

## 4.9 GREENHOUSE GASES/CLIMATE CHANGE

### 4.9.1 Introduction

This section describes the existing environmental setting for greenhouse gas (GHG) emissions and global climate change. Potential impacts from implementation of the Proposed Project on both the region and the global climate are analyzed and discussed.

A GHG Assessment for the proposed Home Depot was prepared by Mestre Greve Associates, September 15, 2011, to specifically address potential impacts related to project construction as well as impacts on the existing land uses adjacent to the site. The GHG Analysis is included in Appendix I.

### 4.9.2 Environmental Setting

Climate change refers to global changes in the average weather of the earth measured by changes in wind patterns, storms, precipitation, and temperature. While climate change is global in scale, California-specific impacts to the climate may result in a loss of snow-pack, increased risk of large wildfires, and a potential reduction in the quality and quantity of certain agricultural products.

Gases that trap heat in the atmosphere are GHGs, analogous to the way a greenhouse retains heat. Consequently, these GHG emissions are believed to directly affect the global climate.

The accumulation of GHGs in the atmosphere contribute to the regulation of the earth's temperature. Some GHGs can remain in the atmosphere for long periods of time. The following six GHGs are recognized under the Kyoto Protocol and have been found by the International Panel on Climate Change (IPCC) to have an effect on global climate change.

*Carbon Dioxide (CO<sub>2</sub>)* is an odorless, colorless natural GHG. CO<sub>2</sub> is emitted from natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include burning coal, oil, natural gas, and wood.

*Methane (CH<sub>4</sub>)* is a flammable GHG. A natural source of CH<sub>4</sub> is from the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain CH<sub>4</sub>, which is extracted for fuel. Other sources include landfills, fermentation of manure, and ruminants such as cattle.

*Nitrous Oxide (N<sub>2</sub>O)* is a colorless GHG. N<sub>2</sub>O is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load.

*Hydrofluorocarbons (HFCs)* are synthetic chemicals that are used as a substitute for chlorofluorocarbons (CFCs). Of all the GHGs, they are one of three groups with the highest

global warming potential. HFCs are human made for applications such as air conditioners and refrigerants.

*Perfluorocarbons (PFCs)* have stable molecular structures and do not break down through the chemical processes in the lower atmosphere; therefore, PFCs have long atmospheric lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

