

4.4 AIR QUALITY AND CLIMATE CHANGE

4.4.1 INTRODUCTION

Appendix G of the California Environmental Quality Act (CEQA) Guidelines requires that air quality issues be evaluated as part of the environmental documentation process. This EIR section summarizes the findings of the Sunset Ridge Park Air Quality Study prepared by BonTerra Consulting (September 2009); the report is included in its entirety in Appendix C.

4.4.2 REGULATORY SETTING

This section contains a discussion of the applicable laws, ordinances, regulations, and standards that govern air quality and that must be adhered to during construction and daily operation of the proposed Project.

Federal

The United States Environmental Protection Agency (USEPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. The standards are shown in Table 4.4-1.

The USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The USEPA's air quality mandates are drawn primarily from the Federal Clean Air Act (CAA), which was enacted in 1970, and most recently amended by Congress in 1990. As part of its enforcement responsibilities, the USEPA requires each State with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain and maintain the federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution by using a combination of performance standards and market-based programs within the SIP-identified timeframe.

Greenhouse Gases

There are no federal laws or regulations governing the emission of greenhouse gases (GHGs). However, the following paragraphs describe current federal activities and related legislation.

On April 17, 2009, the Administrator of the USEPA signed a proposal with two distinct findings regarding GHGs under Section 202(a) of the CAA (BonTerra Consulting 2009):

- The Administrator is proposing to find that the current and projected concentrations of the mix of six key greenhouse gases—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the endangerment finding.
- The Administrator is further proposing to find that the combined emissions of CO₂, CH₄, N₂O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key greenhouse gases and hence to the threat of climate change. This is referred to as the cause or contribute finding.

**TABLE 4.4-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	State Standards ^{a,b}	Federal Standards ^c	
			Primary ^{c,d}	Secondary ^{c,e}
O ₃	1 Hour	0.09 ppm (180 µg/m ³)	–	–
	8 Hour	0.070 ppm (137 µg/m ³)	0.075 ppm (147 µg/m ³)	Same as Primary
PM ₁₀	24 Hour	50 µg/m ³	150 µg/m ³	Same as Primary
	AAM	20 µg/m ³	–	Same as Primary
PM _{2.5}	24 Hour	–	35 µg/m ³	Same as Primary
	AAM	12 µg/m ³	15.0 µg/m ³	Same as Primary
CO	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	–
	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)	–	–
NO ₂	AAM	0.030 ppm (56 µg/m ³)	0.053 ppm (100 µg/m ³)	Same as Primary
	1 Hour	0.18 ppm (338 µg/m ³)	–	–
SO ₂	AAM	–	0.030 ppm (80 µg/m ³)	–
	24 Hour	0.04 ppm (105 µg/m ³)	0.14 ppm (365 µg/m ³)	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)	–	–
Lead ^f	30 day Avg.	1.5 µg/m ³	–	–
	Calendar Quarter	–	1.5 µg/m ³	Same as Primary
	Rolling 3-month avg.	–	0.15 µg/m ³	
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	
Sulfates	24 Hour	25 µg/m ³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)		
Vinyl Chloride ^f	24 Hour	0.01 ppm (26 µg/m ³)		

–: No Standard; ppm: parts per million; µg/m³: micrograms per cubic meter; mg/m³: milligrams per cubic meter; AAM: annual arithmetic mean; Km: kilometer.

^a California standards for O₃, CO (except Lake Tahoe), SO₂ (1 and 24 hour), NO₂, PM₁₀, PM_{2.5}, and visibility reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

^b Concentration is expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C, 77 degrees Fahrenheit [°F]) and a reference pressure of 760 torr (unit of measure for the pressure exerted by 1 mm of mercury, equal to ¹/₇₆₀ of standard atmospheric pressure). Most measurements of air quality are to be corrected to a reference temperature of 25°C (77°F) and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

^c National standards (other than O₃, PM₁₀, PM_{2.5}, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth-highest, 8-hour concentration in a year, averaged

**TABLE 4.4-1 (Continued)
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	State Standards ^{a,b}	Federal Standards ^c	
			Primary ^{c,d}	Secondary ^{c,e}
<p>over 3 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 1. For PM2.5, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.</p> <p>^d National Primary Standards: The levels of air quality necessary with an adequate margin of safety to protect public health.</p> <p>^e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p> <p>^f 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.</p> <p>Source: BonTerra Consulting 2009.</p>				

The proposed findings were published in the Federal Register for the public comment period, which ended on June 23, 2009. Two public hearings were held in May 2009. The USEPA will consider all comments before issuing final findings. The findings do not include any proposed regulations. Before taking any steps to reduce greenhouse gases under the CAA, the USEPA would conduct an appropriate process and consider stakeholder input.

With respect to legislation, the American Clean Energy and Security Act of 2009 (HR 2454) was passed by the House of Representatives (HR) on June 26, 2009. This proposed law includes but is not limited to a cap-and-trade global warming reduction plan designed to reduce economy-wide greenhouse gas emissions by 17 percent by 2020 and by 83 percent by 2050. Other provisions would require utilities to produce 12 percent of their electricity from renewable resources by 2012, require new buildings to be 30 percent more efficient by 2012, and would provide incentives regarding new carbon capture and sequestration technologies (BonTerra Consulting 2009). As of September 2009, the Senate has not approved the bill.

The 2007 Energy Bill (HR 6) mandates improved national standards for vehicle fuel economy. These standards, known as Corporate Average Fuel Economy (CAFE) standards, require a fleetwide average of 35 miles per gallon (mpg) to be achieved by 2020. The National Highway Traffic Safety Administration is directed to phase-in requirements to achieve this goal. A California Air Resources Board (CARB) analysis suggests that achieving this goal will require an annual improvement in fleetwide average fuel economy of approximately 3.4 percent between 2011 and 2020 (BonTerra Consulting 2009). Although the explicit purpose of requiring improved national standards for fuel economy was not to address climate change, these requirements would improve the fuel economy of the nation’s vehicle fleet and therefore, incrementally lower the amount of fuel use and GHG emissions associated with vehicle trips generated by a proposed project.

State of California

CARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and State air pollution control programs in California. In this capacity, CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS) shown in Table 4.4-1, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. For regions that do not attain the CAAQS, CARB requires the air districts to prepare plans for attaining the standards. These plans are then integrated into the State SIP. CARB establishes emissions standards for motor vehicles sold in California, consumer products (e.g., hair spray, aerosol

paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

Greenhouse Gases

There are numerous State plans, policies, regulations, and laws related to GHGs and global climate change. Following is a brief discussion of some of these plans, policies, and regulations.

Assembly Bill 1493

In 2002, Assembly Bill (AB) 1493 required CARB to develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state”. To meet the requirements of AB 1493, CARB approved amendments to the *California Code of Regulations*. Amendments included (1) the addition of GHG emission standards to California’s existing motor vehicle emission standards and (2) the requirement that automobile manufacturers meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016. In order to enact State standards for vehicle emissions, a waiver was required from the USEPA.

Subsequent to prolonged litigation, the USEPA denied California’s waiver request. California filed a petition with the Ninth Circuit Court of Appeals challenging the USEPA’s denial on January 2, 2008. The Obama administration subsequently directed the USEPA to re-examine their decision. On May 19, 2009, challenging parties, automakers, the State of California, and the federal government reached an agreement on a series of actions that would resolve these current and potential future disputes over the standards through model year 2016. In summary, the USEPA and the U.S. Department of Transportation agreed to adopt a federal program to reduce GHGs and improve fuel economy, respectively, from passenger vehicles in order to achieve equivalent or greater greenhouse gas benefits as the AB 1493 regulations for the 2012–2016 model years. Manufacturers agreed to ultimately drop current and forego similar future legal challenges, including challenging a waiver grant, which occurred on June 30, 2009. The State of California committed to (1) revise its standards to allow manufacturers to demonstrate compliance with the fleet-average GHG emission standard by “pooling” California and specified State vehicle sales; (2) revise its standards for 2012–2016 model year vehicles so that compliance with USEPA-adopted GHG standards would also comply with California’s standards; and (3) revise its standards, as necessary, to allow manufacturers to use emissions data from the federal CAFE program to demonstrate compliance with the AB 1493 regulations (BonTerra Consulting 2009).

Executive Order S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce snowpack in the Sierra Nevadas, further exacerbate California’s air quality problems, and potentially cause a rise in sea levels. In an effort to avoid or reduce the impacts of climate change, Executive Order S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

The California Legislature adopted the public policy position that global warming is “a serious threat to the economic well-being, public health, natural resources, and the environment of California” (*California Health and Safety Code*, Section 38501). Further, the State Legislature has determined that “the potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra Nevada snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious disease, asthma, and other human health-related problems”, and that “Global warming will have detrimental effects on some of California’s largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry. It would also increase the strain on electricity supplies necessary to meet the demand for summer air conditioning in the hottest parts of the State” (*California Health and Safety Code*, Section 38501). These public policy statements became law with the enactment of AB 32, the California Global Warming Solutions Act of 2006, signed by Governor Arnold Schwarzenegger in September 2006. AB 32 is now codified as *California Health and Safety Code* Sections 38500–38599.

AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction is to be accomplished through an enforceable statewide cap on GHG emissions to be phased in starting in 2012. AB 32 directs CARB to establish this statewide cap based on 1990 GHG emissions levels; disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms. Emissions reductions under AB 32 are to include carbon sequestration projects and best management practices that are technologically feasible and cost-effective. As of September 2009 when the climate change analysis was prepared, CARB had not yet promulgated GHG emissions or reporting standards that are directly applicable to the proposed Project.

Senate Bill 97

Signed August 2007, Senate Bill (SB) 97 directs the Governor’s Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions for evaluation under CEQA by July 1, 2009. The Resources Agency is required to certify or adopt those guidelines by January 1, 2010.

Governor’s Office of Planning and Research Technical Advisory

On June 19, 2008, the OPR issued a Technical Advisory on addressing climate change impacts of a proposed project under CEQA (OPR Climate Change Advisory) (BonTerra Consulting 2009). The OPR Climate Change Advisory recommends that lead agencies quantify, determine the significance of, and (as needed) mitigate the cumulative climate change impacts of a proposed project. The OPR Climate Change Advisory identifies that each lead agency is required, under CEQA, to exercise its own discretion in choosing how to determine significance in the absence of adopted thresholds or significance guidelines from the State, CARB, or the applicable local air district. OPR also asked the CARB to make recommendations for GHG-related thresholds of significance: identifiable benchmarks or standards that assist lead agencies in the significance determination.

In April 2009, the OPR transmitted proposed SB 97 CEQA Guideline Amendments to the California Secretary of Natural Resources (BonTerra Consulting 2009). The proposed CEQA Guideline Amendments are listed below.

