3.17 - Greenhouse Gases

3.17.1 - Introduction

This section describes the current understanding of climate change and greenhouse gases emissions and the potential effects from the Project. Typical projects cannot generate enough greenhouse gas emissions to effect a discernible change in global climate. However, the Project may participate in a potential impact through its incremental contribution with the cumulative increase of greenhouse gases from other sources. Because these impacts may have serious environmental consequences, this section evaluates the potential for the Project to have a significant impact upon California's environment as the result of its potential contribution to the greenhouse gases and climate change.

In addition, Section 15125 of the State CEQA Guidelines requires EIRs to include a description of the physical environmental conditions in the area of a project that exist at the time that the Notice of Preparation (NOP) is circulated. These environmental conditions normally constitute the baseline physical conditions relative to which the CEQA lead agency evaluates the change in conditions that would result from project implementation. The NOP for this Draft EIR was issued on February 27, 2009. Therefore, environmental conditions as of February 2009 represent the baseline for CEQA purposes. To evaluate the footprint impacts of the Proposed Action (e.g., effects from climate change and greenhouse gases emissions), the conditions in 2009 are considered to be the baseline. Buildout of the Project is then added to existing conditions in order to determine whether Project implementation would substantially remove or impact the resources, thereby resulting in a significant impact on the environment. Data used to determine the baseline for climate change and greenhouse gases emissions were derived from the Air Quality and Greenhouse Gas Analysis Report contained in Appendix B. Therefore, data used to derive baseline conditions is based on existing conditions at the time of NOP issuance (February 27, 2009 through March 31, 2009) and are appropriate to use within the following analysis.

3.17.2 - Environmental Setting

Climate change is a change in the average weather of the earth that may be measured by changes in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes that have occurred in the past, such as during and between previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts and predicted that global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios.

In California, climate change may result in consequences such as the following.

- **A reduction in the quality and supply of water to the State from the Sierra snow pack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If precipitation increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are expected to increase by approximately 30 percent toward the end of the century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** Crops that are likely to be hard hit include wine grapes, fruit, nuts, and milk.
- **Exacerbation of air quality problems.** If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if temperature rises are kept in the lower warming range.
- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If heat-trapping emissions continue unabated and temperatures rise into the higher warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California's forests.** In forests, climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

Gases that trap heat in the atmosphere are called greenhouse gases (CEQA Section 15364.5). The effect is analogous to the way a greenhouse retains heat, the greenhouse effect. Common greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Natural processes

and human activities emit greenhouse gases. The presence of greenhouse gases in the atmosphere affects the earth's temperature. Without the natural heat trapping effect of greenhouse gas, the earth's surface would be about 34°C cooler. However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. These additional emissions from human related sources contribute to an enhanced greenhouse effect.

Individual greenhouse gas compounds have varying global warming potentials and atmospheric lifetimes. Carbon dioxide, the reference gas for the global warming potential, has a global warming potential of 1. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing greenhouse gas emissions since it normalizes various greenhouse gas emissions to a consistent metric. Methane's warming potential of 21 indicates that methane has a 21 times greater warming affect than carbon dioxide on a molecule per molecule basis. A carbon dioxide equivalent is the mass emissions of an individual greenhouse gas multiplied by its global warming potential. Greenhouse gases and sources are summarized in Table 3.17-1.

Table 3.17-1: Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Water Vapor	Water vapor is the most abundant, important, and variable greenhouse gas. In the atmosphere, it maintains the climate necessary for life.	Evaporation from the ocean and other water bodies, sublimation of ice and snow, and transpiration from plants.
Ozone	Ozone is a short-lived local greenhouse gas and photochemical pollutant. Tropospheric ozone changes contribute to radiative forcing on a global scale. Global warming potentials for short-lived greenhouse gases, such as ozone and aerosols, are not defined by the Intergovernmental Panel on Climate Change.	Ozone is formed from reactions of ozone precursors (nitrogen oxides [NO_x] and volatile organic compounds [VOC]) and sunlight in the atmosphere. VOC and NO_x are emitted from automobiles, solvents, and fuel combustion.
Aerosols	Aerosols are particulate matter that can be suspended in the atmosphere for about a week. Aerosols warm the atmosphere by absorbing heat and cool the atmosphere by reflecting light. There is a low scientific understanding of the radiative forcing of individual aerosols. Black carbon is an aerosol that can cause warming from deposition on snow and suspensions in air.	Sulfate aerosols are emitted when fuel with sulfur is burned. Black carbon (or soot) is emitted during biomass burning and incomplete combustion of fossil fuels (such as diesel fuel).
Nitrous oxide	Nitrous oxide is also known as laughing gas and is a colorless greenhouse gas. It has a lifetime of 114 years. Its global warming potential is 310.	Microbial processes in soil and water, fuel combustion, and industrial processes.
Methane	Methane (CH_4) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 21.	Methane is extracted from geological deposits (natural gas fields). Other sources are landfills, fermentation of manure, decay of organic matter, and cattle.

Table 3.17-1 (cont.): Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960. Carbon dioxide from fossil fuels contributed 81% of greenhouse gas emissions in 2004 in California.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chloral-fluorocarbons	These are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987.
Hydro-fluorocarbons (HFCs)	The HFCs with the largest measured atmospheric concentrations are HFC-23 and HFC-134a and HFC-152a. R410a and R404a are blends of HFCs and have global warming potentials of 1725 and 3785, respectively.	HFCs are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Per-fluorocarbons	Perfluorocarbons have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Global warming potentials range from 6,500 to 9,200.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas.

Notes:
Measure of concentrations in atmosphere: ppm = parts per million; ppt = parts per trillion
Compiled from a variety of sources, including Environmental Protection Agency 2006; Intergovernmental Panel on Climate Change 2007.

Although there could be health effects resulting from changes in the climate, inhalation of greenhouse gases at levels currently in the atmosphere are not anticipated to result in negative health effects. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, sulfur hexafluoride, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen.