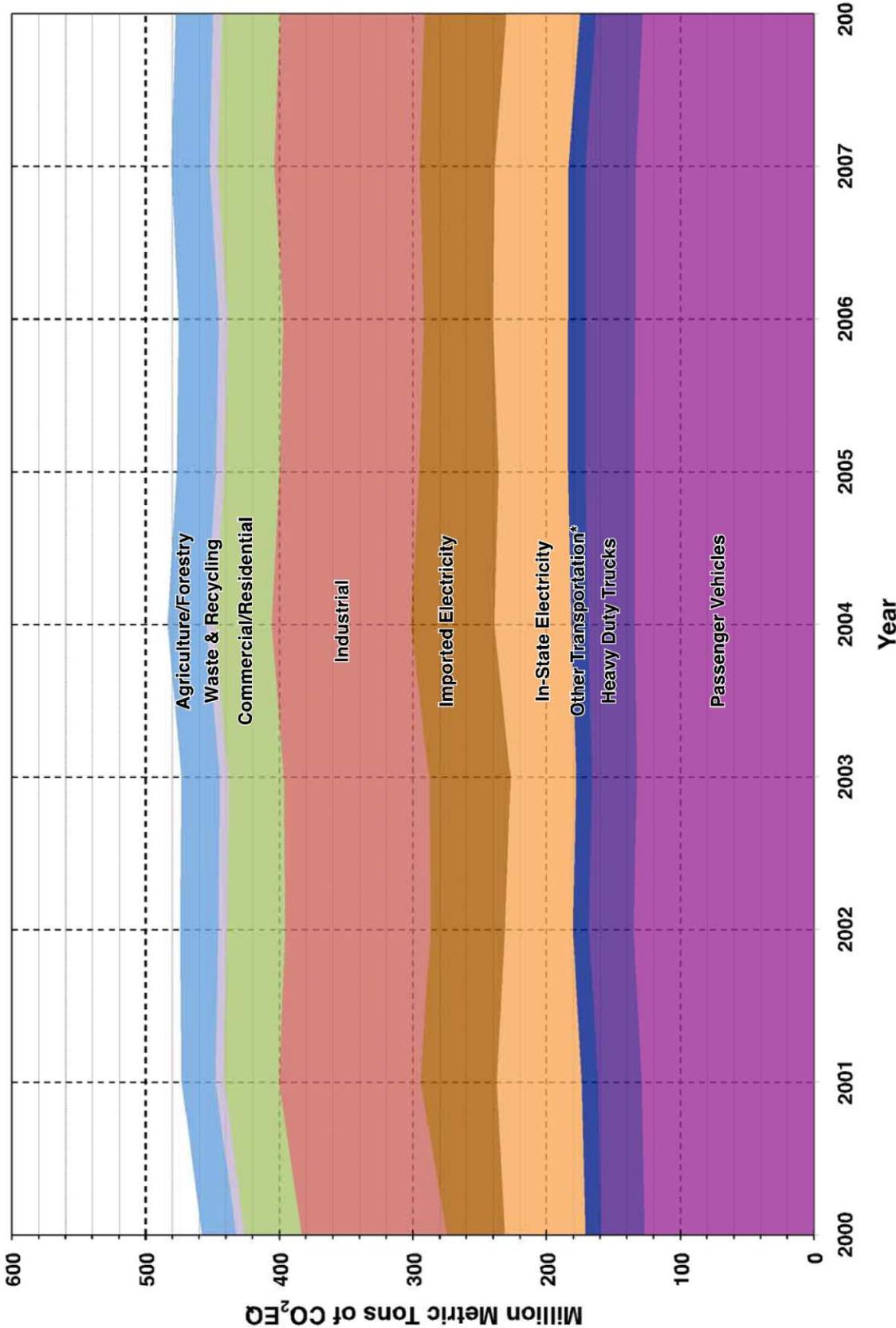
*Sulfur Hexafluoride (SF<sub>6</sub>)* is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest global warming potential of any gas evaluated, 23,900 times that of CO<sub>2</sub>. SF<sub>6</sub> is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

### Sources of Greenhouse Gases in California

The California Energy Commission (CEC) categorizes GHG generation by source into five broad categories. The categories are:

- **Transportation** includes the combustion of gasoline and diesel in automobiles and trucks. Transportation also includes jet fuel consumption and bunker fuel for ships.
- **Agriculture and forestry** GHG emissions are composed mostly of nitrous oxide from agricultural soil management, CO<sub>2</sub> from forestry practice changes, methane from enteric fermentation, and methane and nitrous oxide from manure management.
- **Commercial and residential** uses generate GHG emissions primarily from the combustion of natural gas for space and water heating.
- **Industrial** GHG emissions are produced from many industrial activities. Major contributors include oil and natural gas extraction; crude oil refining; food processing; stone, clay, glass, and cement manufacturing; chemical manufacturing; and cement production. Wastewater treatment plants are also significant contributors to this category.
- **Electric generation** includes both emissions from power plants in California as well as power plants located outside of the state that supply electricity to the state.

Refer to Figure 4.9-1 for the amount of GHGs released from each of these categories in California from 2000 to 2008. As shown in Figure 4.9-1 most of California's GHGs are emitted by transportation sources (Passenger Vehicles, Heavy Duty Trucks, and Other Transportation uses). Combustion of fossil fuels in the transportation sector contributed approximately 38-percent of the California GHG. Followed by the electric power sector, approximately 24-percent (including both in-state and out-of-state sources) and the industrial sector, contributing approximately 23-percent. Residential and commercial activity accounted for approximately 9-percent of the emissions. The waste and recycling sector and the agricultural and forestry sector accounted for approximately 1-percent and 6-percent, respectively.



\*Includes Rail, Ships & Commercial Boats, Intrastate Aviation, and Unspecified Transportation Sources

Source: CARB Greenhouse Gas Inventory Website  
<http://www.arb.ca.gov/cc/inventory/inventory.htm>, data last updated 5/12/10

# CALIFORNIA GHG EMISSIONS by SECTOR

Highland Marketplace EIR  
 City of San Bernardino, California

FIGURE 4.9-1

Source: Mettre Greve Associates, 2011.



