti-sprawl goals of sustainable planning. Although development

⁴⁴ *Calif. Health and Safety Code §§ 39650 et seq.*

under a reduced-density scenario results in lower GHG emissions from the use of that land compared to what is currently or hypothetically allowed (by creating fewer units and fewer attributable vehicle trips), total regional GHG emissions will likely fail to decrease at the desired rate or, worse, increase if regional housing and employment needs of an area are met with a larger number of less-intensive development projects. Therefore, it is not simply a cumulative increase in regional development or the resultant GHG emissions that threatens GHG reduction goals.

The land use sector can accommodate growth and still be consistent with State-wide plans to reduce GHG emissions. To that end, various agencies are required to develop programs to guide future building and transportation development towards minimized resource consumption and lowered resultant pollution. As discussed above, the City has developed its Green Building Program and the State's CALGreen standards are now mandatory. However, the specific options applicable to and chosen by each individual project developer and their efficacy in reducing GHG emissions vary widely. It should also be noted that SCAG is not expected to complete its SCS until May 2012. In addition, the emissions models used for project-level evaluations do not fully reflect improvements in technology and other reductions in GHG emissions that are likely to occur pursuant to State regulations, such as AB 1493, SB 1368, AB 32, and Executive Order S-3-5, as well as future Federal and/or State regulations. Therefore, it is not possible or meaningful to calculate emissions from each of the identified related projects and compare that with a numeric threshold or reduction target.

Nonetheless, reducing GHG emissions is an important priority and reasonable reduction efforts should be taken. **Table IV.B-13, *GHG Reduction Strategies*** contains a list of numerous GHG-reducing strategies potentially applicable to the proposed project, the identified related projects, and future development similar in scope and location (City of Long Beach). Included are the regulations or guidelines from which the strategies were developed, and the expected range in reduction of GHGs. The project-level analysis above highlights the manner by which the proposed project intends to meet many of these strategies.

As shown in **Table IV.B-13**, there exist numerous options for project developers to reduce their contribution to city-, county-, and State-wide GHG emissions, while helping to meet the region's future housing, jobs, and infrastructure needs. However, it is not possible at this time to accurately quantify GHG emissions expected from the related projects or the GHG reductions anticipated from the above-listed strategies. Because of the complex physical, chemical and atmospheric mechanisms involved in global climate change, there is no basis for concluding that an emissions increase resulting from the project and the related projects could actually cause a measurable increase in global GHG emissions sufficient to force global climate change.

The proposed project would be consistent with the State's goals, result in a GHG emission profile that is better (lower) than business as usual, and include implementation of the mandatory and many optional GHG-reducing strategies. Nonetheless, in the absence of GHG-reduction commitments from the developers of the related projects, and given the continued regulatory uncertainty, it is conservatively assumed that the proposed project would result in a considerable contribution to cumulatively significant global climate change impacts. Until reduction goals are finalized and regulations are promulgated, mitigation of this impact is speculative at best. This impact is therefore significant and unavoidable.

Table IV.B-13

GHG Reduction Strategies

Source	Category / Description	Reduction Range
AB 1493 (Pavley Regulations)	Reduces greenhouse gas emissions in new passenger vehicles from 2012 through 2016. Also reduces gasoline consumption to a rate of 31 percent of 1990 gasoline consumption (and associated GHG emissions) by 2020	
SB 1368	Establishes an emissions performance standard for power plants within the State of California.	
Low Carbon Fuel Standard	Establishes protocols for measuring life-cycle carbon intensity of transportation fuels and helps to establish use of alternative fuels.	
CALGREEN Requirements	<p>Gas fireplaces shall comply with USEPA Phase II emission limits</p> <p>All bathroom exhaust fans shall be Energy Star compliant</p> <p>HVAC Systems will be designed to meet ASHRAE standards</p> <p>Energy commissioning shall be performed for buildings larger than 10,000 square feet.</p> <p>Air filtration systems are required to meet a minimum of MERV 8 or higher.</p> <p>Refrigerants used in newly installed HVAC systems shall not contain any CFCs.</p> <p>Parking spaces shall be designed for carpool or alternative fuel vehicles. Up to eight percent of total parking spaces will be designed for such vehicles.</p> <p>Long-term and short-term bike parking shall be provided for up to five percent of vehicle trips.</p> <p>Stormwater Pollution Prevention Plan (SWPPP) Required</p> <p>Individual spaces consuming more than 100 gal/day required to have separate meters if building is in excess of 50,000 square feet. Any building regardless of size shall install separate meters for spaces consuming more than 1,000 gal/day.</p> <p>Indoor water usage must be reduced by 20 percent compared to current California Building Code Standards for maximum flow.</p> <p>All irrigation controllers must be installed with weather sensing or soil moisture sensors</p> <p>Wastewater usage shall be reduced by 20 percent compared to current California Building Standards.</p> <p>Requires a minimum of 50 percent recycle or reuse of nonhazardous construction and demolition debris.</p> <p>Requires documentation of types of waste recycled, diverted or reused.</p> <p>Requires use of low VOC coatings consistent with AQMD Rule 1168</p> <p>100 percent of vegetation, rocks, soils from land clearing shall be recycled or stockpiled on-site.</p>	<p>20 percent</p> <p>6.1 percent</p> <p>20 percent</p>
CALGREEN Voluntary Actions	Building shall be oriented with long-side within 30 degrees of south	