3.17.3 - Regulatory Framework

International

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. A particularly notable result of the United Nations Framework Convention on Climate Change efforts is a treaty known as the Kyoto Protocol, which went into effect on February 16, 2005. When countries sign the Kyoto Protocol, they demonstrate their commitment to reduce their emissions of greenhouse gases or engage in emissions trading. More than 170 countries are currently participating in the Kyoto Protocol. Industrialized countries are required to reduce their greenhouse gas emissions by an average of 5 percent below their 1990 levels by 2012. In 1998, United States Vice President Al Gore symbolically signed the Protocol; however, in order for the Kyoto Protocol to be formally ratified, the United States Congress must approve it. Congress did not do this during the Clinton Administration. Former President George W. Bush did not submit the Protocol to Senate to be ratified based on the exemption granted to China. President Barack Obama has not taken action regarding the Kyoto Protocol because it is about to end.

National

Greenhouse Gas Endangerment. *Massachusetts v. EPA* (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the EPA regulate four greenhouse gases, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was made on April 2, 2007, in which the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act. The Court held that the Administrator must determine whether emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide, methane, nitrous oxide,

hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year, which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Mandatory Reporting of Greenhouse Gases. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory greenhouse gas reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. The rule requires reporting of greenhouse gas emissions from large sources and

suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Greenhouse Gas Endangerment. On December 7, 2009, the EPA Administrator signed two distinct findings regarding greenhouse gases under Section 202(a) of the Clean Air Act: 1) Current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations. 2) The combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

California

Title 24. Although not originally intended to reduce greenhouse gases, California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. All buildings for which an application for a building permit is submitted on or after January 1, 2011 must follow the 2008 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Green Building Standards. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard, which buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The California Green Building Standards Code (code section in parentheses) requires:

- **Short-term bicycle parking.** If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily

visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1).

- **Long-term bicycle parking.** For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.2).
- **Designated parking.** Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.6.2 (5.106.5.2).
- **Recycling by Occupants.** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling.
- **Construction waste.** A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and-75 percent for new homes and 80-percent for commercial projects. All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled.
- **Wastewater reduction.** Each building shall reduce the generation of wastewater by one of the following methods:
  1. The installation of water-conserving fixtures or
  2. Utilizing nonpotable water systems (5.303.4).
- **Water use savings.** 20-percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35 and 40-percent reductions.
- **Water meters.** Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day.
- **Irrigation efficiency.** Moisture-sensing irrigation systems for larger landscaped areas.
- **Materials pollution control.** Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particle board.
- **Building commissioning.** Mandatory inspections of energy systems (i.e. heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies.

Pavley Regulations. California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. The regulation was stalled by automaker lawsuits and by the EPA's denial of an implementation waiver. On January 21, 2009, the ARB requested that the EPA reconsider its

previous waiver denial. On January 26, 2009, President Obama directed that the EPA assess whether the denial of the waiver was appropriate. On June 30, 2009, the EPA granted the waiver request.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near term (2009-2012) standards will result in about a 22-percent reduction compared with the 2002 fleet, and the mid-term (2013-2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

Executive Order S-3-05. California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for greenhouse gas emissions:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable, mid-term target. The Climate Action Team's Report to the Governor in 2006 contains recommendations and strategies to help ensure the 2020 targets in Executive Order S-3-05 are met.

Low Carbon Fuel Standard - Executive Order S-01-07. The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

SB 1368. In 2006, the State Legislature adopted Senate Bill (SB) 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for greenhouse gas emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from

resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law will effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 will lead to dramatically lower greenhouse gas emissions associated with California's energy demand, as SB 1368 will effectively prohibit California utilities from purchasing power from out-of-state producers that cannot satisfy the performance standard for greenhouse gas emissions required by SB 1368.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to adequately analyze the effects of greenhouse gases would not violate CEQA.

On April 13, 2009, the Office of Planning and Research submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing greenhouse gas emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of greenhouse gas emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

A new section, CEQA Guidelines Section 15064.4, was added to assist agencies in determining the significance of greenhouse gas emissions. The new section allows agencies the discretion to

determine whether a quantitative or qualitative analysis is best for a particular project. However, little guidance is offered on the crucial next step in this assessment process—how to determine whether the project's estimated greenhouse gas emissions are significant or cumulatively considerable.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts respectively. Greenhouse gas mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze greenhouse gas emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic greenhouse gas analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to proposed Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include greenhouse gas questions.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. 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 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 diseases, asthma, and other human health-related problems.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a "business as usual" scenario are estimated to be 596 $MMTCO_2e$.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the

transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 $MMTCO_2e$ by 2020, representing approximately 25 percent of the 2020 target.

The ARB approved the Climate Change Scoping Plan in December 2008 (California Air Resources Board 2008). The Scoping Plan contains measures designed to reduce the State's emissions to 1990 levels by the year 2020. The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. The measures in the Scoping Plan will be in place by 2012. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.

SB 375. Passing the Senate on August 30, 2008, SB 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of greenhouse gas emissions, which emits over 40 percent of the total greenhouse gas emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing greenhouse gas emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies. Concerning CEQA, SB 375, section 21159.28 states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

The Project is not related to developing greenhouse gas emission reduction targets. There are no Project related requirements of SB 375. The next step is for the transit priority areas to develop a Sustainable Communities Strategy (SCS) that will include measures required to achieve the reductions adopted by the ARB. In the interim, measures like the ones listed will assist the transit priority areas in achieving the targets pending adoption of an SCS. The Project is consistent with the intent of SB 375 to reduce per capita vehicle miles traveled.

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, in December 2009, the California Natural Resources Agency released its 2009 California Climate Adaptation Strategy. The Strategy is the " . . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

SB 1078, SB 107, and Executive Order S-14-08. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio

Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020.

South Coast Air Quality Management District

The Project is within the South Coast Air Basin. The South Coast Air Quality Management District (SCAQMD) has jurisdiction over the four counties within the South Coast Air Basin. At the time of the Notice of Preparation, the SCAQMD Board had not approved CEQA guidance concerning greenhouse gases or climate change.

3.17.4 - CEQA Guidelines

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the Project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the Project would:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

(b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

3.17.5 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Project and Cumulative Analysis

Impact GHG-1	Generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment?

Threshold of Significance

Thresholds of Significance

A variety of agencies have developed greenhouse gas emission thresholds and/or have made recommendations for how to identify a threshold. However, the thresholds for projects in the jurisdiction of the SCAQMD remain in flux. The California Air Pollution Control Officers Association explored a variety of threshold approaches, but did not recommend one approach (2008). The ARB recommended approaches for setting interim significance thresholds (California Air Resources Board 2008b), in which a draft industrial project threshold suggests that non-transportation related emissions under 7,000 $MTCO_2e$ per year would be less than significant; however, the ARB

has not approved those thresholds and has not published anything since then. The Bay Area Air Quality Management District and the San Joaquin Valley Air Pollution Control District have both developed greenhouse gas thresholds. However, those thresholds are not applicable to the Project since the Project is under the jurisdiction of the SCAQMD. The SCAQMD is in the process of developing thresholds, as discussed below.