- (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:
 - (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or
 - (2) Rely on a qualitative analysis or performance based standards.
- (b) A lead agency may consider the following when assessing the significance of impacts from greenhouse gas emissions on the environment:
 - (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
 - (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
 - (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The OPR proposes to add the following section to the CEQA Initial Study Checklist:

GREENHOUSE GAS EMISSIONS – Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*
- b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?*

On July 3, 2009, the Natural Resources Agency (Resources) commenced the Administrative Procedure Act (APA) rulemaking process for certifying and adopting these amendments. The procedures include two public hearings held in August 2009 and the receiving of public

comment through August 27, 2009. Approximately 80 comments were received. Resources will consider and respond to all comments received during the comment period. Pursuant to the APA, responses may include changes to the proposed guidelines amendments or an explanation of why no change is being made in response to the suggestion or recommendation (BonTerra Consulting 2009).

CARB Proposals for Interim CEQA Significance Thresholds

In October 2008, in response to the request from OPR noted above, CARB published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions called *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases under the California Environmental Quality Act* (CARB Guidance). CARB did not attempt to address every type of project that may be subject to CEQA, but instead focused on common project types that, collectively, are responsible for substantial GHG emissions – specifically, industrial, residential, and commercial projects. For each type of project, the CARB Guidance recommends that a two-pronged threshold be employed, one performance based and one numerical. For performance standards, the CARB Guidance suggests that operations and construction of a project be evaluated for its consistency with applicable performance standards contained in plans designed to reduce GHG emissions and/or help meet the State's emission reduction objectives in AB 32 (BonTerra Consulting 2009).

For industrial projects, the CARB Guidance proposed that projects that emit less than 7,000 metric tons of CO₂e per year, as well as meeting performance standards for construction and transportation, may be considered less than significant, recognizing that AB 32 will continue to reduce or mitigate emissions from these sorts of projects over time. For residential and commercial projects, the CARB Guidance proposed performance standards for construction, energy efficiency, water use, waste disposal, and transportation, as well as a CO₂e emissions threshold. The CARB Guidance states that some small residential and commercial projects, emitting 1,600 metric tons of CO₂e per year or less, would clearly not interfere with achieving the States emission reduction objectives in AB 32 and thus may be deemed categorically exempt from CEQA. The CARB Guidance does not state or imply that projects emitting more than 1,600 metric tons of CO₂e per year will necessarily result in a significant impact, although the CARB Guidance did not suggest a numerical threshold for commercial and residential projects.

CARB Scoping Plan

As discussed previously, AB 32 requires CARB to develop a Scoping Plan to lower the State's GHG emissions to meet the 2020 limit (*California Health and Safety Code*, Sections 38500 et seq.). The Scoping Plan was approved at the December 2008 board meeting. The measures in the CARB-adopted Scoping Plan will be developed and in place by 2012. Key elements of the Scoping Plan include (1) expanding and strengthening existing energy efficiency programs and building and appliance standards; (2) achieving a statewide renewable energy mix of 33 percent; (3) developing a California cap-and-trade program linked with other similar programs; (4) establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets; (5) implementing existing laws and standards such as California's clean car standards (AB 1493), goods movement measures, and the Low Carbon Fuel Standard; and (6) issuing targeted fees to fund the State's long-term commitment to AB 32 administration (BonTerra Consulting 2009).

On April 23, 2009, CARB adopted the Low Carbon Fuel Standard, which has a goal to reduce GHG emissions from California's transportation fuels by 10 percent, equal to 16 million metric tons of carbon dioxide equivalent (MMTCO_{2e})¹, by 2020. The regulation requires providers, refiners, importers, and blenders to ensure that the fuels they provide for the California market meet an average declining standard of "carbon intensity". This is established by determining the sum of greenhouse gas emissions associated with the production, transportation and consumption of a fuel, also referred to as the "fuel pathway" (BonTerra Consulting 2009).

South Coast Air Quality Management District

Air quality in Orange County is regulated by the South Coast Air Quality Management District (SCAQMD). The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin (SoCAB). To that end, the SCAQMD, a regional agency, works directly with the Southern California Association of Governments (SCAG), County transportation commissions and local governments, and cooperates actively with all federal and State government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs). Two versions (2003 and 2007) of the AQMPs are in different stages of approval. The 2003 AQMP is an update to the 1997 AQMP. The 2003 AQMP employs up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. The 2003 AQMP proposes policies and measures to achieve federal and State standards for healthy air quality in the SoCAB. The 2003 AQMP updates the attainment demonstration with the federal standards for O₃ and PM₁₀; replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a future CO maintenance plan; and updates the maintenance plan for the federal NO₂ standard, which the SoCAB has met since 1992. The 2003 AQMP was adopted by the SCAQMD in August 2003 and approved, with modifications, by CARB in October 2003. CARB then submitted the 2003 State and Federal Strategy of the California SIP (which incorporates the 2003 AQMP) to the USEPA on January 9, 2004. However, this SIP has not been approved, and the 1997 AQMP with 1999 amendments remains the federally approved AQMP.

The SCAQMD Governing Board adopted the 2007 AQMP on June 1, 2007. The purpose of the 2007 AQMP for the SoCAB is to set forth a comprehensive program that will lead the region into compliance with federal 8-hour O₃ and PM_{2.5} air quality standards. Federal and State 8-hour O₃ and PM_{2.5} standards were implemented subsequent to 2003. CARB adopted the State Strategy for the 2007 SIP, including the 2007 AQMP as part of the 2007 SIP, on September 27, 2007. On November 28, 2007, CARB submitted a SIP revision to the USEPA for O₃, PM_{2.5}, CO, and NO₂ in the SoCAB; this revision is identified as the "2007 South Coast SIP". The 2007 AQMP/2007 South Coast SIP demonstrates attainment of the federal PM_{2.5} standard in the SoCAB by 2014 and attainment of the federal 8-hour O₃ standard by 2023. The SIP also includes a request to reclassify the O₃ attainment designation from "severe" to "extreme" (BonTerra Consulting 2009).

¹ CO_{2e} emissions are commonly expressed as "metric tons of carbon dioxide equivalent (MTCO_{2e})". Larger quantities of emissions, such as on the State or world scale, are expressed in million metric tons of carbon dioxide equivalent (MMTCO_{2e}). Metric tons may also be stated as "tonnes". The CO_{2e} for a gas is derived by multiplying the tons of the gas by the associated global warming potential (GWP), such that MMTCO_{2e} = (million metric tons of a GHG) x (GWP of the GHG). For example, the GWP for CH₄ is 21. This means that emissions of 1 million metric ton of CH₄ are equivalent to the emissions of 21 million metric tons of CO₂.

On February 1, 2008, CARB submitted additional technical information regarding the 2007 South Coast SIP to the USEPA (BonTerra Consulting 2009).

In March 2009, CARB reported the following status: “With its actions since adopting the State Strategy in September 2007, California now has in place programs and regulations that will achieve 87 percent of the reductions needed for PM_{2.5} attainment in the South Coast. California has also achieved 90 percent of the reductions needed from near-term measures for ozone attainment in the South Coast. Additional reductions are still needed from long term measures” (BonTerra Consulting 2009).

Greenhouse Gases

Beginning in April 2008, the SCAQMD convened a working group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. The Working Group meets approximately once per month. On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold for projects where the SCAQMD is the lead agency (BonTerra Consulting 2009). The Working Group has adopted a philosophy similar to recommendations made by other agencies in California to identify “Significance Screening Levels” (or thresholds) for GHG emissions. Projects with GHG emissions less than these levels or thresholds would be less than significant, although the projects may be required to demonstrate energy efficiency greater than that required by the California Building Code, commonly referred to as Title 24 standards, and efficiencies in water use such as the use of recycled water or the installation of “smart” controllers for landscape irrigation. Projects with GHG emissions greater than the Significance Screening Levels would be required to implement specific performance standards or purchase offsets² to reduce the climate change impact to less than significant. The interim screening threshold for industrial projects is 10,000 metric tons of carbon dioxide equivalent per year (MTCO₂e/yr). The methodology for establishing screening thresholds is to identify the GHG emissions for project categories (i.e., residential, commercial, and industrial) and to set the screening level at the point where projects above that level will emit 90 percent of the total GHG emissions in that category. That is, projects with emissions above the screening level would be potentially significant and must incorporate mitigation measures while projects with less than the screening level would not require additional analysis. The July 29, 2009, Working Group presentation included the following data (BonTerra Consulting 2009):

- Based on data provided by OPR from 738 projects, the 90 percent capture threshold would be 8,580–9,151 MTCO₂e/yr for residential projects and 2,427–3,041 MTCO₂e/yr for commercial projects.
- Based on the SCAQMD’s survey of 84 projects, the 90 percent capture threshold would be 4,867 MTCO₂e/yr for residential projects and 25,816 MTCO₂e/yr for commercial projects.
- At this point, the SCAQMD recommends using the values from the OPR database because of the small sample size for the SCAQMD database.

For mixed-use projects, the SCAQMD discussed, but did not recommend, whether to use either the residential or commercial threshold, derive a single weighted threshold, or let lead agencies derive a weighted threshold.

² Purchase of offsets consists of contributions to a fund that would be used to implement GHG emission reductions at some location other than the project site.

California Coastal Act

The California Coastal Act includes polices related to project consistency with requirements imposed by an air pollution control district or the State Air Resources Board. Applicable policies of the City's Coastal Land Use Program and the California Coastal Act are provided in Tables 4.1-3 and 4.1-4, respectively, in Section 4.1, Land Use and Related Planning Programs, with a Project consistency analysis.

City of Newport Beach

The City of Newport Beach has tentatively established the following threshold with respect to the assessment of global climate change impacts:

While State agencies and local air pollution control districts are currently working to develop CEQA thresholds of significance that would guide classification of impacts associated with global climate change in CEQA documents, to date, the City lacks sufficient information to establish formal, permanent thresholds by which classify projects with relatively small, incremental contributions to the State's total GHG emissions as cumulatively considerable or not. Until appropriate regulatory entities develop CEQA thresholds for GHGs, projects emitting more than 1,600 metric tons of CO₂e per year, the City will apply interim standards based on the October 2008 CARB draft Guidance. For residential and commercial projects, the City will evaluate the project's consistency with performance standards set out in City policies, which promote sustainability and reduce emissions, as well as State policies and strategies designed to meet the State's emission reduction objectives in AB 32³; the City will also evaluate project emissions numerically. Until further guidance is provided by the State or other appropriate expert agencies, the City will conservatively apply a standard that falls somewhat below the State's proposed threshold for industrial projects, which is 7,000 metric tons of CO₂e per year.

To restate, until more guidance is provided from the expert agencies, the City will consider projects emitting 1,600 metric tons of CO₂e per year or less to be less than significant and no further analysis is required. For projects exceeding the screening threshold of 1,600 metric tons of CO₂e per year, the City will consider projects to have significant impacts under this threshold if they either (1) are not substantially consistent with policies and standards set out in federal, State, and local plans designed to reduce greenhouse gas emission or (2) would emit more than 6,000 metric tons of CO₂e per year. Projects that are not substantially consistent with policies and standards set out in federal, State, and local plans designed to reduce greenhouse gas emission or would emit more than 6,000 metric tons of CO₂e per year would be considered to have significant impacts under this threshold, and thus could be expected to impede the State's mandatory requirement under AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. The City recognizes that this standard is interim and will likely change over time as further guidance is provided by the expert regulatory agencies.

