

4.7 GREENHOUSE GAS EMISSIONS

This section provides an overview of greenhouse gas (GHG) emissions and evaluates the construction and operational impacts associated with the proposed project. Supporting data and calculations are included in Appendix E. GHG emissions refer to a group of emissions that are generally believed to affect global climate conditions. The greenhouse effect compares the Earth and the atmosphere surrounding it to a greenhouse with glass panes. The glass panes in a greenhouse let heat from sunlight in and reduce the amount of heat that escapes. GHGs, such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), keep the average surface temperature of the Earth close to 60 degrees Fahrenheit (°F). Without the greenhouse effect, the Earth would have an average surface temperature of about 5°F.

In addition to CO₂, CH₄, and N₂O, GHGs include hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and water vapor. Of all the GHGs, CO₂ is the most abundant pollutant that contributes to climate change through fossil fuel combustion. CO₂ comprised 83.3 percent of the total GHG emissions in California in 2002.¹ The other GHGs are less abundant but have higher global warming potential than CO₂. To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent mass of CO₂, denoted as CO₂e. The CO₂e of CH₄ and N₂O represented 6.4 and 6.8 percent, respectively, of the 2002 California GHG emissions. Other high global warming potential gases represented 3.5 percent of these emissions.² In addition, there are a number of human-made pollutants, such as CO, NO_x, non-methane VOC, and SO₂, that have indirect effects on terrestrial or solar radiation absorption by influencing the formation or destruction of other climate change emissions.

REGULATORY FRAMEWORK

Federal

Supreme Court Ruling. The U.S. Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438 (2007), that carbon dioxide and other greenhouse gases are pollutants under the Federal Clean Air Act (CCA), which the USEPA must regulate if it determines they pose an endangerment to public health or welfare. On December 7, 2009 the USEPA Administrator made two distinct findings: 1) that the current and projected concentrations of the six key GHG [carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)] in the atmosphere threatens the public health and welfare of current and future generations; and 2) that the combined emissions of these GHG from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Energy Independence and Security Act. The Energy Independence and Security Act of 2007 includes several key provisions that will increase energy efficiency and the availability of renewable energy, which will reduce greenhouse gas emissions as a result. First, the Act sets a Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel by 2022. Second, it increased Corporate Average Fuel Economy (CAFE) Standards to require a minimum average fuel economy of 35 miles per gallon for the combined fleet of cars and light trucks by 2020. Third, the adopted bill includes a variety of new standards for lighting and for residential and commercial appliance equipment. The equipment includes residential refrigerators, freezers, refrigerator-freezers, metal halide lamps, and commercial walk-in coolers and freezers.

¹California Environmental Protection Agency, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, March 2006, p. 11.

²*Ibid.*

National Fuel Efficiency Policy. In addition, on May 19, 2009, President Barack Obama announced a new National Fuel Efficiency Policy aimed at increasing fuel economy and reducing greenhouse gas pollution.³ The new National Fuel Efficiency Policy is expected to increase fuel economy by more than 5 percent by requiring a fleet-wide average of 35.5 miles per gallon by 2016 starting with model years 2012. However, federal fuel economy standards have not yet been promulgated to establish specific benchmarks.

Heavy Duty Regulations. The Heavy-Duty National Program was adopted on August 9, 2011 to establish the first fuel efficiency requirements for medium- and heavy-duty vehicles beginning with the model year 2014. It is estimated that the combined standards will reduce CO₂ emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of vehicles built for the 2014 to 2018 model years, providing \$49 billion in net program benefits. The reduced fuel use alone will enable \$50 billion in fuel savings to accrue to vehicle owners, or \$42 billion in net savings when considering technology costs. A second phase of regulations is planned for model years beyond 2018.

State

In response to growing scientific and political concern with global climate change, California adopted a series of laws to reduce emissions of GHGs into the atmosphere.

Assembly Bill 1493 (AB 1493). In September 2002, AB 1493 was enacted, requiring the development and adoption of regulations to achieve “the maximum feasible reduction of greenhouse gases” emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State.

Executive Order (E.O.) S-3-05. On June 1, 2005, E.O. S-3-05 set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Executive Order establishes State GHG emission targets of 1990 levels by 2020 (the same as AB 32) and 80 percent below 1990 levels by 2050. It calls for the Secretary of the California Environmental Protection Agency (Cal/EPA) to be responsible for coordination of State agencies and progress reporting. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major “decarbonization” of electricity supplies and fuels, and major improvements in energy efficiency.⁴

In response to the Executive Order, the Secretary of the Cal/EPA created the Climate Action Team (CAT). California’s CAT originated as a coordinating council organized by the Secretary for Environmental Protection. It included the Secretaries of the Natural Resources Agency, and the Department of Food and Agriculture, and the Chairs of the Air Resources Board, Energy Commission, and Public Utilities Commission. The original council was an informal collaboration between the agencies to develop potential mechanisms for reductions in GHG emissions in the State. The council was given formal recognition in Executive Order S-3-05 and became the CAT.