SCAQMD Threshold Development

On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is lead agency (SCAQMD permit threshold) (South Coast Air Quality Management District 2008b). The SCAQMD permit threshold consists of five tiers, as follows:

- Tier 1 consists of evaluating whether or not a project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the Project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 is a screening threshold level to determine significance using a 90 percent emission capture rate approach and is 10,000 $MTCO_2e$ per year (with construction emissions amortized over 30 years and added to operational emissions).
- Tier 4 was not approved in the interim greenhouse gas threshold.
- Tier 5 would allow the Project proponent to purchase off-site mitigation to reduce greenhouse gas emissions to less than the screening level (in Tier 3).

The SCAQMD is in the process of preparing recommended significance thresholds for greenhouse gases for local lead agency consideration ("SCAQMD draft local agency threshold"); however, the SCAQMD Board has not approved the thresholds as of the date of the NOP (South Coast Air Quality Management District 2010). The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the Project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the Project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose but must be consistent. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
  - All land use types: 3,000 MTCO2e per year

- Based on land use type: residential: 3,500 MTCO2e per year; commercial: 1,400 MTCO2e per year; or mixed use: 3,000 MTCO2e per year

- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual by a certain percentage; this percentage is currently undefined
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
  - Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO2e/SP/year for projects and 6.6 MTCO2e/SP/year for plans;
  - Option 3, 2035 target: 3.0 MTCO2e/SP/year for projects and 4.1 MTCO2e/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD discusses its draft thresholds in the following excerpt (South Coast Air Quality Management District 2008c):

> The overarching policy objective with regard to establishing a GHG [greenhouse gas] significance threshold for the purposes of analyzing GHG impacts pursuant to CEQA is to establish a performance standard or target GHG reduction objective that will ultimate contribute to reducing GHG emissions to stabilize climate change. Full implementation of the Governor's Executive Order S-3-05 would reduce GHG emissions 80 percent below 1990 levels or 90 percent below current levels by 2050. It is anticipated that achieving the Executive Order's objective would contribute to worldwide efforts to cap GHG concentrations at 450 ppm, thus, stabilizing global climate.
>
> As described below, staff's recommended interim GHG significance threshold proposal uses a tiered approach to determining significance. Tier 3, which is expected to be the primary tier by which the AQMD will determine significance for projects where it is the lead agency, uses the Executive Order S-3-05 goal as the basis for deriving the screening level. Specifically, the Tier 3 screening level for stationary sources is base on an emission capture rate of 90 percent for all new or modified projects. A 90 percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to some type of CEQA analysis, including a negative declaration, a mitigated negative declaration, or an environmental impact.
>
> Therefore, the policy objective of staff's recommended interim GHG significance threshold proposal is to achieve an emission capture rate of 90 percent of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be

constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that staff estimates that these GHG emissions would account for less than one percent of future 2050 statewide GHG emissions target (85 MMTCO2e/yr). In addition, these small projects would be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory.

In summary, the SCAQMD's draft threshold uses the Executive Order S-3-05 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus, stabilizing global climate.

Thresholds of Significance for this Project

To determine whether the Project is significant, this Project utilizes the SCAQMD draft local agency tiered threshold. The threshold is as follows:

- Tier 1: The Project is not exempt under CEQA; go to Tier 2.
- Tier 2: There is no greenhouse gas reduction plan applicable to the Project; go to Tier 3.
- Tier 3: Project greenhouse gas emissions compared with the threshold: 3,000 MTCO2e per year (see analysis below).
- Tier 4, option 1: Reduce greenhouse gas emissions from business as usual1 by 28.4 percent. The California 2020 emissions target is 427 MMTCO2e and the 2020 business as usual is 596 MMTCO2e (California Air Resources Board 2011b). Therefore, a 28.4 percent reduction is required to reduce emissions to the target.
- Tier 4, option 3: 4.8 MTCO2e per service population per year (see analysis below). The service population refers to the quantity of workers anticipated on the Project site.

Section 15064.4(b) of the CEQA Guideline amendments for greenhouse gas emissions state that a lead agency may take into account the following three considerations in assessing the significance of impacts from greenhouse gas emissions.

Consideration #1: The extent to which the Project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.

Consideration #2: Whether the Project emissions exceed a threshold of significance that the lead agency determines applies to the Project.

[1] Business as usual greenhouse gas emissions refer to emissions using protocol and emission factors from the period of 2004-2006 (prior to the adoption of AB 32 and related greenhouse gas regulations) and also do not take into account project design features or mitigation measures to reduce greenhouse gas emissions.

Consideration #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.

Project Inventory

While net greenhouse gas emissions cannot be accurately quantified because of uncertainty in estimating several variables, methodologies for calculating gross emissions do exist and are set forth below. This analysis is restricted to greenhouse gases identified by AB 32 and the CEQA guidelines (section 15364.5), which include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The Project would generate a variety of greenhouse gases during construction and operation, including several defined by AB 32 such as carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons.

The Project would emit nitrogen oxides and volatile organic compounds, which are ozone precursors. Ozone is a greenhouse gas; however, unlike the other greenhouse gases, ozone in the troposphere is relatively short-lived and can be reduced in the troposphere on a daily basis.

For this analysis, business as usual refers to emissions before reductions from Project design features and future regulations.

The California Emissions Estimator Model Version 2011.1 (CalEEMod) was released in February 2011. Version 2011.1.1 was released March 22, 2011 and is used in this analysis.

Construction

The Project would emit greenhouse gases from upstream emission sources and direct sources (combustion of fuels from worker vehicles and construction equipment).

An upstream emission source (also known as life cycle emissions) refers to emissions that were generated during the manufacture of products to be used for construction of the Project. Upstream emission sources for the Project include but are not limited to the following: emissions from the manufacture of cement; emissions from the manufacture of steel; and/or emissions from the transportation of building materials. The upstream emissions were not estimated because they are not within the control of the Project and to do so would be speculative at this time. Additionally, the California Air Pollution Control Officer's Association White Paper on CEQA & Climate Change (2008) supports this conclusion by stating, "The full life-cycle of GHG [greenhouse gas] emissions from construction activities is not accounted for … and the information needed to characterize [life-cycle emissions] would be speculative at the CEQA analysis level." Therefore, pursuant to CEQA

Guidelines Section 15144 and 15145, upstream /life cycle, emissions are speculative and no further discussion is necessary.