³ These interim standards are consistent with the general guidance on cumulative impacts analysis. For instance, section 15064(h)(3) of the proposed amendment to the CEQA Guidelines states 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 plan or regulation that apply to the project that is specified in law or adopted by the public agency and has specific requirements to reduce the emissions of GHG.

General Plan Natural Resources Element

The Natural Resources Element of the *City of Newport Beach General Plan* includes goals and policies related to air quality that are applicable to the proposed Project. These goals and policies are provided in Table 4.1-2 in Section 4.1, Land Use and Related Planning Programs, with a Project consistency analysis.

4.4.3 EXISTING CONDITIONS

Climate and Meteorology

The Project site is located in the SoCAB, which consists of all or part of four counties—San Bernardino, Riverside, Los Angeles, and Orange. The distinctive climate of the SoCAB is determined by its terrain and geographic location. The SoCAB is a coastal plain with connecting broad valleys and low hills; it is bound by the Pacific Ocean to the southwest and has high mountains around the rest of its perimeter. The general region lies in the semi-permanent high-pressure zone of the Pacific, resulting in a mild climate that is tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. Winds in the Project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by the daytime onshore sea breezes. At night, the wind generally slows and reverses direction traveling toward the sea. Local canyons can also alter wind direction, with wind tending to flow parallel to the canyons. The vertical dispersion of air pollutants in the SoCAB is hampered by the presence of persistent temperature inversions. High-pressure systems, such as the semi-permanent high-pressure zone in which the SoCAB is located, are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, which is called a subsidence inversion. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The basinwide occurrence of inversions between 0 and 3,500 feet above sea level occurs an average of 191 days per year (BonTerra Consulting 2009).

The annual average maximum temperature measured at the Newport Beach Harbor climatic station from 1921 through 2008 was 67.8°F. The highest monthly average maximum temperature of 73.5°F occurs in August and the lowest monthly average minimum temperature of 46.8°F occurs in January. The average annual precipitation during the same period was 11.08 inches (BonTerra Consulting 2009). Exhibit 4.4-1 shows a wind rose from the SCAQMD Costa Mesa Monitoring Station for 2005 through 2007 (BonTerra Consulting 2009). The prevailing wind direction is west-southwest.

Criteria Pollutants

Air quality regulations were first published with the CAA of 1970. Air quality is defined by ambient air concentrations of seven “criteria air pollutants”, which are a group of common air pollutants identified by the USEPA to be of concern with respect to the health and welfare of the general public. Federal and State governments regulate criteria air pollutants by using ambient standards based on criteria regarding the health and/or environmental effects of each pollutant. These pollutants include nitrogen dioxide (NO₂), ozone (O₃), particulate matter (including both PM₁₀ and PM_{2.5}), carbon monoxide (CO), sulfur dioxide (SO₂), and lead.

Nitrogen Dioxide

Nitrogen gas, normally relatively inert (nonreactive), comprises about 80 percent of the air. At high temperatures (e.g., in a combustion process) and under certain other conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitrogen oxides (NOx). Nitric oxide (NO), nitrogen dioxide (NO₂), and nitrous oxide (N₂O) are important constituents of NOx. NO is converted to NO₂ in the atmosphere. While the NAAQS only address NO₂, NO and NO₂ are both precursors in the formation of O₃ and PM_{2.5}, as discussed below. Because of this and the fact that NO emissions largely convert to NO₂, NOx emissions are typically examined when assessing potential air quality impacts. Motor vehicle emissions are the main source of NOx in urban areas.

NO₂ is a red-brown pungent gas and is toxic to various animals and to humans because of its ability combine with water in the eyes, lungs, mucus membranes, and skin to form nitric acid. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations of NO₂ can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations among NO₂ concentrations and (1) daily mortality from respiratory and cardiovascular causes and (2) hospital admissions for respiratory conditions.

Ozone

Ozone (O₃) is a secondary pollutant so it is not directly emitted. It is a gas that is formed when volatile organic compounds (VOCs) (also referred to as reactive organic gases) and NOx undergo photochemical reactions that occur in the presence of sunlight. The primary source of VOC emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NOx forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O₃ to form; as a result, O₃ is known as a summertime air pollutant.⁴ Ground-level O₃ is the primary constituent of smog. Because O₃ formation occurs over extended periods of time, both O₃ and its precursors are transported by wind, and high O₃ concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when ozone levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including:

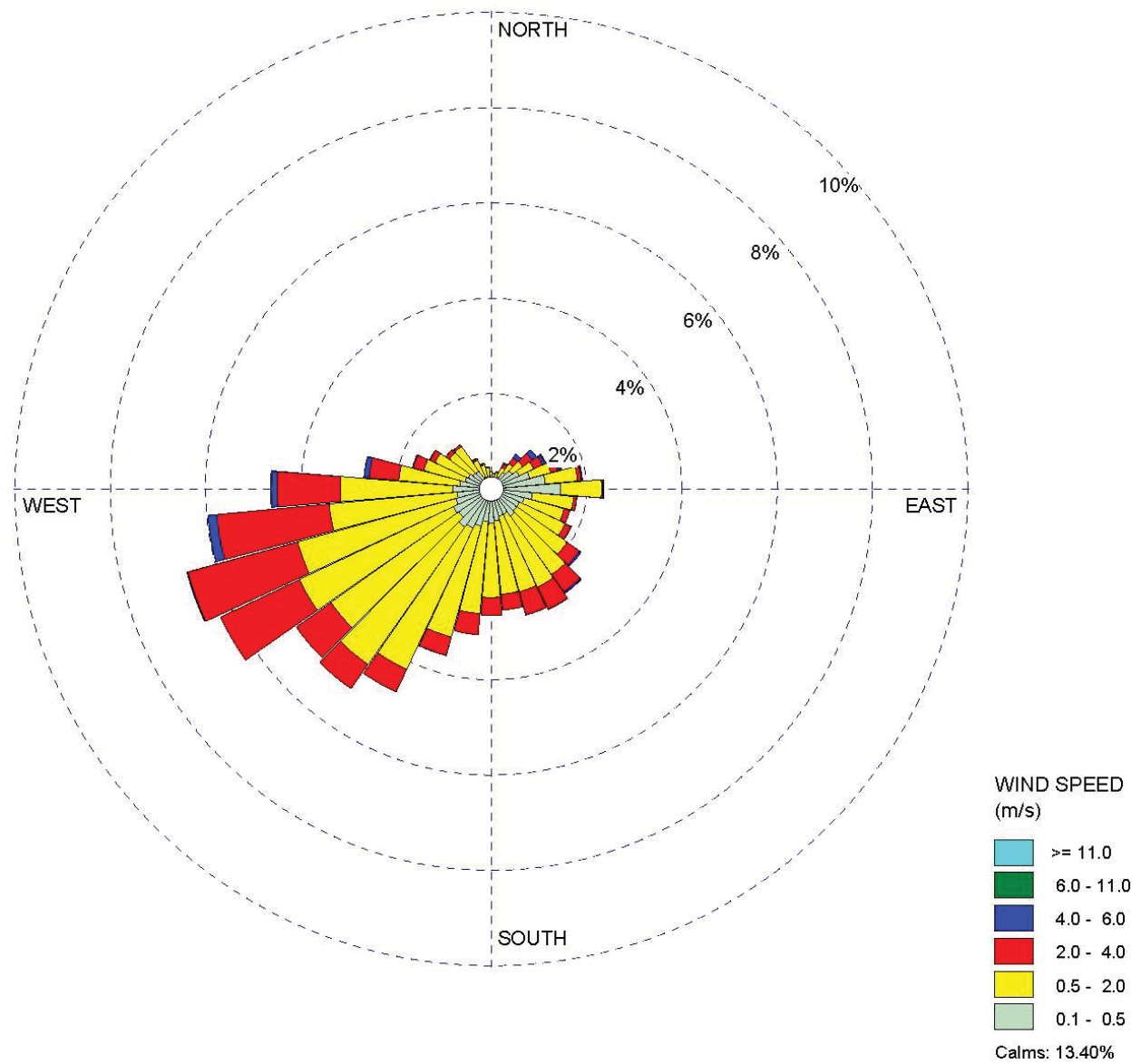
- lung irritation that can cause inflammation much like a sunburn;
- wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities;
- permanent lung damage to those with repeated exposure to ozone pollution; and
- aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Particulate Matter

Particulate matter includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are those particles smaller than 10 microns in size (PM₁₀)

⁴ Ground-level O₃ is not to be confused with atmospheric O₃ or the “ozone layer”, which occurs very high in the atmosphere and shields the planet from some ultraviolet rays.

D:/projects/Newport/J016/Graphics/Ex_AQ_wind_rose.ai



Costa Mesa Wind Rose 2005-2007

Exhibit 4.4-1

Sunset Ridge Park EIR



and smaller than or equal to 2.5 microns (PM_{2.5}). Particulate matter size refers to the aerodynamic diameter of the particle. Smaller particles are of greater concern because they can penetrate deeper into the lungs than large particles.

PM₁₀ is generally emitted directly as a result of mechanical processes that crush or grind larger particles or from the re-suspension of dusts, most typically through construction activities and vehicular travels. PM₁₀ generally settles out of the atmosphere rapidly and is not readily transported over large distances.

PM_{2.5} is directly emitted in combustion exhaust and formed in atmospheric reactions between various gaseous pollutants including NO_x, sulfur oxides (SO_x), and VOCs. PM_{2.5} can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effect of airborne particulate matter is on the respiratory system. According to the USEPA, some people are much more sensitive than others to breathing fine particles (i.e., PM₁₀ and PM_{2.5}). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses and premature death, and people with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM₁₀ and PM_{2.5}. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

Short-term exposures to high PM_{2.5} levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long-term exposures to high PM_{2.5} levels are associated with premature mortality and development of chronic respiratory disease. Short-term exposures to high PM₁₀ levels are associated with hospital admissions for cardiopulmonary diseases, increased respiratory symptoms, and possible premature mortality. The USEPA has concluded that available evidence does not suggest an association between long-term exposure to PM₁₀ at current ambient levels and health effects (BonTerra Consulting 2009).

Particulate matter tends to occur primarily in the form of fugitive dust. This dust appears to be generated by both local sources and by region-wide dust during moderate to high wind episodes. These regional episodes tend to be multi-district and sometimes interstate in scope. The principal sources of dust in the urban areas are grading, construction, disturbed areas of soil, and dust entrained by vehicles on roadways.

Carbon Monoxide

Carbon monoxide (CO) is a colorless and odorless gas which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease, and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections, along heavily used roadways carrying slow-moving traffic, and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (i.e., up to 600 feet or 185 meters) of heavily traveled roadways. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

Sulfur Dioxide

Sulfur oxides (SO_x) constitute a class of compounds of which sulfur dioxide (SO₂) and sulfur trioxide (SO₃) are of greatest importance. Ninety-five percent of pollution-related SO_x emissions are in the form of SO₂. SO_x emissions are typically examined when assessing potential air quality impacts of SO₂. The primary contributor of SO_x emissions is fossil fuel combustion for generating electric power. Industrial processes, such as nonferrous metal smelting, also contribute to SO_x emissions. SO_x is also formed during combustion of motor fuels. However, most of the sulfur has been removed from fuels, greatly reducing SO_x emissions from vehicles.