The original mandate for the CAT was to develop proposed measures to meet the emission reduction targets set forth in the executive order. The CAT has since expanded and currently has members from 18 State agencies and departments. The CAT also has ten working groups which coordinate policies among their members. The working groups and their major areas of focus are:

- Agriculture: Focusing on opportunities for agriculture to reduce GHG emissions through efficiency improvements and alternative energy projects, while adapting agricultural systems to climate change;
- Biodiversity: Designing policies to protect species and natural habitats from the effects of climate change;

³The White House Office of the Press Secretary, *President Obama Announces National Fuel Efficiency Policy*, May 2009, available at http://www.whitehouse.gov/the_press_office/President-Obama-Announces-National-Fuel-Efficiency-Policy/, accessed February 6, 2012.

⁴California Energy Commission, *California’s Energy Future – The View to 2050*, May 2011.

- Energy: Reducing GHG emissions through extensive energy efficiency policies and renewable energy generation;
- Forestry: Coupling GHG mitigation efforts with climate change adaptation related to forest preservation and resilience, waste to energy programs and forest offset protocols;
- Land Use and Infrastructure: Linking land use and infrastructure planning to efforts to reduce GHG from vehicles and adaptation to changing climatic conditions;
- Oceans and Coastal: Evaluating the effects sea level rise and changes in coastal storm patterns on human and natural systems in California;
- Public Health: Evaluating the effects of GHG mitigation policies on public health and adapting public health systems to cope with changing climatic conditions;
- Research: Coordinating research concerning impacts of, and responses to, climate change in California;
- State Government: Evaluating and implementing strategies to reduce GHG emissions resulting from State government operations; and
- Water: Reducing GHG impacts associated with the State's water systems and exploring strategies to protect water distribution and flood protection infrastructure.

The CAT is responsible for preparing reports that summarize the State's progress in reducing GHG emissions. The most recent CAT Report was published in December 2010. The CAT Report discusses mitigation and adaptation strategies, State research programs, policy development, and future efforts.

Assembly Bill 32 (AB 32). In September 2006, Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act of 2006, also known as AB 32, into law. AB 32 focuses on reducing GHG emissions in California, and requires CARB to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to Statewide levels in 1990 by 2020. To achieve this goal, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce Statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. Because the intent of AB 32 is to limit 2020 emissions to the equivalent of 1990, it is expected that the regulations would affect many existing sources of GHG emissions and not just new general development projects. Senate Bill (SB) 1368, a companion bill to AB 32, requires the California Public Utilities Commission and the California Energy Commission to establish GHG emission performance standards for the generation of electricity. These standards will also apply to power that is generated outside of California and imported into the State.

AB 32 charges ARB with the responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. On June 1, 2007, CARB adopted three discrete early action measures to reduce GHG emissions. These measures involved complying with a low carbon fuel standard, reducing refrigerant loss from motor vehicle air conditioning maintenance, and increasing methane capture from landfills.⁵ On October 25, 2007, CARB tripled the set of previously approved early action measures. The approved measures include improving truck efficiency (i.e., reducing aerodynamic drag), electrifying port equipment, reducing perfluorocarbons from the semiconductor industry, reducing propellants in consumer products, promoting proper tire inflation in vehicles, and reducing sulfur hexafluoride emission from the non-electricity sector. CARB has determined that the total Statewide aggregated GHG 1990 emissions level and 2020 emissions limit is 427 million metric tons of CO₂e. The 2020 target reductions are currently estimated to be 174 million metric tons of CO₂e.

The CARB AB 32 Scoping Plan contains the main strategies to achieve the 2020 emissions cap. The Scoping Plan was developed by CARB with input from the CAT and proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve the environment, reduce oil dependency, diversify energy sources, and enhance public health while creating new jobs and improving the State economy. The GHG reduction strategies contained in the Scoping Plan include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-

⁵California Air Resources Board, *Proposed Early Action Measures to Mitigate Climate Change in California*, April 2007.

based mechanisms such as a cap-and-trade system. Key approaches for reducing GHG emissions to 1990 levels by 2020 include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a Statewide renewable electricity standard 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 GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets; and
- Adopting and implementing measures to reduce transportation sector emissions, including California's.

CARB has also developed the GHG mandatory reporting regulation, which required reporting beginning on January 1, 2008 pursuant to requirements of AB 32. The regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in California. The regulation language identifies major facilities as those that generate more than 25,000 metric tons of CO₂ per year. Cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, and hydrogen plants and other stationary combustion sources that emit more than 25,000 metric tons of CO₂ per year, make up 94 percent of the point source CO₂ emissions in California.