Emissions were estimated using the California Emissions Estimator Model Version 2011.1.1 (CalEEMod), which was released March 22, 2011. It was assumed that construction would occur in the year 2012 and would last approximately one year. This is based on the buildout date assumption of 2013. The duration of construction is shown in Table 3.17-2. As shown in the table, the Project would have an expedited construction schedule compared with the defaults.

Table 3.17-2: Construction Duration

Phase	Duration (days)	
	CalEEMod Default	Project
Grading – main site	105	40
Grading – outparcels	--	10
Building	740	210
Paving of parking lots and roads	20	20
Coating	55	55
Total	--	260*

Notes:
* For the unmitigated scenario, it is assumed that building, paving, and coating would overlap; therefore, the total days is not the sum of the days.
Source: CalEEMod and Michael Brandman Associates

There would be 10 smaller buildings that would range between 3,000 and 12,300 square feet and the Walmart building at 215,000 square feet. As shown in Table 3.17-2, building construction would only take 28 percent of the time and grading would only take 38 percent of the time compared with the CalEEMod default. The CalEEMod default construction equipment list is based on survey data based on the size of the sites (i.e., there is data for a 34 acre site). To account for the shortened phases, the following equipment were added to the default assumptions:

- Grading of main site: +1 rubber tired dozer, +2 tractors
- Building: +2 welders, +3 generator sets, +1 crane

The construction equipment list used for the unmitigated scenario is shown in Table 3.17-3.

Table 3.17-3: Construction Equipment Assumptions (Unmitigated)

Phase	Equipment	Number	Hours per day	Horsepower	Load Factor
Grading of main site	Excavators	2	8	157	0.57
	Graders	1	8	162	0.61
	Rubber Tired Dozers	3	8	358	0.59
	Scrapers	2	8	356	0.72
	Tractors/Loaders/Backhoes	4	8	75	0.55
Grading of outparcels and detention basins	Excavators	1	8	157	0.57
	Graders	1	8	162	0.61
	Rubber Tired Dozers	1	8	358	0.59
	Scrapers	1	8	356	0.72
	Tractors/Loaders/Backhoes	2	8	75	0.55
Paving of parking lots and roads	Pavers	2	8	89	0.62
	Paving Equipment	2	8	82	0.53
	Rollers	2	8	84	0.56
Building Construction	Cranes	2	7	208	0.43
	Forklifts	3	8	149	0.3
	Generator Sets	4	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	75	0.55
	Welders	3	8	46	0.45
Architectural Coating	Air Compressors	1	6	78	0.48
Source: Michael Brandman Associates and CalEEMod.					

Other parameters which are used to estimate emissions such as the worker and vendor trips and trip lengths utilize the CalEEMod defaults, with the addition of 5 daily haul trips during grading, which is to haul the construction equipment to the site. The trips assumptions are provided in Table 3.17-4.

Table 3.17-4: Construction Trips Assumptions

Phase	Trips per day			Trip Length (miles)		
	Worker	Vendor	Haul	Worker	Vendor	Haul
Grading of main project	30	0	5	10.8	7.3	20
Grading of outparcels	15	0	0	10.8	7.3	20
Paving	15	0	1	10.8	7.3	20
Building	91	45	0	10.8	7.3	20
Coating	18	0	0	10.8	7.3	20

Notes: Worker fleet is light duty mix; vendor fleet is a heavy duty truck mix; hauling vehicle mix is heavy-heavy duty trucks (all CalEEMod defaults)
Source: CalEEMod defaults

The installation of new refrigerants could result in accidental release of refrigerants. The global warming potential for the refrigerants, which is assumed to use a hydrofluorocarbon called R404a, is much greater compared with carbon dioxide.

The emissions of carbon dioxide from Project construction equipment (i.e., cranes, forklifts, etc.) and worker vehicles (vehicles used to commute to the construction site) are shown in Table 3.17-5. The emissions are from all phases of construction.

Table 3.17-5: Construction Greenhouse Gas Emissions

Phase	Emissions (MTCO2e)		
	On-site	Off-site	Total
Grading of main project	289	6	295
Grading of outparcels	34	1	35
Paving	27	2	29
Building	617	187	804
Building	61	18	79
Coating	7	5	12
Installation of refrigeration system	567	0	567
Total	**1602**	**219**	**1821**
Averaged over 30 years*	**53**	**7**	**61**

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents (includes carbon dioxide, methane, nitrous oxide, and/or hydrofluorocarbons).
*The emissions are averaged over 30 years because the average is added to the operational emissions, pursuant to SCAQMD recommendations.
Source: Michael Brandman Associates 2011.

Operation

Operational or long-term emissions occur over the life of the Project. CalEEMod estimated the operational greenhouse gas emissions, with the exception of refrigerants.

The operational emissions were estimated using the California Emissions Estimator Model Version 2011.1.1 (CalEEMod), which was released March 22, 2011. Refrigerant emissions were estimated using the spreadsheets prepared by Michael Brandman Associates and contained in the Air Quality and Greenhouse Gas Analysis Report.

Motor Vehicle and Truck Emissions. Estimates of motor vehicle emissions requires information on four parameters: trip generation, mix of vehicles accessing the Project (i.e., car versus type of truck), length of each trip made by each type of vehicle, and emission factor (quantity of emission for each mile traveled or time spent idling by each vehicle). Each of these parameters is discussed below.

The number of delivery trucks was estimated from the type of retail/commercial operation and information available from similar Wal-Mart projects and from similar retail/commercial projects. The number of delivery truck trips is provided in Table 3.17-6.