SO₂ combines easily with water vapor, forming aerosols of sulfurous acid (H₂SO₃), a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air to form the even more irritating and corrosive sulfuric acid (H₂SO₄). Peak levels of SO₂ in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures to high levels of SO₂ gas and particles cause respiratory illness and aggravate existing heart disease. SO₂ reacts with other chemicals in the air to form tiny sulfate particles which are measured as PM_{2.5}. Sulfur dioxide is monitored at several sites in the SoCAB.

Lead

Lead is a stable compound that persists and accumulates both in the environment and in animals. In humans, it affects the body's blood-forming, nervous, and renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological and gastrointestinal systems, although there is significant individual variability in response to lead exposure. When the USEPA adopted the lead standard in 1978, it was estimated that over 90 percent of ambient lead concentrations were attributable to the use of lead in gasoline. The phase-out of lead in gasoline began during the 1970s, and subsequent regulations virtually eliminated lead from the gasoline sold in California. Although lead from gasoline no longer poses an air quality problem, lead emissions from remaining industrial sources such as battery recycling, lead smelters, cement and glass manufacturing, metal mining and the use of non-lead fuel in certain general aviation applications (but not in commercial passenger aircraft) can still pose "hot spot" problems in a few locations. On October 15, 2008, the USEPA revised the federal ambient air quality standard for lead, lowering it from 1.5 micrograms per cubic meter (µg/m³) to 0.15 µg/m³. The USEPA states numerous health studies are now available that demonstrate health effects at much lower levels of lead than previously thought (BonTerra Consulting 2009).

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different than the "criteria" pollutants previously discussed in that ambient air quality standards have not been established for them. TACs occurring at extremely low levels may still cause health effects, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk, and chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as diesel particulate matter (diesel

PM). In 1998, California identified diesel exhaust PM as a TAC based on its potential to cause cancer, premature death, and other health problems. Diesel engines also contribute to California's fine particulate matter (i.e., PM_{2.5}) air quality problems. Those most vulnerable are children whose lungs are still developing and the elderly who may have other serious health problems. Based on year 2005 emissions in California, diesel PM contributes each year to approximately 3,500 premature deaths and thousands of hospital admissions, asthma attacks and other respiratory symptoms, and lost workdays. Overall, diesel engine emissions are responsible for the majority of California's known cancer risk from outdoor air pollutants. In addition, diesel soot causes visibility reduction and is a potent global warmer (BonTerra Consulting 2009).

Global Climate Change and Greenhouse Gases

General Description of Global Climate Change

Global climate change is currently an important and highly debated environmental, economic, and political issue. Increasing GHG emissions have led to an anthropogenic (caused or produced by humans) warming trend of the earth's average temperature, which is causing changes in the earth's climate; GHG emissions are primarily associated with (1) the burning of fossil fuels during motorized transport, electricity generation, consumption of natural gas, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition. This increasing temperature phenomenon is known as "global warming", and the climatic effect is known as "climate change" or "global climate change".

Climate change is a recorded change in the average weather of the earth measured by variables such as wind patterns, storms, precipitation, and temperature. Historical records show that global temperature changes have occurred naturally in the past, such as during previous ice ages. Eleven of the 12 years from 1995 to 2006 rank among the warmest years in the instrumental record of global surface temperature (since 1850). An increase in global surface temperature of 0.74°C (33.33°F) occurred during the 100-year period from 1906 to 2005.

Recent scientific research indicates very high confidence (i.e., at least 90 percent) that the rate and magnitude of current global temperature changes are anthropogenic and that global warming will lead to adverse climate change effects around the globe (BonTerra Consulting 2009). Anthropogenic effects, processes, objects, or materials are those that are derived from human activities, as opposed to those occurring in natural environments without human influence.

Greenhouse Gases

GHGs are atmospheric gases and clouds within the atmosphere that influence the earth's temperature by absorbing most of the infrared radiation that rises from the sun-warmed surface and that would otherwise escape into space. This process is commonly known as the "Greenhouse Effect". GHGs are emitted by natural processes and human activities. The earth's surface temperature averages about 58°F because of the Greenhouse Effect. Without it, the earth's average surface temperature would be somewhere around an uninhabitable 0°F (BonTerra Consulting 2009). The resulting balance between incoming solar radiation and outgoing radiation from both the earth's surface and atmosphere maintains the planet's habitability.

GHGs, as defined under California's AB 32, include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). General discussions on climate change often include water vapor, ozone, and aerosols in the GHG category. Water vapor and atmospheric ozone are not gases that are formed directly in the construction or operation of development projects, nor can they be controlled in these projects. Aerosols are not gases. While these elements have a role in climate change, they are not considered by either regulatory bodies (such as CARB) or climate change groups (such as the California Climate Action Registry [CCAR]) as gases to be reported or analyzed for control. Therefore, no further discussion of water vapor, ozone, or aerosols is provided.

Anthropogenic emissions of GHGs into the atmosphere enhance the Greenhouse Effect by absorbing radiation from other atmospheric GHGs that would otherwise escape into space, thereby trapping more radiation in the atmosphere and causing temperatures to increase. CO₂ is the most important anthropogenic GHG. The global atmospheric concentration of CO₂ has increased from a pre-industrial (roughly 1750) value of about 280 parts per million (ppm) to 379 ppm in 2005, primarily due to fossil fuel use, with land use change providing a significant but smaller contribution. The annual growth rate in CO₂ concentrations continues to increase, with a larger annual CO₂ concentration growth rate average during the ten-year period between 1995 and 2005 than since the beginning of continuous direct measurements in 1960.

The most common GHG is CO₂, which constitutes approximately 84 percent of all GHG emissions in California (BonTerra Consulting 2009). Worldwide, the State of California ranks as about the 12th largest emitter of CO₂ and is responsible for approximately 2 percent of the world's CO₂ emissions (BonTerra Consulting 2009). However, throughout the U.S., California is the fourth lowest in CO₂ emissions per capita (BonTerra Consulting 2009).

GHGs are global pollutants unlike air pollutants such as ozone, particulate matter and toxic air contaminants (TACs), which are pollutants of regional and local concern. While pollutants with localized air quality effects have relatively short atmospheric lifetimes (generally on the order of a few days), GHGs have relatively long atmospheric lifetimes, ranging from one year to several thousand years. Long atmospheric lifetimes allow for GHGs to disperse around the globe. In addition, the GHG impacts are global, as opposed to the localized air quality effects of criteria air pollutants and TACs.

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO₂. For example, since CH₄ and N₂O are approximately 21 and 310 times more powerful than CO₂, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 21 and 310, respectively (CO₂ has a GWP of 1). Carbon dioxide equivalent (CO₂e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO₂e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 4.4-2.

**TABLE 4.4-2
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES**

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO ₂)	50–200	1
Methane (CH ₄)	12	21
Nitrous Oxide (N ₂ O)	114	310
HFC-134a	48.3	1,300
PFC: Tetrafluoromethane (CF ₄)	50,000	6,500
PFC: Hexafluoroethane (C ₂ F ₆)	10,000	9,200
Sulfur Hexafluoride (SF ₆)	3,200	23,900
HFC: hydrofluorocarbon; PFC: perfluorocarbon.		
Source: BonTerra Consulting 2009.		

General Environmental Effects of Global Climate Change

Executive Order S-3-05, as discussed previously in Section 4.4.2, Regulatory Setting, resulted in a report on the impacts of climate change on California, including impacts to water supply, public health, agriculture, the coastline, and forestry. This report, *Scenarios of Climate Change in California: An Overview* (Climate Scenarios Report), was published in February 2006 (BonTerra Consulting 2009).

The Climate Scenarios Report uses a range of emissions scenarios developed by the Intergovernmental Panel on Climate Change (IPCC) to project 3 potential warming ranges (i.e., temperature increases) that may occur in California during the 21st Century: the lower warming range (3.0°F–5.5°F); the medium warming range (5.5°F–8.0°F); and the higher warming range (8.0°F–10.5°F). The Climate Scenarios Report then presents analysis of future climate in California under each warming range.

Each emissions scenario would result in substantial temperature increases for California. According to the report, substantial temperature increases would result in a variety of impacts to California's people, economy, and environment that are associated with a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. Under the emissions scenarios of the Climate Scenarios Report (BonTerra Consulting 2009), the impacts of global warming in California are anticipated to include, but are not limited to, the following:

- **Public Health.** Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, in high ozone (O₃) areas such as the SoCAB and the San Joaquin Valley, the number of days with weather conditions conducive to O₃ formation is projected to increase from 25 to 35 percent under the lower warming range to 75 to 85 percent under the medium warming range. In addition, if global background O₃ levels increase as predicted, under some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The Climate Scenarios Report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures will increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

- **Water Resources.** A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from Northern California rivers and the Colorado River. The current distribution system relies on snowpack from the Sierra Nevadas to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevadas' spring snowpack by as much as 70–90 percent. Under the lower warming scenario, snowpack losses are expected to be only half as large as those expected if temperatures rise to the higher warming range. How much snowpack will be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack would pose challenges to water managers, would hamper hydropower generation, and would nearly eliminate all skiing and other snow-related recreational activities.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta—a major California fresh water supply.

Global warming is also projected to decrease the potential for hydropower production within the state (although the effects on hydropower are uncertain) and seriously harm winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

- **Agriculture.** Increased GHG emissions are expected to cause widespread changes to the agricultural industry, reducing the quantity and quality of agricultural products statewide. California farmers are projected to lose as much as 25 percent of the water supply they need. Although higher CO₂ levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development will change, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate O₃ pollution, which makes plants more susceptible to disease and pests, and which interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts, and milk.

In addition, continued global warming will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global warming is also likely to alter the abundance and types of many pests, lengthen pests' breeding seasons, and increase pathogen growth rates.

- **Forests and Landscapes.** Global warming is expected to intensify the risk of wildfire and the resultant altering of the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors—including precipitation, winds, temperature and landscape, and vegetation conditions—future risks will not be uniform throughout the state. For example, if precipitation decreases as temperatures rise, wildfires in Southern California are expected to increase by approximately 30 percent toward the end of the 21st Century. In contrast, precipitation decreases could increase wildfires in Northern California by up to 90 percent.

Moreover, continued global warming will alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems are expected to decline by as much as 60–80 percent by the end of the 21st Century as a result of increasing temperatures. The productivity of the state's forests is also expected to decrease as a result of global warming.

Global, National, and State Contributions to Greenhouse Gas Emissions

Global

Worldwide anthropogenic GHG emissions as of 2006 totaled approximately 29,700 MMTCO₂e. Six countries⁵ and the European Community accounted for approximately 70 percent of the total global emissions.

United States

The U.S. was the top producer of GHG emissions as of 2005. Based on GHG emissions in 2005, 6 states—Texas, California, Ohio, Pennsylvania, Florida, and Illinois (in ranked order)—each ranked among the top 25 GHG emitters internationally (BonTerra Consulting 2009). The primary greenhouse gas emitted by human activities in the U.S. was CO₂, representing approximately 85 percent of the total GHG emissions (BonTerra Consulting 2009). CO₂ from fossil fuel combustion, the largest U.S. GHG emissions source, accounted for approximately 80 percent of U.S.'s GHG emissions (BonTerra Consulting 2009).