Table IV.B-13

GHG Reduction Strategies

Source	Category / Description	Reduction Range
Climate Action Team	<p>Solar reflective index shall be consistent with CalGREEN or Cool Roof requirements</p> <p>Exceed 2008 California Energy Code requirements by 15 or 30 percent HVAC systems shall undergo commissioning. The following equipment shall meet the following efficiency rates: Gas fired equipment - AFUE 0.9 or higher, Heat pumps HSPF 8.0 or higher, Cooling Equipment SEER 13.0 or higher.</p> <p>All appliances shall be Energy Star Rated</p> <p>Water heating efficiency shall be 0.80 or higher</p> <p>Limit turf areas to no more than 50 percent of total landscaped area and utilize 75 percent native plant species</p> <p>Select an infill, greyfield or brownfield site for residential development.</p> <p>Reduce diesel-fueled commercial motor vehicle idling.</p> <p>Achieve California’s 50 percent waste diversion mandate (Integrated Waste Management Act of 1989) to reduce GHG emissions associated with virgin material extraction.</p> <p>Plant five million trees in urban areas by 2020 to effect climate change emission reductions.</p> <p>Implement efficient water management practices and incentives, as saving water saves energy and GHG emissions.</p> <p>The California Energy Commission updates building energy efficiency standards that apply to newly constructed buildings and additions to and alterations to existing buildings. Both the Energy Action Plan and the Integrated Energy Policy Report call for ongoing updating of the standards</p> <p>Reduce GHG emissions from electricity by reducing energy demand. The California Energy Commission updates appliance energy efficiency standards that apply to electrical devices or equipment sold in California. Recent policies have established specific goals for updating the standards; new standards are currently in development.</p> <p>Apply strategies that integrate transportation and land-use decisions, including but not limited to promoting jobs/housing proximity, high-density residential/ commercial development along transit corridors, and implementing intelligent transportation systems.</p> <p>Reduce energy use in private buildings.</p>	

Source: PCR Services, CalGreen Building Code, Climate Action Team, Attorney General’s Office, 2011

6. LEVEL OF SIGNIFICANCE AFTER MITIGATION

a. Construction

Implementation of the mitigation measures described above would reduce construction emissions for all pollutants. The daily emission reductions are provided below in **Table IV.B-14, Mitigated Regional Construction Emissions**. Short-term construction-related regional emissions of NO_x are anticipated to exceed thresholds even with incorporation of mitigation. As such, regional short-term construction emissions would cause a significant and unavoidable impact. Implementation of the mitigation measures described above would also reduce localized pollutant concentrations during construction. Localized PM_{2.5} concentrations would fall below the applicable threshold after mitigations and impacts would be less than significant after mitigation. However, even with incorporation of mitigation measures, the project would remain in exceedance of the SCAQMD localized construction threshold for PM₁₀. Therefore, localized construction impacts are considered significant and unavoidable.

Table IV.B-14
Mitigated Regional Construction Emissions^a
(pounds per day)

	VOC	NO_x	CO	SO₂	PM₁₀^b	PM_{2.5}^b
Maximum Regional Emissions (On-site + Off-site) By Stage						
Demolition	5	38	22	<1	12	4
Site Preparation/Excavation	18	177	85	<1	46	16
Building Foundation	13	139	63	<1	7	6
Building Construction ^c	69	57	72	<1	4	4
Maximum Regional Emissions	69	177	85	<1	46	16
Regional Construction Daily Significance Threshold	75	100	550	150	150	55
Over/(Under)	(6)	77	(465)	(150)	(104)	(39)
Exceed Threshold?	No	Yes	No	No	No	No
Maximum Localized Emissions (On-site) By Stage						
Demolition	4	33	17	<1	11	4
Site Preparation/Excavation	8	61	35	<1	41	11
Building Foundation	4	25	14	<1	2	2
Building Construction ^c	67	48	29	<1	3	3
Maximum Localized Emissions	67	61	35	<1	41	11

^a Compiled using the URBEMIS2007 emissions inventory model. The equipment mix and use assumption for each phase is provided in the Air Quality Appendices.