Table 3.17-6: Estimated Daily Delivery Truck Trips

Project Building	Vehicle Class [(1)]	Delivery Trucks Trips (one way trips per day)
Parcel 1	4+ axle 4+ Axle (with TRU)	2 2
Parcel 2	4+ axle (with TRU)	2
Parcel 3	2 axle	2
Parcel 4	2 axle	2
Parcel 5	4+ axle (TRU)	4
Parcel 6	2 axle	2
Parcel 7	4+ axle (with TRU)	2
Parcel 8	4+ axle (with TRU)	2
Parcel 9	4+ axle (with TRU)	2
Wal-Mart	4+ axle (without TRU) 4+ axle (with TRU) 2 axle	10 4 14
Total	—	50

Notes:
[(1)] 2 axle vehicles are represented by the EMFAC light heavy duty 2 vehicle class; 4+ axle vehicles are represented by the EMFAC heavy-heavy duty vehicle class; all vehicles are assumed to be diesel-fueled
TRU = transport refrigeration unit

The average trip distance for the Walmart delivery trucks was assumed to be 20 miles as the distance to the nearest Walmart distribution centers in Mira Loma and Fontana, California.

The percentages of worker and customer trips are from CalEEMod defaults. The trip generation rates are from the Project Traffic Impact Analysis (Urban Crossroads 2011) and are shown in Table 3.17-7.

Table 3.17-7: Trip Generation Rates

Land Use	Quantity	Units	Trip Generation Rate (trips/unit/day)		
			Weekday	Saturday	Sunday
Free standing discount superstore	215.0	TSF	53.13	64.07	56.12
Specialty retail	25.7	TSF	44.32	42.04	20.43
High-turnover sit down restaurant	9.0	TSF	127.15	158.37	131.84
Fast food without drive through	12.3	TSF	716.00	696.00	556.80
Fast food with drive through	10.5	TSF	496.12	722.03	542.72
Gas/service station with market and car wash	12	VFP	152.84	210.99	168.79
Total	272.5 12	TSF VFP	--	--	--

Notes:
TSF = thousand square feet; VFP = vehicle fueling positions
Source: Urban Crossroads 2011.

The Traffic Impact Analysis assumed that there would be an internal capture of 10 percent for all uses. Internal capture is a percent reduction attributed to trips internal to the site; trips may be made between individual retail uses on-site and can be made either by walking or using internal roadways without using external streets.

Pass-by trips are intermediate stops on the way from an origin to a primary destination without a route diversion. Pass-by trips are attracted from passing the site on an adjacent street or roadway that offers direct access to the generator. The high-turn over sit down restaurant and the fast food restaurant(s) without a drive-through would have a pass-by reduction of 43 percent. The fast food restaurant(s) with a drive-through would have a pass-by reduction of 50 percent. The gas station would have a pass-by reduction of 56 percent.

CalEEMod assumes that “primary” trips travel 100 percent of the trip distance; “diverted” trips travel 25 percent of the trip length; and pass-by trips are 0.1 miles in length. Therefore, it is assumed for these purposes that the internal capture and pass-by trips are 0.1 miles in length (and are attributed in CalEEMod as pass-by trips). There are zero diverted trips and the rest of the percentage are primary trips.

The percentages for customer, worker, and other trips are from the CalEEMod defaults.

The vehicle mix for customer and worker trips is shown in Table 3.17-8, as derived from the URBEMIS2007 model for the year 2013. Light-heavy duty trucks (1 and 2), medium duty trucks, and heavy-heavy duty trucks are taken out of the mix, as they are accounted for in the delivery truck mix.

Table 3.17-8: Vehicle Mix for Customer/Worker Trips

Vehicle Class	Vehicle Mix (%)
Light duty automobile (LDA)	53.3
Light duty truck (LDT1)	7.6
Light duty truck (LDT2)	24.0
Medium duty truck (MDT)	11.1
Urban bus (UB)	0.1
Motorcycle (MC)	2.9
Motor home (MH)	1.0
Source: Michael Brandman Associates 2011	

The trip lengths for the customer base are derived from the trade area in the Urban Decay Analysis prepared by the Natelson Dale Group (Natelson Dale Group 2011). The trade area for the grocery components of the Project is 5 miles, based on Figure I-1 in the Urban Decay Analysis. The trade area for the non-grocery components of the Project includes the primary market area and the secondary market area (Figure I-2 in the Urban Decay Analysis) and is assumed to be 8.3 miles (the average of the distances to the edges of the east and west secondary market areas: 4, 4, 12, 12, 6, 4, 12, and 12 miles). The grocery sales and support component of Walmart is 43,809 square feet, 16 percent of the total square feet in the Project (272,500 square feet). Therefore, a weighted average of the two is 7.8 miles, which is used for the customer trips. The trip length for the worker trips is 9.5 miles, from CalEEMod. The non-work trips is 7.8 miles (increased from the CalEEMod default of 7.3). A summary of the trip lengths is as follows:

- Customer and Other: 7.8 miles per trip
- Workers: 9.5 miles per trip

The emission factors (from EMFAC2007) required to estimate the mobile source emissions are embedded in the CalEEMod emissions model.

Natural Gas. Natural gas emissions refer to the emissions that occur when natural gas is combusted on the Project site for heating water, space heating, stoves, or other uses. Criteria air pollutant and greenhouse gas emissions were estimated using CalEEMod defaults.

Indirect Electricity. Indirect electricity refers to the greenhouse gas emissions generated by off-site power plants to supply the electricity required for the Project. The CalEEMod defaults for energy intensity were used.

Water Transport. There would be greenhouse gas emissions generated from the electricity required to supply and treat the water to be used on the Project site. The water consumption for the Project is shown in Table 3.17-9. The Project would use 5,408,205 gallons of water per year (2 million gallons for domestic and 3.4 million gallons for irrigation).

Table 3.17-9: Project Daily Water Consumption

Use	Daily Water Consumption (gallons)		
	Domestic	Irrigation	Total
Walmart	4,274	7,336	11,610
Parcels 1-9	1,181	2,026	3,207
Total	5,455	9,362	14,817
Source: Project Environmental Impact Report (Section 3.16, Utilities)			

Waste. There would be greenhouse gas emissions from the decomposing waste generated by the Project. Based on estimates in the Project Environmental Impact Report, the Project would generate 4.8 pounds of waste per square foot per year; therefore, the Project would generate 654 tons of solid waste per year (4.8 pounds x 272,500 square feet). The CalEEMod defaults, considering the Project's land uses, is 1,328 tons per year. To be more conservative, the CalEEMod default waste generation is used in this analysis.

Refrigeration System and Air Conditioning. During operation, there may be leakages of refrigerants (hydrofluorocarbons) from air conditioners and the refrigeration system. Hydrofluorocarbons are typically used for refrigerants, which are long-lived greenhouse gases. Emissions were estimated using the procedures described in Appendix A.