State of California

Based on the 2004 GHG inventory data (the latest year available) compiled by CARB for the California 1990 greenhouse gas emissions inventory, California emitted 484 MMTCO₂e, including emissions resulting from out-of-state generation of electricity supplied to California users (BonTerra Consulting 2009).

⁵ The United States, China, Russian Federation, India, Japan, and Germany.

The primary contributors to California GHG emissions are transportation; electric power production from both in-state and out-of-state sources; industry; agriculture and forestry; and other sources, which include commercial and residential activities. These primary contributors to California's GHG emissions and their relative contributions are presented in Table 4.4-3, GHG Sources in California – 2004 Inventory.

**TABLE 4.4-3
GHG SOURCES IN CALIFORNIA – 2004 INVENTORY**

Source Category	Annual GHG Emissions (MMTCO ₂ e)	Percent of Total	Annual GHG Emissions (MMTCO ₂ e)	Percent of Total
	Includes Imported Electricity		Excludes Imported Electricity	
Agriculture	27.9	5.8	27.9	6.6
Commercial Uses	12.8	2.6	12.8	3.0
Electricity Generation ^a	119.8	24.7	58.5	13.8
Forestry (excluding sinks)	0.2	0.0	0.2	0.0
Industrial Uses	96.2	19.9	96.2	22.7
Residential Uses	29.1	6.0	29.1	6.9
Transportation	182.4	37.7	182.4	43.1
Other ^b	16.0	3.3	16.0	3.8
Totals	484.4	100.0%	423.1	100.0%
Totals may not add due to rounding				
^a Imported electricity accounts for 61.3 MMTCO ₂ e.				
^b Unspecified combustion and use of ozone-depleting substances.				
Source: BonTerra Consulting 2009.				

Orange County

Existing GHG emissions for Orange County were calculated for construction sources, mobile sources, natural gas consumption, and electricity generation by the Southern California Association of Governments (SCAG). As shown in Table 4.4-4, existing County emissions are estimated to be approximately 30 MMTCO₂e/year (yr). It is important to note a few limitations before comparing SCAG regional GHG emissions to the State emissions inventory prepared by CARB. First, 2004 is the latest year for which CARB has estimated State emissions, and SCAG emissions are presented through 2008. However, the comparison provides a reasonable percentage estimate of State emissions that are generated in the SCAG region. Second, the CARB emissions inventory includes emissions estimates from various sources that were not included in the SCAG analysis because every emissions source (e.g., mineral industry, livestock, manure management) that CARB analyzed could not be analyzed for the SCAG region due to methodological and data limitations. As a result, SCAG emissions are an underestimation when compared to the total State emissions.

**TABLE 4.4-4
GHG SOURCES IN ORANGE COUNTY – 2008**

Source Category	Annual GHG Emissions (MMTCO ₂ e)
Construction	0.10
Mobile	13.20
Electricity	7.72
Natural Gas	8.65
Total	29.67
Source: BonTerra Consulting 2009.	

Existing Air Quality

Monitored Criteria Pollutants

Criteria air pollutant concentrations are measured at several monitoring stations in Orange County. The closest station to the project site is the Costa Mesa Monitoring Station, located at 2850 Mesa Verde Drive East, Costa Mesa, approximately 3.5 miles north of the Project site. The Costa Mesa site is also identified as Source Receptor Area (SRA) 18, North Orange County Coastal. Equipment at the station measures O₃, CO, NO₂, and SO₂ levels. Because this monitoring station does not monitor PM₁₀ and PM_{2.5}, data was supplemented from the Mission Viejo Station 19 (Saddleback Valley) for these criteria pollutants. Data from 2006 to 2008 from these stations are summarized in Table 4.4-5. The data show violations of the federal and State 8-hour ozone standard in 2008 and the State ozone standard in 2007 at the Costa Mesa Monitoring Station. At Mission Viejo, the state PM₁₀ and the federal PM_{2.5} standards were exceeded in 2006 and 2007.

**TABLE 4.4-5
AMBIENT AIR QUALITY AT COSTA MESA AND MISSION VIEJO
MONITORING STATIONS**

Pollutant	Averaging Time	Federal Primary Standards	California Standards	Maximum Concentrations ^a			Number of Days Exceeding Federal Standard ^b			Number of Days Exceeding State Standard ^b		
				2006	2007	2008	2006	2007	2008	2006	2007	2008
O ₃ (Costa Mesa)	1 hour	none	0.09 ppm	0.074	0.082	0.094	—	—	—	0	0	0
	8 hour	0.075 ppm	0.07 ppm	0.062	0.072	0.079	0	0	3	0	2	5
CO (Costa Mesa)	1 hour	35 ppm	20 ppm	4	5	—	0	0	—	0	0	—
	8 hour	9 ppm	9.0 ppm	3.01	3.13	1.97	0	0	0	0	0	0
SO ₂ (Costa Mesa)	24 hours	0.14 ppm	0.04 ppm	0.005	0.004	0.003	0	0	0	0	0	0
	Annual	0.03 ppm	none	0.001	0.001	0.001	0	0	0	—	—	—
NO ₂ (Costa Mesa)	1 hour	none	0.18 ppm	0.101	0.074	0.081	—	—	—	0	0	0
	Annual	0.053 ppm	0.030 ppm	0.015	0.013	0.013	0	0	0	0	0	0

TABLE 4.4-5 (Continued)
AMBIENT AIR QUALITY AT COSTA MESA AND MISSION VIEJO
MONITORING STATIONS

Pollutant	Averaging Time	Federal Primary Standards	California Standards	Maximum Concentrations ^a			Number of Days Exceeding Federal Standard ^b			Number of Days Exceeding State Standard ^b		
				2006	2007	2008	2006	2007	2008	2006	2007	2008
PM10 ^c (Mission Viejo)	24 hours	150 µg/m ³	50 µg/m ³	57.0	74.0	42.0	0	0	0	1	3	0
	Annual	Revoked	20 µg/m ³	21.1	23	21.2	—	—	—	1	1	0
PM2.5 (Mission Viejo)	24 hours	35 µg/m ³	none	46.9	46.8	31.9	1	2	0	—	—	—
	Annual	15 µg/m ³	12 µg/m ³	11.0	11.3	*	*	*	*	*	*	*

ppm : parts per million; —: data not available or applicable; µg/m³: micrograms per cubic meter; *: there was insufficient data to determine the value

^a Concentration units for O₃, CO, and NO₂ are in ppm. Concentration units for PM10 and PM2.5 are in micrograms per cubic meter (µg/m³).

^b For annual standards, a value of 1 indicates that the standard has been exceeded.

^c PM10 data are recorded separately for federal and State purposes because the USEPA and California methods are slightly different. Federal values are shown. PM10 is measured every 6 days; the number of days exceeding standards is projected to a 365-day base from the measurements.

Source: California Air Resource Board, 2009f.

Attainment Designations

Based on monitored air pollutant concentrations, the USEPA and CARB designate an area's status in attaining the NAAQS and CAAQS, respectively, for the criteria pollutants identified above. As previously addressed, when a region is designated as a nonattainment area, the State is required to prepare a SIP and the air district is required to prepare a regional attainment plan. When an area has been reclassified from nonattainment to attainment status for a federal standard, the status is identified as "maintenance", and there must be a plan and measures that will keep the region in attainment for the following ten years. Table 4.4-6 summarizes the attainment status in the SoCAB for the criteria pollutants.

TABLE 4.4-6
ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN
THE SOUTH COAST AIR BASIN

Pollutant	State	Federal
O ₃ (1 hour)	Nonattainment	No standard
O ₃ (8 hour)		Severe 17 Nonattainment ^a
PM10	Nonattainment	Serious Nonattainment
PM2.5	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO ₂	Attainment	Attainment/Maintenance
SO ₂	Attainment	Attainment
Lead	Attainment	Attainment
All others	Attainment/Unclassified	No standards

^a In the 2007 AQMP, the SCAQMD requested reclassification to Extreme Nonattainment; as of September 2009, the USEPA has not responded to the request.

Source: BonTerra Consulting 2009.

Toxic Air Contaminants

Carcinogenic risks (i.e., cancer risks) are estimated as the incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a probability (e.g., 10 in 1 million). A risk level of 1 in a million implies a likelihood that up to 1 person, out of 1 million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the specific concentration over 70 years (an assumed lifetime). This would be in addition to those cancer cases that would normally occur in an unexposed population of one million people (BonTerra Consulting 2009). The Hazard Index (HI) expresses the potential for chemicals to result in non-cancer-related health impacts. HIs are expressed using decimal notation (e.g., 0.001). A calculated HI exposure less than 1.0 will likely not result in adverse non-cancer-related health effects over a lifetime of exposure. However, an HI greater than 1.0 does not necessarily mean that adverse effects will occur (BonTerra Consulting 2009). Pursuant to SCAQMD Rule 1401(d)(1), the risks associated with potential exposure to emissions from a source equipped with the best available control technology for toxics (T-BACT) and from all emissions sources included within a “project” are acceptable if the incremental cancer risk (1) is less than 10 in 1 million and (2) is less than 1 in 1 million for sources not equipped with T-BACT.

The Multiple Air Toxics Exposure Study III (MATES III) is a monitoring and evaluation study conducted in the SoCAB. The study is a follow up to previous air toxics studies in the SoCAB and is part of the SCAQMD Governing Board’s 2003–2004 Environmental Justice Workplan.

The MATES III Study consists of several elements, including a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the SoCAB. The study focuses on the carcinogenic risk from exposure to air toxics. It does not estimate mortality or other health effects from particulate exposures.

The MATES III study estimates that the carcinogenic risk from air toxics in the SoCAB, based on the average concentrations at the fixed monitoring sites during 2004, 2005, and 2006 is about 1,200 per 1 million. This risk refers to the expected number of additional cancers in a population of 1 million individuals that are exposed over a 70-year lifetime. Using the MATES III methodology, about 94 percent of the risk is attributed to emissions associated with mobile sources, and about 6 percent of the risk is attributed to toxics emitted from stationary sources, which include industries and businesses such as dry cleaners and chrome plating operations. The results indicate that diesel exhaust is the major contributor to air toxics risk, accounting, on average, for about 84 percent of the total (BonTerra Consulting 2009).

The MATES III study used monitored data to model risk throughout the SoCAB. The modeled carcinogenic risk for the area including the Project site is 565 per 1 million, which is less than half of the SoCAB average.