### 4.9.3 Applicable Policies, Plans and Regulations

#### Federal Plans, Policies, Regulations, and Laws

The federal government began studying global warming as early as 1978 with the National Climate Protection Act, 92 Stat. 601. More recently, in *Massachusetts v. EPA* (April 2, 2007), the United State Supreme Court held that GHGs fall within the Clean Air Act's definition of an "air pollutant," and directed the EPA to consider whether GHGs are causing climate change. If so, the EPA must regulate GHG emissions from automobiles under the Clean Air Act. The EPA has not finalized a regulation. However, it did issue a proposed rule on April 17, 2009. The rule declared that GHGs endanger human health and is the first step to regulation through the federal Clean Air Act. If it becomes final, the EPA would define air pollution to include the six key GHGs – CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>.

Congress has increased the corporate average fuel economy (CAFE) of the U.S. automotive fleet. In December 2007, President Bush signed a bill raising the minimum average miles per gallon for cars, sport utility vehicles, and light trucks to 35 miles per gallon by 2020. This increase in CAFE standard will create a substantial reduction in GHG emissions from automobiles, which is the largest single emitting GHG sector in California. However, there are no adopted federal plans, policies, regulations or laws setting a mandatory limit on GHG emissions. The EPA has not finalized its evaluation in the wake of *Massachusetts v. EPA*.

#### California State Plans, Policies, Regulations, and Laws

In November 2008, the Governor issued Executive Order S-13-08 directing state agencies to plan for sea level rise and other climate change impacts. There are four key actions in the Executive Order: (1) initiation of a climate change adaptation strategy that will assess the state's expected climate change impacts where the state is most vulnerable, with recommendations by early 2009; (2) an expert panel on sea level rise will inform state planning and development efforts; (3) interim guidance to state agencies on planning for sea level rise in coastal and floodplain areas for new projects; and (4) initiation of a report on critical existing and planned infrastructure projects vulnerable to sea level rise.

Pursuant to AB 32, the California Air Resources Board (CARB) has adopted a number of relevant policies and directives. In December 2008, the Scoping Plan was adopted. The Plan is a central requirement of the statute. In addition, it has adopted a number of protocols for industry and government sectors, including one for local government.

In response to SB 97, the Office of Planning and Research (OPR) issued a Technical Advisory on CEQA and Climate Change in June 2008. The Advisory provides an outline of what should be included in a GHG analysis under CEQA (<http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>). In January 2009, OPR issued draft amendments to the CEQA Guidelines that address GHGs. Among the amendments are the following:

- Determining the Significance of Impacts from Greenhouse Gas Emissions (Guidelines § 15064.4);
- Thresholds of Significance (Guidelines § 15064.7(c));
- Discussion of Cumulative Impacts (Guidelines § 15130(a)(1)(B) and Guidelines § 15130(f));
- Tiering and Streamlining the Analysis of Greenhouse Gas Emissions (Guidelines § 15183.5);

### *Assembly Bill 32*

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006. In general, AB 32 directs the California Air Resources Board (“CARB”) to do the following:

- On or before June 30, 2007, CARB shall publish a list of discrete early action measures for reducing GHG emissions that can be implemented by January 1, 2010;
- By January 1, 2008, establish the statewide GHG emissions cap for 2020, based on CARB’s calculation of statewide GHG emissions in 1990 (an approximately 25 percent reduction in existing statewide GHG emissions);
- Also by January 1, 2008, adopt mandatory reporting rules for GHG emissions sources that “contribute the most to statewide emissions” (Health & Safety Code § 38530);
- By January 1, 2009, adopt a scoping plan that indicates how GHG emission reductions will be achieved from significant GHG sources through regulations, market mechanisms, and other strategies;
- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures;
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020; and
- On January 1, 2012, CARB’s GHG emissions regulations become operative.
- On January 1, 2020, achieve 1990 levels of GHG emissions.