The estimation does not include changes in carbon storage or sequestration. Carbon is stored in biological material such as trees and lumber. There is little vegetation on the Project site. In addition, the structures that will be operational once the Project is constructed will retain carbon. Therefore, the carbon sequestration ability of the Project site pre and post Project is speculative at this time.

The operational emissions for the Project are shown in Table 3.17-10. The main source of emissions is motor vehicles, contributing almost 75 percent of the business as usual emissions.

Table 3.17-10: Operational Greenhouse Gas Emissions

Category	Subcategory	Emissions (MTCO2e)		
		Business as Usual	With Regulation	With Regulation, Project Design, Mitigation
Mobile	Customers, workers	25,920	19,722	19,525
	Trucks	500	461	461
Natural gas	Walmart	27	27	26
	Non-Walmart	507	507	507
Electricity	Walmart	985	823	782
	Non-Walmart	611	511	511
Water	Walmart	18	18	16
	Non-Walmart	5	5	5
Waste	Waste	604	498	498
Air conditioning		1581	791	791
Refrigerators	Walmart	3,801	1,810	905
	Non-Walmart	167	79	79
Subtotal – Operation		*34,726*	*25,252*	*24,106*
Subtotal – Construction (averaged over 30 years)		*61*	*61*	*61*
Total Annual Emissions		**34,787**	**25,313**	**24,167**

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
- Mobile emissions include both Walmart and non-Walmart uses
- Business as usual mobile emissions reflect emission factors from 2010
- Emissions with regulation are emissions estimated by CalEEMod for the year 2020 (includes Pavley I and Low Carbon Fuel Standard mobile reductions) and also includes reductions listed in the tables below In Table 3.17-4.
- Emissions with regulation, project design, and mitigation include reductions listed in the tables below.
Source: Michael Brandman Associates 2011.

Operational Regulation Reductions

A variety of regulations would reduce Project emissions. A summary of the future regulations that would reduce Project emissions are shown in Table 3.17-11, and are discussed in more detail below.

Table 3.17-11: Greenhouse Gas Reductions - Regulation

Source Category	Regulation	Reduction (%)
Mobile: customers, workers	Advanced clean cars (Pavley I, Low Carbon Fuel Standard)	Estimated by CalEEMod
Mobile: Trucks	Heavy Duty Aerodynamics	2.2
Waste	Landfill methane control	17.6
Electricity	Executive Order S-21-09, Renewables portfolio standards	16.4
Air conditioning	High-Global Warming Potential Stationary Source Refrigerant Management Program	50.0
Refrigerators		52.4
Source: Michael Brandman Associates, 2011.		

The following tables outline the various Project design features and mitigation measures in other impact areas that would reduce greenhouse gas emissions. The Project will meet the energy efficiency standards of Title 24. To achieve this reduction in energy consumption, the Walmart store will incorporate, at a minimum, the following sustainability features or other features that are equally efficient. Table 3.17-12 displays the design features that Walmart would implement to conserve energy, conserve water, and reduce waste. Strategy consistency refers to consistence with strategies in the ARB Scoping Plan and the papers published by the California Air Pollution Control Officers Association. Table 3.17-13 shows mitigation measures in other impact areas that would reduce greenhouse gas emissions. As shown in the tables, the Project is consistent with a variety of Scoping Plan measures.

Table 3.17-12: Walmart Design Features that Reduce Emissions

Category	Walmart Design Feature	Reductions in Emissions	Strategy Consistency
Electricity: Energy Efficiency	Light Emitting Diode Signage Illumination: The Walmart building signage would use light emitting diode lighting. With lamp life ranging to 100,000 hours, using light emitting diodes reduces the need to manufacture and dispose of fluorescent lamps.	This feature would reduce electricity and waste.	ARB Scoping Plan measures 3 (Energy Efficiency), 13 (Green Building), and 15 (Recycling and Waste).0
	Daylighting System: The Walmart store would include a daylighting system (skylights, electronic dimming ballasts, computer controlled daylight sensors, etc.), which automatically and continuously dims all of the lights as the daylight contribution increases.	This feature would reduce electricity required for lighting	ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building)

Table 3.17-12 (cont.): Walmart Design Features that Reduce Emissions

Category	Walmart Design Feature	Reductions in Emissions	Strategy Consistency
	Night Dimming: The Walmart store would include lighting that would dim to approximately 75 percent illumination during the late night hours.	This feature would reduce electricity required for lighting.	ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building)
	Super High Efficiency Heating, Ventilation, and Air Conditioning (HVAC) units: The HVAC units in the Walmart store would be super high efficiency with a weighted Energy Efficiency Ratio of 12.1 to 14.3.	The new HVAC units are 4 to 17 percent more efficient than required by Title 24 energy efficiency standards.	- ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building) - CAPCOA measure E-9
	Central Energy Management: Walmart would employ an energy management system that is monitored and controlled from the Walmart corporate headquarters located in Bentonville, Arkansas. This energy management system enables corporate headquarters to monitor energy usage, analyze refrigeration temperatures, and observe HVAC and lighting performance. It also allows corporate headquarters to adjust lighting, temperature, or refrigeration set points from a central location.	This feature ensures that energy is used efficiently.	- ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building) - CAPCOA measure E-20
	White Roofs: The Walmart store would have a white Thermoplastic polyolefin-type membrane roof.	The high solar reflectivity of this membrane results in lowering the cooling load by more than 10 percent.	- ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building) - CAPCOA measure E-13
	Interior Lighting Retrofit Program: All lighting in the store would utilize T-8 fluorescent lamps and electronic ballasts, which are the most efficient lighting on the market.	This feature would reduce electricity use.	ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building)
	Application of Title 24 Energy Efficiency standards.	This feature would increase energy efficiency.	ARB Scoping Plan measures 3, 13
	Total Electricity Reductions	**5 percent for Walmart**	
Natural Gas	Water Heating: The grocery area in the Walmart store would capture waste heat from the refrigeration equipment to heat water.	This feature would decrease natural gas usage to heat water.	- ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building)
	Total Natural Gas Reductions	**5 percent for Walmart**	