4.4.4 PROJECT DESIGN FEATURES AND STANDARD CONDITIONS

Project Design Features

The California Attorney General publishes and periodically updates *The California Environmental Quality Act – Addressing Global Warming Impacts at the Local Agency Level* (BonTerra Consulting 2009). This publication includes a list of project-level measures suggested by the Attorney General to reduce GHG emissions and global warming impacts. For the most part, these measures are applicable to residential, commercial, and industrial projects where there are many opportunities for energy savings, water conservation, and transportation

efficiencies. Although the proposed Project is a park with limited opportunities for GHG emission reductions, some of the Attorney General-recommended measures are applicable to the Project and are incorporated as the following project design features (PDFs):

- PDF 4.4-1** Water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls, shall be installed throughout the Project site.
- PDF 4.4-2** The Project shall be designed to be water-efficient. Water-efficient fixtures and appliances shall be installed in the restrooms.
- PDF 4.4-3** Watering methods shall be restricted (e.g., systems that apply water to non-vegetated surfaces shall be prohibited) and runoff shall be controlled in accordance with City of Newport Beach Best Management Practices.
- PDF 4.4-4** Low-impact development (LID) practices that maintain the existing hydrologic character of the site shall be implemented to manage storm water and to protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.) Please refer to Section 4.10, Hydrology and Water Quality, of this EIR which addresses the Project features.
- PDF 4.4-5** The City of Newport Beach Water Conservation Ordinance, Section 14.16 of the Municipal Code shall be applicable to the Park. The ordinance includes but is not limited to the LID practices of PDF 4.4-5 and a requirement for an approved water use plan to be prepared and implemented.
- PDF 4.4-6** Approximately 130 to 140 trees shall be planted where there are now no existing trees, thus increasing GHG sequestration.

Standard Conditions and Requirements

- SC 4.4-1** During construction of the proposed Project, the Project Manager shall be required to comply with SCAQMD Rules 402 and 403, which shall assist in reducing short-term air pollutant emissions. SCAQMD Rule 402 requires that air pollutant emissions not be a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with the best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. This requirement shall be included as notes on the Project Managers' specifications. Table 1 of Rule 403 prescribes the Best Available Control Measures that are applicable to all construction projects. The measures include, but are not limited to the following:
- Clearing and grubbing – Apply water in sufficient quantity to prevent generation of dust plumes.
 - Cut and fill – Pre-water soils prior to cut and fill activities and stabilize soil during and after cut and fill activities.
 - Earth-moving activities – Pre-apply water to depth of proposed cuts; re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and stabilize soils once earth-moving activities are complete.

- Importing/exporting of bulk materials – Stabilize material while loading to reduce fugitive dust emissions; maintain at least six inches of freeboard on haul vehicles; and stabilize material while transporting to reduce fugitive dust emissions.
- Stockpiles/bulk material handling – Stabilize stockpiled materials; stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.
- Traffic areas for construction activities – Stabilize all off-road traffic and parking areas; stabilize all haul routes; and direct construction traffic over established haul routes.

4.4.5 METHODOLOGY

Methodology

Construction and Operational Mass Daily Emissions

Construction and operational emissions were calculated by using Urban Emissions Model (URBEMIS) Version 9.2.4. URBEMIS is a computer program accepted by the SCAQMD that can be used to estimate anticipated emissions associated with land development projects in California by calculating emission rates for criteria pollutants utilizing the Emission FACTor model (EMFAC 2007) for on-road vehicles, OFFROAD 2007 for off-road vehicles, and USEPA formulas. URBEMIS has separate databases for specific counties and air districts. The Orange County database was used for the proposed Project. The model calculates emissions of VOC and NO_x (ozone precursors), CO, SO₂, PM₁₀, and PM_{2.5}. The results are expressed in pounds per day (lbs/day) and are compared with the mass daily thresholds, as shown in Table 4.4-7, to determine impact significance. Table 4.4-7 is provided later in this EIR section in the impact analysis.

Specific inputs to URBEMIS for both construction and operations include Project land uses and acreages. Construction input data include but are not limited to the start and finish dates of Project construction phases; inventories of construction equipment to be used during each phase; volumes of structures to be demolished; volumes of cut and fill grading and materials to be imported to and exported from the site; areas to be paved; and areas to be painted. Output emissions data sources include off-road equipment, on-road vehicles, fugitive dust, and VOCs from asphalt and architectural coatings.

Operational inputs include year of operations and vehicle trip generation rates. Model default values for trip distances, fleet composition, and other factors may be adjusted for project-specific conditions. Output operational emissions data sources include area sources and mobile sources. The area sources are natural gas use, fireplaces, landscape maintenance equipment, architectural coatings used for routine maintenance, and consumer products that include VOCs. Mobile sources are the vehicles used by residents and by patrons, staff, and vendors for commercial businesses.

The URBEMIS model includes data to calculate emissions reductions resulting from the implementation of mitigation measures.

Local Concentration of Criteria Pollutants

As part of the SCAQMD's environmental justice program, attention has focused on localized effects of air quality (BonTerra Consulting 2009). In addition to the mass daily emissions or regional thresholds, the SCAQMD established CEQA significance thresholds for ambient air quality, as shown below in Table 4.4-7, to address localized impacts. SCAQMD staff then developed localized significance threshold (LST) methodology and mass rate look-up tables by source receptor area (SRA) that can be used by public agencies to determine whether or not a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA) (BonTerra Consulting 2009). The LST methodology translates the concentration standards into emissions thresholds that are a function of project site area, source to receptor distance, and the location within the SoCAB. The LST methodology is recommended to be limited to projects of five acres or less and avoids the need for complex dispersion modeling. Although the Project site is larger than five acres, the method is used because it is anticipated that mass grading activities, which would be the source of maximum daily localized emissions, would occur on any single day within an area of approximately five acres.

The local concentration analysis is performed for project construction activities. The analysis is not performed for operations because there would be no notable on-site long-term sources of pollutants since the proposed Project would be a park.

CO Hotspots

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. An initial screening procedure is provided in the procedures and guidelines contained in the Transportation Project-Level Carbon Monoxide Protocol (the CO Protocol) to determine whether a project poses the potential for a CO hotspot (BonTerra Consulting 2009). According to the protocol, projects may make air quality worse if they (1) increase the percentage of vehicles in cold start modes by two percent or more; (2) increase traffic volumes by five percent or more over existing volumes; or (3) make traffic flow worse, which is defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F, or causing an intersection that would operate at LOS D or better without a project to operate at LOS E or F with a project.

Construction and Operational GHG Emissions

Construction and operational emissions of CO₂ were calculated using URBEMIS. To convert to CO₂e, the CO₂ values are multiplied by factors relating CH₄ and N₂O emissions to CO₂ emissions for diesel engines and then converted to the metric equivalent. The diesel engine conversion data is taken from the CCAR General Reporting Protocol (BonTerra Consulting 2009).

Because impacts from construction activities occur over a relatively short time period, they contribute a relatively small portion of the overall GHG emissions for the lifetime of the Project. In addition, GHG emission reduction measures for construction equipment are relatively limited. Therefore, in their Draft Guidance Document, Interim CEQA GHG Significance Thresholds, the SCAQMD recommends that construction emissions be amortized over a 30-year project lifetime so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies (BonTerra Consulting 2009). That methodology is used in this analysis.

GHG Emissions from Electricity Use

GHG emissions resulting from electrical energy use were calculated by using an estimate of electrical use provided by the City. The GHG data were then calculated using emissions data from the CCAR General Reporting Protocol for CO₂ electricity use in California.

GHG Emissions from Water Use

GHG emissions are associated with energy embodied in water demand. Water provided to the Project site is embodied with energy by virtue of the amount of energy consumed in collecting, extracting, conveying, treating, and distributing water to end users, and in treating and disposing of wastewater. An estimate of water use was provided by the City. Data from the California Energy Commission (CEC) indicates that potable water delivered to Southern California has an embodied energy of 13,022 kilowatt-hours per million gallons (kWh/MG) when used indoors, (i.e., subsequently treated as wastewater) and 11,111 kWh/MG when used outdoors (BonTerra Consulting 2009). Embodied energy of water consumption was converted to GHG emissions using the CCAR General Reporting Protocol emissions factor for CO₂ in electricity use in California.

4.4.6 THRESHOLDS OF SIGNIFICANCE

Air Quality

The following threshold criteria are from the City of Newport Beach Initial Study Checklist. The Project would result in a significant impact related to air quality if it would:

- Threshold 4.4-1** Conflict with or obstruct implementation of the applicable air quality plan.
- Threshold 4.4-2** Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Threshold 4.4-3** 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).
- Threshold 4.4-4** Expose sensitive receptors to substantial pollutant concentrations.
- Threshold 4.4-5** Create objectionable odors affecting a substantial number of people.

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions. The significance thresholds are updated as needed to appropriately represent the most current technical information and attainment status in the SoCAB. Table 4.4-7 presents the most current significance thresholds including regional daily thresholds for short-term construction and long-term operational emissions; maximum incremental cancer risk and hazard indices for TACs; and maximum ambient concentrations for exposure of sensitive receptors to localized pollutants. A project with daily emission rates, risk values, or concentrations below these thresholds is generally considered to have a less than significant effect on air quality.

Climate Change

There are no established federal, State, or local significance criteria for global climate change impacts or GHG emissions.

As described in Section 4.4.2, the June 2008 OPR Technical Advisory encouraged lead agencies to analyze GHG emissions in environmental documents and to follow three basic steps: (1) identify and quantify the GHG emissions that could result from a proposed project; (2) analyze the effects of those emissions and determine whether the effect is significant; and (3) identify feasible mitigation measures or alternatives that will reduce the impact to below a level of significance if the impact is significant (BonTerra Consulting 2009). In April 2009, the OPR issued proposed revisions to the CEQA guidelines. The OPR proposals leave the selection of specific significance criteria to lead agencies in a similar manner as occurs for criteria pollutants.

**TABLE 4.4-7
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS**

Mass Daily Thresholds		
Pollutant	Construction	Operation
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants		
TACs	Maximum Incremental Cancer Risk \geq 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas \geq 1 in 1 million) Hazard Index \geq 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402 ^a	
Ambient Air Quality For Criteria Pollutants^b		
NO ₂	1-hour average \geq 0.18 ppm Annual average \geq 0.03 ppm	
PM10	24-hour average \geq 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average \geq 2.5 $\mu\text{g}/\text{m}^3$ (operation) Annual average \geq 1.0 $\mu\text{g}/\text{m}^3$	
PM2.5	24-hour average \geq 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average \geq 2.5 $\mu\text{g}/\text{m}^3$ (operation)	
Sulfate	24-hour average \geq 1.0 $\mu\text{g}/\text{m}^3$	
CO	1-hour average \geq 20.0 ppm (State) 8-hour average \geq 9.0 ppm (State/federal)	
lbs/day: pounds per day; TAC: toxic air contaminant; ppm: parts per million; $\mu\text{g}/\text{m}^3$: micrograms per cubic meter.		
^a Rule 402 states that a project shall not "discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."		
^b Ambient air quality thresholds are based on SCAQMD Rule 403.		
Source: BonTerra Consulting 2009.		

It is accepted as very unlikely that any individual development project would have GHG emissions of a magnitude to directly impact global climate change; therefore, any impact would be considered on a cumulative basis. For purposes of the CEQA analysis for the proposed Project, and considering the most recent proposed revisions to the CEQA Guidelines, the following significance criteria will be used to analyze impacts to global climate change.

As described in Section 4.4.2, the City has tentatively established the following threshold for assessing global climate change impacts. The Project would create a significant cumulative contribution to global climate change if it would:

Threshold 4.4-6 Impede achievement of the State's mandatory requirement under AB 32 to reduce statewide GHG emissions to 1990 levels by 2020.