In a December 2006 report, CARB estimated that California emitted between 425 and 468 million metric tons of CO<sub>2</sub> in 1990. In December 2007, CARB finalized 1990 emissions at 427 million metric tons of CO<sub>2</sub>. In the August 2007 draft report, CARB estimated California emitted approximately 480 million metric tons of CO<sub>2</sub> in 2004. Based on the U.S. Census Bureau California 2007 population of 36,553,215, this would result in about 13 metric tons of CO<sub>2</sub> per capita.

AB 32 takes into account the relative contribution of each source or source category to protect adverse impacts on small businesses and others by requiring CARB to recommend a *de minimis*

(minimal importance) threshold of GHG emissions below which emissions reduction requirements would not apply. AB 32 also allows the Governor to adjust the deadlines mentioned above for individual regulations or the entire state to the earliest feasible date in the event of extraordinary circumstances, catastrophic events, or threat of significant economic harm.

*CARB “Early Action Measures” (June 30, 2007).* On June 21, 2007, CARB approved its early action measures to address climate change, as required by AB 32. The three measures include: (1) a low carbon fuel standard, which will reduce the carbon-intensity in California fuels, thereby reducing total CO<sub>2</sub> emissions; (2) reduction of refrigerant losses from motor vehicle air conditioning system maintenance through the restriction of “do-it-yourself” automotive refrigerants; and (3) increased CH<sub>4</sub> (methane) capture from landfills through the required implementation of state-of-the-art capture technologies.

*CARB Mandatory Reporting Regulations (December 2008).* Under AB 32, CARB propounded regulations to govern mandatory greenhouse gas emissions reporting for certain sectors of the economy, most dealing with approximately 94 percent of the industrial and commercial stationary sources of emissions. Regulated entities include electricity generating facilities, electricity retail providers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 metric tons of CO<sub>2</sub> from stationary source combustion.

*Senate Bill 97 (2007)*

By July 1, 2009, the Governor’s Office of Planning and Research (OPR) is directed to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by the California Environmental Quality Act. The Resources Agency is required to certify and adopt these guidelines by January 1, 2010. OPR is required to periodically update these guidelines as CARB implements AB 32. In addition, SB 97 states that the failure to include a discussion of greenhouse gas emissions in any CEQA document for a project funded under the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or projects funded under the Disaster Preparedness and Flood Prevention Bond Act of 2006 shall not be a cause of action under CEQA. This last provision will be repealed on January 1, 2010.

*Executive Order S-01-07 (2007)*

Executive Order S-01-07 calls for a reduction in the carbon intensity of California’s transportation fuels by at least 10 percent by 2020. As noted above, the low-carbon fuel standard (“LCFS”) was adopted by CARB as one of its three “early action measures” on June 21, 2007.

*Senate Bill 1368 (2006) (Public Utilities Code §§ 8340-41)*

SB 1368 required the California Public Utilities Commission (“PUC”) to establish a “GHG emission performance standard” by February 1, 2007, for all electricity providers under its jurisdiction, including the state’s three largest privately owned utilities (Pub. Res. Code §

8341(d)(1)). These utilities provide approximately 30 percent of the state's electric power. After the PUC acted, the CEC adopted a performance standard "consistent with" the PUC performance standard and applied it to local publicly-owned utilities on May 23, 2007 (over one month ahead of its June 30, 2007 deadline). Cal. Pub. Res. Code § 8341(e)(1). However, the California Office of Administrative Law ("OAL") found four alleged flaws in the CEC's rulemaking. The CEC overcame these alleged flaws and adopted reformulating regulations in August 2007.

#### *Senate Bill 107 (2006)*

Senate Bill 107 ("SB 107") requires investor-owned utilities such as Pacific Gas and Electric, Southern California Edison and San Diego Gas and Electric, to generate 20 percent of their electricity from renewable sources by 2010. Previously, state law required that this target be achieved by 2017.

#### *Senate Bill 375 (September 2008)*

In September 2008, SB 375 was signed by Governor Schwarzenegger. SB 375 is a comprehensive global warming bill that helps to achieve the goals of AB32. To help establish these targets, the CARB assigned a Regional Targets Advisory Committee to recommend factors to be considered and methodologies for setting greenhouse gas emission reduction targets. SB 375 also provides incentive – relief from certain CEQA requirements for development projects that are consistent with regional plans that achieve the targets. SB 375 requires CARB to develop, in collaboration with the Metropolitan Planning Organization (MPO), passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035 by September 30, 2010. The MPO is required to include and adopt, in their regional transportation plan, a sustainable community strategy that will meet the region's target provided by CARB.