^b PM₁₀ and PM_{2.5} emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

^c Asphalt paving and architectural coating would occur during the building stage.

Source: PCR Services Corporation, 2011.

Cumulative impacts associated with construction of the project described above would also remain significant. Since regional NO_x emissions and localized PM₁₀ concentrations would continue to exceed

applicable thresholds, the project would result in significant and unavoidable impacts with regard to AQMP consistency. Mitigated construction emissions are detailed above in Table IV.B-11 and below in **Table IV.B-15**, *Mitigated Proposed Project – Localized Construction Dispersion Analysis*, as well as in Appendix B of this EIR.

Table IV.B-15

**Mitigated Proposed Project –
Localized Construction Dispersion Analysis**

Pollutant and Averaging Period	Closest Sensitive Receptor (Residential Northwest)
PM₁₀ (24-hr) - (ug/m³)	
Project Incremental Concentration	18.2
LST Threshold	10.4
Over/(Under)	7.8
Exceed Threshold?	Yes
PM_{2.5} (24-hr) - (ug/m³)	
Project Incremental Concentration	4.9
LST Threshold	10.4
Over/(Under)	(5.5)
Exceed Threshold?	No
CO (1-hr) - (ug/m³)	
Project Incremental Concentration	95
LST Threshold	19,550
Over/(Under)	(19,455)
Exceed Threshold?	No
CO (8-hr) - (ug/m³)	
Project Incremental Concentration	29
LST Threshold	3,967
Over/(Under)	(3,937)
Exceed Threshold?	No
NO₂ (1-hr) - (ug/m³)	
Project Incremental Concentration	16
LST Threshold	94
Over/(Under)	(78)
Exceed Threshold?	No

Source: PCR Services Corporation, 2011.

No significant impacts related to TAC emissions during construction are anticipated to occur for the project (see Subsection 3d(1)(c), above). As such, potential TAC impacts would be less than significant.

b. Operation

The project includes numerous features to reduce vehicular traffic, including encouraging the use of mass transit and encouraging pedestrian and bicycling as viable means of accessing the project site by employees, residents, and visitors. These project features have been incorporated into the analysis to reduce mobile source impacts to the maximum extent possible.

In addition, the project is designed as a mixed-used development with the intent of reducing vehicular trips and congestion as well as promoting pedestrian travel. This is accomplished by providing housing in close proximity to jobs, services and retail uses. Trips among such land uses can then occur without, or with very limited use of, private motor vehicles. Although not considered a mitigation measure or project feature, the mixed-use design would contribute to the reduction of mobile source impacts in the region. Additional mobile source mitigation measures as listed above would have a negligible effect on total daily trips.

Mitigation Measures B-14 and B-15 would reduce regional operational emissions. However, insufficient data is available to quantify the reductions associated with this mitigation measure. Therefore, even with mitigation, regional operational emissions would still exceed the SCAQMD daily emission thresholds for VOC, NO_x, CO and PM₁₀. Therefore, operation of the project would have a significant and unavoidable impact on long-term regional air quality. Since regional operational emissions exceed SCAQMD thresholds, the project would also result in a significant and unavoidable cumulative impact.

No significant impacts related to TAC emissions during operation of the proposed project are anticipated to occur (see Subsection 3d(2)(c), above). As such, potential operational TAC exposure impacts would be less than significant.

c. Global Climate Change

Although the project results in a cumulative significant impact with regard to GHG emissions, all feasible GHG reduction measures have been implemented on a project-level. The project has considered implementation of all practical reduction measures contained in **Table IV.B-13**. It was determined that project features implemented would reduce project related GHG emissions to the furthest extent possible. The project will incorporate additional project design features as part of LEED™ certification. However, at this stage in the design process, the LEED™ credits have not yet been determined; thus, there is insufficient data to quantify the GHG reductions from those LEED™ features. Although the GHG reduction measures needed to achieve LEED™ credits likely reduce emissions, GHG emissions would remain significant and unavoidable on a cumulative level.

Given the above significant unavoidable impacts, if the City of Long Beach approves the proposed project, the City shall be required to cite their findings in accordance with Section 15091 of the *CEQA Guidelines* and prepare a Statement of Overriding Considerations in accordance with Section 15093 of the *CEQA Guidelines*.