4.4.7 ENVIRONMENTAL IMPACTS

Threshold 4.4-1 *Would the project conflict with or obstruct implementation of the applicable air quality plan?*

The two principal criteria for conformance to the AQMP are (1) whether the project will not result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards and (2) whether the project will exceed the assumptions in the AQMP (BonTerra Consulting 2009).

With respect to the first criterion, the analysis discussed below, under Threshold 4.4-2, demonstrates that the Project would not result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards.

With respect to the second criterion, the current Newport Beach General Plan land use designations for the project site are Parks and Recreation (13.7 acres) and Open Space/Residential Village (5.2 acres). The access road to the park is proposed on private property (Newport Banning Ranch) to the west which has the Open Space/Residential Village General Plan land use designation. The proposed access road is permitted under this General Plan designation and would be constructed in the general location shown on the City's General Plan Circulation Element Master Plan of Streets and Highways and the Orange County Master Plan of Arterial Highways (MPAH). The AQMP assumptions for mobile source emissions are based on assumed trip generation and trip distances, which are, in turn, based on proposed uses in general plans. Therefore, the proposed project is consistent with the assumptions used in the AQMP and the impact would be less than significant.

Impact Summary: *Less Than Significant.* Implementation of the Project would not affect existing air quality violations or result in new violations, nor would it exceed assumptions in the AQMP which are based on the General Plan land use plan. Therefore, the Project would not conflict with or obstruct implementation of the applicable air quality plan and a less than significant impact would occur.

Threshold 4.4-2 *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Construction Emissions

Temporary impacts would result from project construction activities. Air pollutants would be emitted by off-road and on-road construction equipment and worker vehicles; fugitive dust would be generated during demolition and grading on the Project site. Other construction activities that emit pollutants include painting, surface coating, and asphalt paving operations. For this analysis, it was assumed that construction would start in January 2011 and continue through March 2012. Construction emissions were calculated using URBEMIS (Version 9.2.4), as described in Section 4.4.5, for a series of phases with phase overlapping as appropriate. Inputs to the URBEMIS program include land use data and construction information from Section 3.0, Project Description. The initial construction phase would involve the clearing and grubbing of the Project site with an anticipated average of ten truckloads per day of vegetation disposed of off site. Mass grading of the park site and haul road would include the on-site cut and fill of approximately 130,000 cubic yards (cy) of cut and 96,000 cy of fill, with a net export of approximately 34,000 cy (Scenario A). The City proposes that the exported soil would be placed on the adjacent Newport Banning Ranch property, with a round trip haul distance of less than one mile. This air quality analysis also evaluates the scenario that some or all of the soil may be exported off site to a destination not determined at this time. For purposes of calculating maximum daily emissions, a reasonable worst-case haul distance of 40 miles per round trip was used, based on known available spoils sites (Scenario B).

Compliance with SCAQMD Rules is required; specifically, construction would be performed in accordance with Rule 403, Fugitive Dust (refer to SC 4.4-1); therefore, dust-control measures have been included in the calculations.

Mass Emissions Thresholds – Maximum Daily Regional Emissions. The results of the URBEMIS calculations for Project construction are shown in Table 4.4-8. The data are presented as the maximum anticipated daily emissions for comparison with the SCAQMD mass daily thresholds.

**TABLE 4.4-8
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
(POUNDS/DAY)**

Scenario and Year Without Mitigation	VOC	NOx	CO	SOx	PM10	PM2.5
Scenario A 2011: Soil exported to Newport Banning Ranch	10	84	84	<0.5	40	11
Scenario B 2011: Soil exported to an undetermined destination – 65 working days ^a	1	<u>120</u>	84	<0.5	42	12
Scenarios A and B 2012	5	27	45	<0.5	12	4
Maximum day for construction	11	<u>120</u>	84	<0.5	41	12
<i>SCAQMD Thresholds</i>	75	100	550	150	150	55
Exceeds SCAQMD Thresholds?	No	Yes	No	No	No	No
Bold and underline indicates exceedance of threshold.						
^a Working days assumes construction 5 days a week for 13 weeks.						
Source: BonTerra Consulting 2009.						

The maximum VOC, NOx, PM10, and PM2.5 emissions shown in Table 4.4-8 would occur during the mass grading phase. The maximum CO emissions would occur subsequent to grading, during the concurrent building activities within the park and during the West Coast Highway improvements. The construction emissions calculations indicate that the on-road export of excavated soil during the mass grading phase would be the critical factor for NOx emissions. As mentioned previously, the destination for disposal of the soil would not be known until the time of construction and a reasonable worst-case value of 40 miles round trip for soil export was used. Based on this default value and assuming a 5 day per week, an anticipated 13-week export duration, NOx emissions during the mass grading and soil export phase would exceed the SCAQMD thresholds for maximum day emissions, thus resulting in a significant impact. The principal contribution to this exceedance would be the on-road transport of exported soil, with NOx emissions of approximately 84 pounds per day. For this scenario, haul trucks vehicles miles traveled (VMT) would be approximately 1,308 miles per day.

In order to reduce the NOx emissions for Scenario B to less than the 100 pound per day CEQA significance threshold, soil export hauling would have to be reduced to 540 VMT per day. With this limitation, and if a spoils site could not be found closer than 20 miles from the Project site, the mass grading period would need to be extended to approximately 30 weeks or more. This would not be a reasonable mitigation because a substantial extension of the mass grading phase would result in prolonged associated noise impacts, as well as negative impacts to the Project costs and schedule.

Ambient Air Quality for Criteria Pollutants – Local Significance Thresholds

Local pollutant concentrations were calculated using the SCAQMD LST methodology described previously. The results of the LST calculations are shown in Table 4.4-9; the emissions shown in Table 4.4-9 are less than those shown in Table 4.4-8. In the LST analysis, only on-site emissions are considered; thus, off-site emissions such as haul trucks and workers commuting are not included. The applicable thresholds were taken from the LST mass rate look-up tables. For purposes of analysis, the active grading/construction area was identified as five acres and the Project location is within SRA 18, North Coastal Orange County. The closest sensitive receptors to the site are the Newport Crest Condominium development, located to the north and northeast; Hoag Hospital, located to the southeast across Superior Avenue; and residences across West Coast Highway to the southwest.

**TABLE 4.4-9
LOCAL SIGNIFICANCE THRESHOLD EMISSIONS**

	NOx	CO	PM10	PM2.5
	Emissions (lbs/day)			
Maximum daily emissions	84	84	40	11
LST Thresholds at 25 meters (82 feet) ^a	100 ^b	550 ^b	14	9
Exceeds threshold?	No	No	Yes	Yes
LST Thresholds at 50 meters (164 feet) ^a	100 ^b	550 ^b	44	11
Exceeds threshold?	No	No	No	No
Lbs/day: pounds per day				
^a Data from mass rate look-up tables are given in meters				
^b Mass daily emissions thresholds are shown because the LST table values for NOx and CO are greater than the mass emissions thresholds.				
Source: BonTerra Consulting 2009.				

As shown in Table 4.4-9, the maximum daily NOx and CO emissions would be below the LST thresholds. When the grading work would be concentrated within 50 meters (164 feet) of sensitive receptors, maximum daily estimated PM10 and PM2.5 emissions would exceed the thresholds and indicate a potential for local particulate matter concentrations in excess of the 24-hour standards at receptors within that distance. When the grading work would be concentrated at distances greater than 164 feet from sensitive receptors, the thresholds would not be exceeded. Approximately 25 percent of the Project site is located within 164 feet of the Newport Crest Condominium development; all other nearby receptors are located more than 164 feet from the site. Therefore, the LST analysis indicates a potentially significant impact at the Newport Crest Condominium development.

The Project would be required to implement SCAQMD Rule 403, Fugitive Dust (SC 4.4-1), and the maximum particulate emission reductions available in the URBEMIS model have been included in the calculations. Rule 403 represents the feasible mitigation measures for dust control, and prohibits visible dust beyond the property line of the Project site. This limitation may result in a reduction of impacts, but the reduction cannot be quantified. Additionally, because the condominiums are located at an elevation higher than the elevation where most grading would occur, concentrations would likely be less than implied by the analysis; however, this reduction cannot be quantified. Therefore, the local PM10 and PM2.5 impact would be significant and unavoidable for the short-term periods when mass grading would occur near the condominiums.

Operational Emissions

Mobile source emissions for the proposed Project were calculated using the URBEMIS model described previously, and assume an estimated 173 vehicle trips per day during project operation, as stated in the project traffic impact analysis (Kimley-Horn 2009). The principal area source emissions would be the exhaust from gasoline-powered landscape maintenance equipment, calculated manually using OFFROAD 2007, and an estimate of two hours per week of lawn mowing. The results of the calculations are shown in Table 4.4-10.

**TABLE 4.4-10
ESTIMATED MAXIMUM DAILY OPERATIONAL EMISSIONS (POUNDS/DAY)**

Project Buildout ^a	VOC	NOx	CO	SOx	PM10	PM2.5
Proposed Project						
Area Source Emissions	2	<0.5	10	<0.5	<0.5	<0.5
Vehicle Emissions	1	2	15	<0.5	3	1
Total	3	2	25	<0.5	3	1
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds SCAQMD Thresholds?	No	No	No	No	No	No
^a The Project opening year is planned for 2012, therefore; the analysis year for is 2013 based on the City's requirements for future traffic forecasts to be developed for the year following project opening. Values shown are higher of summer or winter emissions; therefore, totals may not be the sum of indicated area source and vehicle emissions. Source: BonTerra Consulting 2009.						

As shown in Table 4.4-10, the estimated maximum daily operational emissions would be less than the SCAQMD CEQA thresholds. Therefore, operational impacts would be less than significant; no mitigation measures would be required.

Impact Summary: **Significant and Unavoidable: Mass Daily Construction Emissions.** During the 3-month mass grading phase, NO_x emissions could exceed the SCAQMD CEQA significance thresholds on days when, and if, soil is exported to distant off site soils locations. This temporary impact would be significant and unavoidable because mitigation could exacerbate noise impacts by extending the Project construction schedule.

Significant and Unavoidable: Local Construction Impacts: During the periods of mass grading when work would be concentrated within 164 feet of the Newport Crest Condominium development, particulate emissions from the Project site have the potential for a short-term exceedance of the 24-hour PM₁₀ and PM_{2.5} ambient air quality standards at the nearest residences. This temporary, local impact would be significant and unavoidable.

Less Than Significant: Long-Term Daily Operations: Long-term operational emissions would be less than the SCAQMD thresholds.

Therefore, the proposed project would not have the potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation except for the 24-hour PM₁₀ and PM_{2.5} standards at nearby receptors at some periods during the mass grading phase of the Project.

Threshold 4.4-3 **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)?**

The region is a nonattainment area for PM₁₀, PM_{2.5}, and the ozone precursors VOC and NO_x. The Project would contribute criteria pollutants to the area during short-term project construction and Project operations. As described under Threshold 4.4-2 above, NO_x emissions could exceed the threshold during the three-month mass grading period. These exceedances would result in a cumulatively considerable contribution to regional O₃ concentrations. With respect to local impacts, cumulative construction particulate impacts are considered when projects may be within a few hundred yards of each other. There are no known projects within one-half mile of the proposed Project where major construction would occur concurrently with the proposed Project. Long-term emissions of nonattainment pollutants would be less than six percent of the SCAQMD thresholds. These quantities are not of a magnitude to be cumulatively considerable. Therefore, the Project would have a less than significant cumulative air quality impact. No mitigation is required.