#### *Energy Conservation Standards (2009)*

Energy Conservation Standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission in June 1977 and most recently revised in 2008 (Title 24, Part 6 of the California Code of Regulations [CCF]) with the standards going into effect in 2009. Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608), dated December 2006, were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. While these regulations are now often seen as "business as usual," they do exceed the standards imposed by any other state and reduce GHG emissions by reducing energy demand. On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code (Title 24, California Code of Regulations). Part 11 established voluntary standards, some of which became mandatory in the 2010 edition of the Code, on planning and design for sustainable site development, energy

efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.

#### California Environmental Quality Act (CEQA) Guidelines

SB 97 required that the California Natural Resource Agency (CNRA) coordinate on the preparation of amendments to the CEQA Guidelines regarding feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions. Pursuant to SB 97, CNRA adopted CEQA Guidelines amendments on December 30, 2009. The amendments were approved by the Office of Administrative Law on February 16, 2010, and became effective on March 18, 2010.

With respect to the significance assessment, newly added CEQA Guidelines section 15064.4, subdivision (b), requires that the lead agency should consider the following factors, among others, 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 requirements must be adopted by the relevant public agency through a public review process and must 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 new CEQA Guidelines do not include or recommend any particular threshold of significance; instead, they leave that decision to the discretion of the lead agency. The new CEQA Guidelines also do not suggest or recommend the use of any specific GHG emission mitigation measures. The, newly added CEQA Guidelines provides that lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Mitigation measures may include the following, among others:

- (1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
- (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in Appendix F;
- (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;
- (4) Measures that sequester greenhouse gases;

- (5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

Among other things, CNRA noted in its Public Notice for these changes that the impacts of GHG emissions should be considered in the context of a cumulative impact, rather than a project impact. The Public Notice states: “While the Proposed Amendments do not foreclose the possibility that a single project may result in greenhouse gas emissions with a direct impact on the environment, the evidence before [CNRA] indicates that in most cases, the impact will be cumulative. Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas emissions should center on whether a project’s incremental contribution of greenhouse gas emissions is cumulatively considerable.”

#### South Coast Air Quality Management (SCAQMD) District Guidance

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. As to all other projects, where the SCAQMD is not the lead agency, the Board has, to date, adopted thresholds only for industrial (stationary source) projects. The SCAQMD has not yet adopted any significance thresholds for new residential/commercial development projects. However, has over the last few years proposed several draft thresholds. To assist in assessing the significance of GHG emissions from new residential/commercial development projects under CEQA, SCAQMD staff has been working on developing thresholds together with the SCAQMD's GHG CEQA Significance Thresholds Working Group. To achieve its policy objective of capturing 90% of GHG emissions from new residential/commercial development projects and implementing a “fair share” approach to reducing emission increases from each new residential/commercial development sector, SCAQMD staff has proposed combining performance standards and screening thresholds. According to the presentation given at the September 28th, 2010 GHG CEQA Significance Working Group meeting, the last Working Group meeting prior to the date of this report, SCAQMD staff proposed a draft threshold for 2020 of 4.8 MT/SP/YR (metric tons of CO<sub>2</sub>EQ per service population per year) for mixed use developments. As the goal of AB 32 is to return to 1990 GHG emission levels by 2020, the basis for this threshold is the statewide emission inventory for 1990 based on “land use” related sectors divided by the statewide service population. The SCAQMD has also developed draft thresholds for commercial and residential projects, where it is not the lead. The draft recommends a 3,000 MTCO<sub>2</sub>EQ per year screening threshold. The SCAQMD’s working group has not set a date for finalizing the recommendations.

#### City of San Bernardino Plans, Policies, Regulations, and Laws

The City of San Bernardino does not have any plans, policies, regulations, significance thresholds or laws addressing climate change at this time.