Table 3.17-12 (cont.): Walmart Design Features that Reduce Emissions

Category	Walmart Design Feature	Reductions in Emissions	Strategy Consistency
Water Conservation	Restroom Sinks: Walmart restroom sinks would use sensor-activated, low-flow faucets.	The low flow faucets reduce water usage by 77 percent, while the sensors, which regulate the amount of time the faucets flow, save approximately 20 percent in water usage over similar, manually operated systems.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure E-23
	Toilets and Urinals: Walmart urinals would use a maximum of 0.125 gallon per flush, for a savings of approximately 87.5 percent and toilets would use a maximum of 1.28 gallons per flush.	This feature would reduce indoor water use from toilets and urinals by approximately 25%.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure E-23
	Total Indoor Water Reductions	**20 percent for Walmart**	
Waste Reduction	Recycled Building Materials: Most of the Walmart would be constructed using 100 percent-recycled steel. Walmart structural steel suppliers use high efficient electric arc furnaces that use 50 percent less energy to manufacture recycled steel. In addition, all of the plastic baseboards, and much of the plastic shelving, are manufactured from recycled material.	This feature reduces emissions from upstream sources.	- ARB Scoping Plan measure 15 (Recycling and Waste)
	Concrete: Walmart would include supplemental cementious material (fly ash) in interior and exterior floor slabs, footing and foundations, grout, and all site concrete. All poured concrete for Walmart would include up to 15-20 percent fly ash content. It is estimated that one pound of fly ash reduces one pound of greenhouse gas.	This feature would reduce upstream greenhouse gas emissions from the manufacture of concrete.	Not applicable
	Walmart Recycling Center: The Walmart store would be equipped to accept the following materials for recycling: aluminum; plastic (including bottles, bags, garment bags, shrink wrap, and bubble pack); glass; cardboard; vegetable oil; motor oil; tires; auto batteries; single-use cameras; electronic waste; silver (from photo processing).	This feature would reduce emissions from motor vehicles because customers can bring recyclables to the store and shop. Recycling reduces emissions from upstream sources (mineral extraction).	- ARB Scoping Plan measure 15 (Recycling and Waste) - CAPCOA measure D-14
	Total Waste Reductions	**Not applicable because these reductions refer to upstream emissions and reductions from waste not generated at the store.**	
Source: Michael Brandman Associates 2011.			

Table 3.17-13: Greenhouse Gas Reductions – Mitigation Measures

Impact Area	Mitigation Measure in Other Impact Area	Reductions in Emissions	Strategy Consistency
Green-house Gas	Mitigation Measure GHG-1; Walmart shall use refrigerants in its refrigerators and freezers with an average global warming potential of 1,893 or lower.	Under the business as usual scenario, the global warming potential used for refrigerators and freezers for Walmart is 3785; mitigation would reduce emissions by 50 percent.	
Air Quality	Mitigation Measure AQ-5, traffic signalization	This would help traffic move more smoothly.	--
	Mitigation Measure AQ-7, pedestrian connections	Pedestrian pathways would encourage those already on the site to walk to other on-site stores in lieu of driving.	CAPCOA measure T-5 and T-6 (1 to 10%) and T-12 (1 to 4%)
	Mitigation Measure AQ-8, Transportation Demand Management (TDM) Program	Reduce motor vehicle emissions from employee trips.	CAPCOA measure T-19 (1 to 28%)
	Mitigation Measure AQ-9, bicycle parking	These measures would make the Project accessible to bicycles and encourage alternatives to driving.	CAPCOA measure T-1
	Mitigation Measure AQ-10, employee lockers		CAPCOA measure T-2
	Mitigation Measure AQ-11, bicycle lanes		CAPCOA measure T-4
Traffic	Mitigation Measure T-6a would require an Omnitrans bus stop at the Project site. Omnitrans Route 15 runs adjacent to the Project site and provides access to/from downtown Redlands and Fontana. There are buses every 30 minutes Monday through Friday and once per hour on Saturday and Sunday.	This measure may encourage people to use public transportation	- CAPCOA measure T-7 (1 to 2%) - CAPCOA 2010 measure LUT-5 (0.5 to 24.6%)
Air Quality, Traffic	**Total Motor Vehicle Reductions**	**1 percent for** Project	
Water	Mitigation Measure HYD-2a requires drought resistant vegetation, efficient irrigation systems, sloped landscaped areas, and organic topdressing.	This measure would conserve water used for outdoor landscaping.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure D-17
	Mitigation Measure HYD-2b requires faucet aerators or low-flow faucets in bathrooms.	The low flow faucets reduce water usage by 77 percent, while the sensors, which regulate the amount of time the faucets flow, save approximately 20 percent in water usage over similar, manually operated systems.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure E-23

Table 3.17-13 (cont.): Greenhouse Gas Reductions – Mitigation Measures

Impact Area	Mitigation Measure in Other Impact Area	Reductions in Emissions	Strategy Consistency
	Mitigation Measure HYD-2b requires low flow toilets and urinals.	Urinals and toilets could save up to 87.5 and 25 percent, respectively.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure E-23
	Total Water Reductions	**5 percent for** Project	
Source: Michael Brandman Associates 2011.			

Several measures that have been identified as greenhouse gas emissions reduction strategies by various agencies are not applicable or are infeasible to implement. For example, the ARB Scoping Plan identifies a number of strategies that apply to statewide activities, such as tailpipe emissions standards for vehicles.

Emissions with Reductions

The operational emissions after incorporation of Project design features, mitigation measures in other impact areas, and future regulations are shown in Table 3.17-14. Project reductions and future regulations reduce emissions by approximately 30 percent. After application of reductions from the Project and regulations, the main source of emissions is from motor vehicles, contributing approximately 75 percent of the emissions.

Table 3.17-14: Significance of Greenhouse Gases

Item	Business as Usual	With Regulation, Project Design, Mitigation	Units
Total Annual Emissions	34,787	24,167	$MTCO_2e$/year
SCAQMD Draft Tier 3 threshold	3,000	3,000	$MTCO_2e$/year
Exceed Tier 3 Threshold?	Yes	Yes	—
Emissions per service population	79.8	55.4	$MTCO_2e$/SP/year
SCAQMD Draft Tier 4 (option 3) threshold	4.8	4.8	$MTCO_2e$/SP/year
Project exceeds service population threshold?	Yes	Yes	—
Percent reduction from regulation	0.0%	30.5%	%
SCAQMD Draft Tier 4 (option 1) threshold reduce emissions by this percentage	28.4%	28.4%	%
Significant impact?	—	No	—
Notes: SP = service population and is calculated by dividing the emissions by the number of employees (436); the number of employees is from the Draft Environmental Impact Report. Source: Summarized from the tables above			

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM GHG-1 Walmart shall use refrigerants in its refrigerator and freezer system with an average global warming potential of 1,893 or lower.