Impact Summary: **Significant and Unavoidable: Temporary Short-Term Construction.** Export of soil to distant offsite locations, if required, could result in a cumulative impact to concentrations of O₃, a nonattainment pollutant.

Less Than Significant: Long-Term Operations. The proposed project would not cumulatively contribute to an increase of PM₁₀, PM_{2.5}, VOC, or NO_x.

Threshold 4.4-4 *Would the project expose sensitive receptors to substantial pollutant concentrations?*

Carbon Monoxide Hotspots

An initial screening for the potential for the proposed Project to create a CO hotspot was conducted in accordance with the CO Protocol. The traffic volumes generated by the proposed Project (i.e., a maximum of 15 vehicles added to an existing volume of more than 2,000) would not be large enough to increase the percentage of vehicles in cold start modes by two percent or more or increase overall traffic volumes by five percent or more over existing volumes. The Project's traffic analysis (Kimley-Horn 2009) indicates that, under the Cumulative With Project scenario, all study area signalized intersections except one would operate at LOS D or better. The intersection of West Coast Highway at Newport Boulevard would operate at LOS E in the AM peak hour; however, the operating condition (Intersection Capacity Utilization = 0.92) would be unchanged from the Cumulative Without Project scenario. Therefore, the Project would not worsen traffic conditions and would not have the potential to create a CO hotspot. The impact would be less than significant.

Criteria Pollutants from On-site Construction

As described in the analysis under Threshold 4.4-2 above, there is a potential to expose the residents of the Newport Crest Condominium development to PM10 and PM2.5 emissions that exceed the 24-hour ambient air quality standard on some days during the mass grading phase of the Project, thereby resulting in a significant and unavoidable impact.

Toxic Air Contaminants

Construction activities would result in short-term, Project-generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment used for site preparation (e.g., demolition, excavation, and grading); paving; building construction; and other miscellaneous activities. CARB identified diesel PM as a TAC in 1998. The dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Thus, the risks estimated for a maximally exposed individual (MEI) are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with a proposed project. Because the use of off-road, heavy-duty diesel equipment would be temporary (short in duration when compared to 70 years), and combined with the highly dispersive properties of diesel PM and further reductions in exhaust emissions from improved equipment, Project-generated or construction-related emissions of TACs would not expose sensitive receptors to substantial emissions of TACs. The impact would be less than significant. Operations of the proposed Project would not be a source of substantial TACs.

Impact Summary: ***Significant and Unavoidable Impact.*** During the construction period, the proposed Project would expose nearby residents (sensitive receptors) to pollutant concentrations. Exposure to CO, NO₂, and TACs would be less than significant. However, exposure to PM10 and PM 2.5 emissions would exceed thresholds at times during the mass grading phase, resulting in a significant and unavoidable impact. Long-term impacts would be less than significant.

Threshold 4.4-5 *Would the project create objectionable odors affecting a substantial number of people?*

Project construction equipment and activities would generate odors typical of a construction site. Potential construction odors include diesel exhaust emissions and asphalt from paving operations. There would be situations where construction activity odors would be noticed by nearby residents, but these odors would not be unfamiliar or necessarily objectionable. Additionally, the odors would be temporary and would dissipate rapidly from the source with an increase in distance. Therefore, the impacts would be short-term, would not likely be objectionable, and would be less than significant.

No barbeque facilities are currently proposed as a part of the Project. However, should such facilities be provided in the future, these odors would not be objectionable and are typical to a park or residential area. The impact would be less than significant.

Impact Summary: ***Less Than Significant.*** Odors associated with Project construction would be temporary in nature and would dissipate rapidly from the source and odors associated with Project operations would be typical of a park or residential area. These odors would not be objectionable and represent a less than significant impact.

Threshold 4.4-6 *Would the project impede achievement of the State’s mandatory requirement under AB 32 to reduce statewide GHG emissions to 1990 levels by 2020?*

Calculated GHG Emissions

Construction Emissions

Temporary impacts would result from project construction activities. GHGs would be emitted by off-road and on-road construction equipment and worker vehicles. Construction emissions were calculated using URBEMIS (Version 9.2.4), as described previously. The results of the URBEMIS calculations for GHGs from project construction are shown in Table 4.4-11. GHG emissions would vary depending on how much soil would be exported to the Newport Banning Ranch property and how much soil would be exported to an undetermined destination off site, as discussed previously. Because these quantities are not known, the GHG emissions of 925 MTCO₂e for 2011 represents the reasonable worst-case Scenario B, assuming that all soil would be exported to a site 20 miles from the Project site.

**TABLE 4.4-11
ESTIMATED GHG EMISSIONS FROM CONSTRUCTION**

Year	Emissions MTCO ₂ e
2011	925
2012	186
Total	1,111
MTCO ₂ e: metric tons of CO ₂ equivalent	
Source: BonTerra Consulting 2009.	

Operations Emissions

Operational GHG emissions for the proposed Project were calculated based on the information from the Project’s traffic impact analysis (Kimley-Horn 2009) and estimates from the City regarding water consumption, electricity consumption, and lawn mowing frequency. The results of the calculations are shown in Table 4.4-12.

**TABLE 4.4-12
ESTIMATED GHG EMISSIONS FROM OPERATIONS**

Source	Emissions MTCO ₂ e/yr
Proposed Project at Buildout	
Area sources ^a	3
Mobile sources	255
Electricity use	<1
Water use	43
Total – Proposed Project	300
MTCO ₂ e: metric tons of CO ₂ equivalent	
Total does not add due to rounding.	
^a Landscaping equipment	
Source: BonTerra Consulting 2009.	

Combined Emissions

As previously described in Section 4.4.5, Methodology, construction and operational emissions are combined by amortizing the construction operations over a conservative, assumed 30-year Project lifetime. This combination is shown in Table 4.4-13.

**TABLE 4.4-13
ESTIMATED TOTAL PROJECT ANNUAL GHG EMISSIONS**

Source	Emissions MTCO ₂ e/yr
Construction (Table 4.4-11)	1,111
Construction amortized	37
Operations (Table 4.4-12)	300
Total	337
MTCO ₂ e: metric tons of CO ₂ equivalent per year	
Note: The total is the sum of amortized construction and operations emissions	
Source: BonTerra Consulting 2009.	

The total annual estimated GHG emissions for the proposed Project is 337 MTCO₂e/yr. This value is less than the 1,600 MTCO₂e per year screening level interim threshold established by the City of Newport Beach. Based on that threshold, the proposed Project would be less than significant for global climate change impacts and no further analysis is required.

Conformance to Applicable Plans, Policies, and Regulations

As discussed in Section 4.4.4 above, Project Design Features, the Project would incorporate PDFs 4.4-1 through 4.4-6 which conform to measures recommended by the California Attorney General to reduce GHG emissions and global warming impacts. Based on the above data, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. GHG emissions would not be cumulatively considerable. Additionally, the Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions. Therefore, the Project impact to global climate change would be less than significant.

Impact Summary: *Less Than Significant.* The estimated total Project GHG emissions would be less than the screening level interim threshold established by the City of Newport Beach; therefore, impacts related to GHG emissions and global climate change would be less than significant.

4.4.8 CUMULATIVE IMPACTS

As described above, long-term emissions of nonattainment pollutants would be less than six percent of the SCAQMD thresholds. These quantities are not of a magnitude to be cumulatively considerable. Construction emissions of NOx could exceed the SCAQMD regional mass emissions threshold during the three-month mass grading period, which could make a considerable contribution to regional ozone concentrations. With respect to local impacts, cumulative construction particulate impacts are considered when projects may be within a few hundred yards of each other. There are no known projects within one-half mile of the Project site where major construction would occur concurrently with the proposed Project. Therefore, the Project could have a significant and unavoidable short-term cumulative air quality impact.

Impact Summary: *Significant and Unavoidable: Short-Term Construction.* Short-term NOx emissions could be cumulatively considerable during the mass grading period.

Less than Significant: Long-Term Operations. Long-term emissions would not be cumulatively considerable.

4.4.9 MITIGATION PROGRAM

Project Design Features

- PDF 4.4-1** Water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls, shall be installed throughout the Project site.
- PDF 4.4-2** The Project shall be designed to be water-efficient. Water-efficient fixtures and appliances shall be installed in the restrooms.
- PDF 4.4-3** Watering methods shall be restricted (e.g., systems that apply water to non-vegetated surfaces shall be prohibited) and runoff shall be controlled in accordance with City of Newport Beach Best Management Practices.
- PDF 4.4-4** Low-impact development (LID) practices that maintain the existing hydrologic character of the site shall be implemented to manage storm water and to protect the environment. (Retaining storm water runoff on site can drastically reduce the need for energy-intensive imported water at the site.) Please refer to Section

4.10, Hydrology and Water Quality, of this EIR which addresses the Project features.

PDF 4.4-5 The City of Newport Beach Water Conservation Ordinance, Section 14.16 of the Municipal Code shall be applicable to the Park. The ordinance includes but is not limited to the LID practices of PDF 4.4-5 and a requirement for an approved water use plan to be prepared and implemented.

PDF 4.4-6 Approximately 130 to 140 trees shall be planted where there are now no existing trees, thus increasing GHG sequestration.

Standard Conditions and Requirements

SC 4.4-1 During construction of the proposed Project, the Project Manager shall be required to comply with SCAQMD Rules 402 and 403, which shall assist in reducing short-term air pollutant emissions. SCAQMD Rule 402 requires that air pollutant emissions not be a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with the best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. This requirement shall be included as notes on the Project Managers' specifications. Table 1 of Rule 403 prescribes the Best Available Control Measures that are applicable to all construction projects. The measures include, but are not limited to the following:

- Clearing and grubbing – Apply water in sufficient quantity to prevent generation of dust plumes.
- Cut and fill – Pre-water soils prior to cut and fill activities and stabilize soil during and after cut and fill activities.
- Earth-moving activities – Pre-apply water to depth of proposed cuts; re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and stabilize soils once earth-moving activities are complete.
- Importing/exporting of bulk materials – Stabilize material while loading to reduce fugitive dust emissions; maintain at least six inches of freeboard on haul vehicles; and stabilize material while transporting to reduce fugitive dust emissions.
- Stockpiles/bulk material handling – Stabilize stockpiled materials; stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.
- Traffic areas for construction activities – Stabilize all off-road traffic and parking areas; stabilize all haul routes; and direct construction traffic over established haul routes.

Mitigation Measures

No additional measures are feasible.

4.4.10 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential impacts related to air quality and global climate change would be less than significant except for (1) a potential for NO_x emissions to exceed SCAQMD mass daily thresholds if soil is exported to an off-site location distant from the Project site and (2) exposure of sensitive receptors to PM₁₀ and PM_{2.5} emissions during the mass grading phase which would exceed local air quality standards. Each of these would be significant and unavoidable impacts.