#### **4.9.4 Project Impacts and Mitigation Measures**

##### **4.9.4.1 Thresholds of Significance**

Significant impacts to air quality from GHG emissions may result if the Proposed Project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

##### **4.9.4.2 Methodology**

The CARB is the lead agency for implementing AB32. In October 2008, CARB published a Proposed Scoping Plan, in coordination with the Climate Action Team (CAT), to establish a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California. The measures in the Scoping Plan approved by the Board will be developed over the next two years and be in place by 2020. California is the fifteenth largest emitter of GHGs on the planet, representing about 2 percent of the worldwide emissions. According to climate scientists, California and the rest of the developed world will have to cut emissions by 80 percent from today's levels to stabilize the amount of CO<sub>2</sub> in the atmosphere and prevent the most severe effects of global climate change. This long-range goal is reflected in California Executive Order S-3-05 that requires an 80 percent reduction of greenhouse gases from 1990 levels by 2050. Reducing GHG emissions to 1990 levels means cutting approximately 30 percent from business-as-usual emissions levels projected for 2020, or about 15 percent from today's levels. On a per-capita basis, that means reducing our annual emissions of 14 tons of CO<sub>2</sub> equivalent for every man, woman and child in California down to about 10 tons per person by 2020.

Significant progress can be made toward the 2020 goal with existing technologies and improving the efficiency of energy use. Other solutions involve improving our state's infrastructure, transitioning to cleaner and more secure sources of energy, and adopting 21<sup>st</sup> century land use planning and development practices. Key elements of California's recommendations for reducing its greenhouse gas emissions to 1990 levels by 2020 include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standard;
- Achieving a statewide renewable 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.

To meet the 1990 target established by AB 32, CARB recommends a de minimis (minimal importance) emission threshold of 0.1 MMT annual (100,000 MT per year) CO<sub>2</sub>EQ per transportation source category. Source categories whose total aggregated emissions are below this level are not proposed for emission reduction requirements in the Scoping Plan but may contribute toward the target via other means. As each regulation to implement the Scoping Plan is developed, CARB and other agencies will consider more specific de minimis levels below which the regulatory requirements would not apply. These levels will consider the cost to comply, especially for small businesses, and other factors. Until approved thresholds and guidelines are adopted at the local and regional level, the proposed de minimis threshold of 100,000 MTCO<sub>2</sub>EQ per year for transportation sources will be utilized for transportation sources.

In addition to the Proposed Scoping Plan, CARB released the Preliminary Draft Staff Proposal (Staff Proposal) on October 24, 2008 with the objective of developing interim significant thresholds for commercial and residential projects. CARB has already proposed a threshold of 7,000 annual MT for industrial operational sources. However, the Staff Proposal has not yet developed thresholds applicable for residential and commercial sources. Therefore, criteria for determining threshold levels for residential and commercial sources have yet to be defined. Under CARB's Staff Proposal, recommended approaches for setting interim significant thresholds for GHG under the CEQA are underway. CARB staff proposes to define certain performance standards (e.g., for energy efficiency) by referencing or compiling lists from existing local, state or national standards. For some sub-sources of GHG emissions (e.g., construction, transportation, waste), CARB staff has not identified reference standards.

The Staff Proposal's Potential Performance Standards and Measures were released in December 2008. Inside the Staff Proposal, CARB's Potential Performance Standard and Measures included some construction measures. These guideline measures are:

- Provide alternative transportation mode options or incentives for workers to and from worksite on days that construction requires 200 or more workers; and
- Recycle and/or salvage at least 75% of non-hazardous construction and demolition debris by weight (residential) or by weight in volume (commercial); and
- Use recycled materials for at least 20% of construction materials based on cost for building materials, based on volume for roadway, parking lot, sidewalk and curb material. Recycled materials may include salvaged, reused, and recycled content materials.

CARB's Staff Proposal has identified CEC's Tier II Energy Efficiency goals as an appropriate performance standard for energy use. Under State Law, the CEC is required to establish

eligibility criteria, conditions for incentives, and rating standards. Thus, the CEC established energy efficiency standards for homes and commercial structures, and requires new buildings to exceed current building standards by meeting Tier Energy Efficiency goals. Currently, CEC's proposed guidelines for the solar energy incentive program recommend a Tier II goal for residential and commercial projects of a 30% reduction in building combined space heating, cooling, and water heating energy compared to the 2008 Title 24 standards.