Mitigation Measures AQ-5, AQ-7, AQ-8, AQ-9, AQ-10, AQ-11, HYD-2a, HYD-2b (see the hydrology section of this Draft EIR), and T-6a (see the transportation section of this Draft EIR) are required.

Level of Significance After Mitigation

Less than significant.

The Project will promote the goals of AB 32. The Walmart store would retail general merchandise and groceries 24 hours a day, 7 days a week and the other components of the Project would operate 12 hours per day, providing convenient access to nearby residents and employees. The Project site is near public transit and accessible to bicycles and pedestrians. Collectively, these characteristics indicate that the Project is planned growth within the urban footprint of Redlands and is well positioned to reduce travel lengths. The Project incorporates a number of features and mitigation measures in other impact areas that would minimize greenhouse gas emissions. These features are consistent with Project-level strategies identified in the ARB's Scoping Plan and the California Air Pollution Control Officers Association white papers. Therefore, although the Project would generate greenhouse gas emissions, these emissions would not have a significant impact on the environment. The Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. Impacts would be less than significant.

The SCAQMD is in the process of preparing significance thresholds for greenhouse gases and the SCAQMD Board had not approved the thresholds as of the date of the NOP. The current draft thresholds consist of a tiered approach (South Coast Air Quality Management District 2010). One of the tiers involves reducing emissions from business as usual by at least 28.4 percent, with the requirement that the resulting emissions are under 25,000 $MTCO_2e$ per year. With implementation of Project design features and regulations, greenhouse gas emissions are reduced by more than 28.4 percent, to approximately 24,200 $MTCO_2e$ per year. These reductions are consistent with the SCAQMD draft interim threshold of emissions less than 25,000 $MTCO_2e$ per year and a 28.4 percent reduction in emissions.

Greenhouse Gas Reduction Plans

Impact GHG-2	Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Impact Analysis

City of Redlands Sustainability Plan

Although does not contain specific requirements for regulations for new or existing developments, the Sustainability Plan has applicable targets and actions as shown in Table 3.17-15, City of Redlands Sustainability Plan Targets and Actions. These are items that the City will develop implementing regulations and requirements over time. Many of the Walmart design features highlighted on Table 3.17-5 are in accord with the purposes of the sustainability plan include numerous efforts to conserve energy, conserve water and reduce waste.

Table 3.17-15: City of Redlands Sustainability Plan Targets and Actions

Category	Applicable Targets and Actions
Energy efficiency	• Achieve 10% reduction in city-wide energy consumption by 2015.
Water and wastewater	• Reduce use of potable water in landscape irrigation by 20 percent by 2020. • Incorporate rainwater harvesting technologies at the municipal, business and household level by 10% by 2015 50% by 2020 & 100% by 2025 • 50% increase in drought tolerant landscapes by 2015 • For new citywide development, expand the current landscape parking lot tree (ordinance or resolution) to include drought tolerant species.
Green building	Targets: • Decrease storm water runoff rates and volumes for 1and 2 year & 24 hour storm events by 25% by 2050 • Decrease single occupancy noncommercial vehicle miles traveled by 25 percent by 2050. • Decrease weight of construction and demolition debris hauled to landfill by 90% by 2050
Green building	Actions: • Consider establishing minimum energy performance using performance-based energy modeling. Consider a minimum compliance margin of 15% better than Title 24 Part 6. Encourage non-compliance reporting, to include estimates of process, plug loads. (CALGreen voluntary measure) • Implement a 20% (40% in office/retail) reduction in domestic water usage, using EPAct as a baseline (for new construction). Develop prescriptive fixture rates for renovations. (CALGreen mandatory and voluntary measures) • Encourage 50% reduction in irrigation water usage (performance) on new construction. Possibly limit turfgrass coverage to [0-5% commercial, 50% residential]. (CALGreen mandatory measure) • Specify no- or low-VOC materials. (CALGreen mandatory measure) • Entryway systems. All major points of entry will have a permanent walk-off system (commercial only). (CalGreen voluntary measure; Nonres.) • Tobacco smoke control. Prohibit smoking within 25' of any opening or air intake of any publicly accessible building. Can apply to all new and existing buildings. (CALGreen mandatory measure)

Table 3.17-15 (cont.): City of Redlands Sustainability Plan Targets and Actions

Category	Applicable Targets and Actions
	• Consider developing a decommissioning plan that describes the design intent for the end-of-life of new projects, including expected life span of core and shell, possible adaptive reuse scenarios, potential material reuses, recyclability of demolished materials, and disassembly of building systems.
Waste Reduction and Recycling	• Reduce mixed solid waste entering landfill by 10% by 2015 • Increase city-wide recycling by 20% by 2015 • Establish curbside food composting program by 2012 & reduce food waste to landfill by 10% by 2012
Renewable energy	Target: • Increase renewable energy from all sources by 20% by 2015, 40% by 2020 and 60% by 2025
Efficient transportation and low carbon fuels	Targets: • Increase public transportation use by 10% by 2015 & increase shuttle services for relevant populations by 10% by 2015 • Reduce single-occupancy vehicle travel within city by 20% by 2020 • Increase businesses offering employee alternative transportation incentive programs by 20% by 2015 Actions: • Develop renewable fuel locations and electric plug-in stations including a map for drivers to find refueling locations.
Storing and offsetting carbon	Target: • Increase hardscape and parking lots shaded by trees by 25% by 2020
Source: City of Redlands 2011.	

Scoping Plan

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the ARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan contains a variety of strategies to reduce the State's emissions, which are not applicable to the Project, as shown in the Air Quality and Greenhouse Gas Analysis Report (Appendix B). One of the Scoping Plan measures, #6 Regional Transportation-Related Greenhouse Gas Targets, refers to SB 375. The Project is consistent with the intent of SB 375 to reduce per capita vehicle miles traveled by locating a regional shopping center adjacent to existing transportation corridors and will include pedestrian walkways, bicycle parking, and a new bus station.

Level of Significance Before Mitigation

Less than significant.

Level of Significance After Mitigation

No mitigation is required.