Existing green building rating systems like LEED, GreenPoint Rated, the California Green Building Code, and others, contain examples of measures that are likely to result in substantial GHG emission reductions from residential and commercial projects. Performance standards that already exist and have been proven to be effective, at the local, state, national or international level, are preferable. For residential and commercial projects, staff has proposed that the GHG emissions of some projects that meet GHG performance standards might under some circumstances still be considered cumulatively considerable and therefore significant. However, criteria threshold for residential and commercial has yet to be developed.

#### *SCAQMD's Significance Thresholds*

On December 5, 2008, the SCAQMD adopted GHG significance threshold for Stationary Sources, where the SCAQMD is lead agency. The threshold utilizes a tiered approach, with a screening significance threshold of 10,000 MTCO<sub>2</sub>EQ, if the project was not part of a general plan's GHG reduction plan.

SCAQMD staff has proposed a draft threshold for 2020 of 4.8 MT/SP/YR (metric tons of CO<sub>2</sub>EQ per service population per year) for mixed-use developments. The SCAQMD has also developed draft thresholds for commercial and residential projects, where it is not the lead. The draft recommends a 3,000 MTCO<sub>2</sub>EQ per year screening threshold. The SCAQMD's working group has not set a date for finalizing the recommendations.

The project is most closely related to a commercial/residential project as identified by the SCAQMD. Therefore, for this project a significance threshold of 3,000 MTCO<sub>2</sub>EQ per year will be used.

#### **4.9.4.3 Issues Determined to Have No Impact**

As a result of the analysis conducted for the DEIR, there are not any greenhouse gas issues determined to have no impact with implementation of the Proposed Project.

#### **4.9.4.4 Impacts Determined to be Less Than Significant**

As a result of the analysis conducted, the following areas of environmental concern related to GHG emissions were identified to have less than significant impacts:

**Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.**

### Short Term Construction Emissions

Temporary impacts would result from construction activities. The primary source of GHG emissions generated by construction activities is from use of diesel-powered construction equipment and other combustion sources (i.e., generators, worker vehicles, materials delivery, etc.). The GHG air pollutants emitted by construction equipment would primarily be carbon dioxide.

Typical emission rates for construction equipment were screened using the SCAQMD California Emissions Estimator Model (CalEEMod), released by the SCAQMD in 2011. CalEEMod is a computer program used to estimate construction and operational emissions.

The project would involve site preparation, grading, construction, painting, and paving. It is anticipated that the construction of the project would start in early 2012 and be complete in 2013.

Refer to Table 4.9-1 for GHG emissions associated with the construction phase. These emissions represent the total level of emissions based on the construction schedule. According to the SCAQMD's CEQA Handbook (Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group #5, August 27, 2008), construction emissions are amortized over the life of the project, defined by SCAQMD as 30 years, and are added to the annual operation emissions. Thus, the project's annualized construction emissions will be added to the operation emissions and compared to the applicable GHG significance threshold. Refer to Appendix G for CalEEMod construction data worksheets.

**Table 4.9-1**  
**Construction CO<sub>2</sub> Equivalent Emissions**  
**(Metric Tons Per Year)**

	<b>CO<sub>2</sub></b>	<b>CH<sub>4</sub></b>	<b>N<sub>2</sub>O</b>	<b>CO<sub>2</sub>EQ</b>
Total Construction Emissions (Metric Tons)	1500	0.12	0.00	1503
Averaged Over 30 Years (Metric Tons Per Year)	50	0.00	0.00	50

Source: CalEEMod 2011

MTCO<sub>2</sub>EQ = metric tons equivalent carbon dioxide (CO<sub>2</sub>).

### Operational Greenhouse Gas Emissions

The primary sources of GHG emissions generated by the Proposed Project would be from motor vehicle use. Natural gas consumption, electric usage, water usage, and solid waste generation are also included in the calculation by CalEEMod of the greenhouse gas emissions. Trip generation rates in CalEEMod were adjusted to agree with the traffic analysis prepared for the project (Fehr & Peers, August 12, 2011), approximately 5,692 trips per day. This trips value does not include the reduction due to the previous residential use.

Refer to Table 4.9-2 for operational emissions. Area emissions are due to the use of cleaning products and painting. Energy emissions include both emissions due to the consumption of natural gas and electrical generation needed for the project. Mobile emissions are due to the

vehicular traffic associated with the project. Greenhouse gas emissions are released as the solid waste generated by the project decomposes in a landfill. Energy is needed to pump water to the site and wastewater away, and therefore, these activities also result in GHG emissions. The CalEEMod allows credits for certain design features that would reduce GHG emissions. The following credits were selected: increase in diversity (the project would bring commercial and retail uses to area that is primarily residential), increase transit accessibility (a bus stop is located at the corner of the project), and improve pedestrian network (the project would improve the pedestrian access across the site along Highland Avenue, and within the site).

**Table 4.9-2**  
**Annual Project GHG Equivalent Emissions**  
**(Metric Tons)**

<b>Source of GHG Emissions</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2EQ</b>
Area	0.0	0.0	0.0	0.0
Energy	1,301	0.1	0.0	1,309
Mobile	4,496	0.2	0.0	4,501
Waste	362	21.4	0.0	811
Water	89.9	0.5	0.0	106
<i>Total Annual Operational Emissions</i>	<i>6,249</i>	<i>22.2</i>	<i>0.0</i>	<i>6,726</i>
<i>Annualized Construction Emissions</i>	<i>50</i>	<i>0</i>	<i>0</i>	<i>50</i>
<b>Total Annual Emissions</b>	<b>6,299</b>	<b>22</b>	<b>0</b>	<b>6,776</b>

Source: CalEEMod 2011

As shown in Table 4.9-2 GHG emissions from the Proposed Project is anticipated to be 6,776 MTCO<sub>2</sub>EQ per year. The emissions shown represent year 2013, and emissions are anticipated to decrease slightly in subsequent years due to improvements in vehicle fuel economy. The project emissions are above the SCAQMD threshold of 3,000 MTCO<sub>2</sub>EQ per year.

#### Previous Land Use Greenhouse Gas Emissions

The CalEEMod was used to estimate the GHG emissions for the previous land use. The same general approach was used as was used for the Proposed Project. The previous use consisted of 296 multi-family dwelling units. The vehicle trips for the residential use were projected by the traffic engineer (Fehr & Peers, August 12, 2011) to be approximately 1,719 trips per day. Refer to Table 4.9-3 for a breakdown of project operational emissions and Appendix G for CalEEMod data worksheets.

As shown in Table 4.9-3, GHG emissions for the previous land use would be approximately 3,917 MTCO<sub>2</sub>EQ per year. The Proposed Project results in an increase of approximately 2,859 MTCO<sub>2</sub>EQ per year. The project emissions are below the SCAQMD threshold of 3,000 MTCO<sub>2</sub>EQ per year, and therefore, no significant climate change impacts are anticipated.

**Table 4.9-3  
GHG Emissions for Previous Land Use  
(Metric Tons Per Year)**

	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2EQ</b>
Area	200	0.01	0.0	202
Energy	693	0.02	0.0	697
Mobile	2,823	0.12	0.0	2,826
Waste	27.6	1.63	0.0	61.9
Water	113	0.59	0.0	130
<i>Total Annual Operational Emissions</i>	<i>3,857</i>	<i>2.4</i>	<i>0.0</i>	<i>3,917</i>
<i>Proposed Project Annual Emissions</i>	<i>6,299</i>	<i>22</i>	<i>0</i>	<i>6,776</i>
<b>Net Change in Emissions</b>	<b>2,442</b>	<b>20</b>	<b>0</b>	<b>2,859</b>
SCAQMD Threshold				3,000
<b>Significant</b>				<b>No</b>

Source: CalEEMod 2011

**Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.**

There are no existing GHG plans, policies, or regulations that have been adopted by CARB or SCAQMD that would apply to this type of emissions source. It is possible that CARB may develop performance standards for Project-related activities prior to Project construction. In this event, these performance standards would be implemented and adhered to, and there would be no conflict with any applicable plan, policy, or regulation; therefore, impacts would be less than significant, and no mitigation would be required.

**4.9.4.5 Impacts Determined to be Potentially Significant**

As a result of the analysis conducted for the DEIR, it was determined that there were no issues associated with greenhouse gas emissions that had the potential for resulting in significant impacts.