CEQA Guidelines Amendments. SB 97 required the Governor's Office of Planning and Research (OPR) to develop CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." The CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. Noteworthy revisions to the CEQA Guidelines include:

- Lead agencies should quantify all relevant GHG emissions and consider the full range of project features that may increase or decrease GHG emissions as compared to the existing setting;
- Consistency with the CARB Scoping Plan is not a sufficient basis to determine that a project's GHG emissions would not be cumulatively considerable;
- A lead agency may appropriately look to thresholds developed by other public agencies, including CARB's recommended CEQA thresholds;
- To qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project. General compliance with a plan, by itself, is not mitigation;
- The effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis; and
- Given that impacts resulting from GHG emissions are cumulative, significant advantages may result from analyzing such impacts on a programmatic level. If analyzed properly, later projects may tier, incorporate by reference, or otherwise rely on the programmatic analysis.

Senate Bill 375 (SB 375). SB 375, adopted in September 30, 2008, provides a means for achieving AB 32 goals through the reduction in emissions of cars and light trucks. SB 375 requires new regional transportation plans (RTPs) to include Sustainable Communities Strategies (SCSs). This legislation also allows the development of an Alternative Planning Strategy (APS) if the targets cannot be feasibly met through an SCS. The APS is not included as part of an RTP. In adopting SB 375, the Legislature expressly found that improved land use and transportation systems are needed in order to achieve the GHG emissions reduction target of AB 32. Further, the staff analysis for the bill prepared for the Senate Transportation and Housing Committee's August 29, 2008 hearing on SB 375 (hereby incorporated by reference) began with the following statement: "According to the author, this bill will help implement AB 32 by aligning planning for housing, land use, transportation and greenhouse gas emissions for the 17 MPOs in the state."

Senate Bill 1078, Senate Bill 107, and Executive Order S-14-08 (Renewables Portfolio Standard). 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, signed by the Governor on September 26, 2006 changed

the due date for this goal from 2017 to 2010. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewables Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Increased use of renewable energy sources will decrease California's reliance on fossil fuels, reducing emissions of greenhouse gases from the energy sector.

Assembly Bill 1493 (Pavley Regulations). AB 1493 (referred to as Pavley I) required the CARB to develop and adopt standards for vehicle manufacturers to reduce greenhouse gas emissions coming from passenger vehicles and light-duty trucks at a "maximum feasible and cost effective reduction" by January 1, 2005. Pavley I took effect for model years starting in 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025. Fleet average emission standards would reach 22 percent reduction by 2012 and 30 percent by 2016.

Executive Order (E.O.) S-1-07, the Low Carbon Fuel Standard. On January 18, 2007 E.O. S-1-07 was issued requiring a reduction of at least ten percent in the carbon intensity of California's transportation fuels by 2020. Regulatory proceedings and implementation of the Low Carbon Fuel Standard have been directed to CARB. The Low Carbon Fuel Standard has been identified by ARB as a discrete early action item in the Adopted *Climate Change Scoping Plan*. CARB expects the Low Carbon Fuel Standard to achieve the minimum 10 percent reduction goal; however, many of the early action items outlined in the *Climate Change Scoping Plan* work in tandem with one another. To avoid the potential for double-counting emission reductions associated with AB 1493 (see previous discussion), the *Climate Change Scoping Plan* has modified the aggregate reduction expected from the Low Carbon Fuel Standard to 9.1 percent.

Executive Order S-13-08. Executive Order S-13-08, signed on November 14, 2008, directs California to develop methods for adapting to climate change impacts through preparation of a Statewide plan. In response to this order, the California Natural Resources Agency coordinated with ten State agencies, multiple scientists, a consulting team, and stakeholders to develop the first Statewide, multi-sector adaptation strategy in the country. The resulting report, *2009 California Climate Adaptation Strategy*, summarizes the best-known science to assess the vulnerability of the State to climate change impacts, and outlines possible solutions that can be implemented within and across State agencies to promote resiliency. This strategy is the first step in an evolving process to reduce California's vulnerability to climate change impacts.

Adaptation refers to efforts that prepare the State to respond to the impacts of climate change – adjustments in natural or human systems to actual or expected climate changes to minimize harm or take advantage of beneficial opportunities. California's ability to manage its climate risks through adaptation depends on a number of critical factors. These include its baseline and projected economic resources, technology, infrastructure, institutional support and effective governance, public awareness, access to the best available scientific information, sustainably-managed natural resources, and equity in access to these resources.

California's Energy Efficiency Standards for Residential and Nonresidential Buildings. Located at Title 24, Part 6 of the California Code of Regulations and commonly referred to as "Title 24," these energy efficiency standards were established 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 efficiency technologies and methods.⁶ The most recent update to Title 24 was adopted by the California Energy Commission on April 23, 2008. The California Energy Commission adopted the 2008 changes to the Building Energy Efficiency Standards to respond to the mandates of AB 32 and to pursue California energy policy that energy efficiency is the resource of first choice for meeting California's energy needs.

⁶California Energy Commission, California's Energy Efficiency Standards for Residential and Nonresidential Buildings website, <http://www.energy.ca.gov/title24>, accessed August 8, 2011.

Senate Bill 1368 (SB 1368). SB 1368 (2006) directs the California Energy Commission and the California Public Utilities Commission to adopt a performance standard for greenhouse gas emissions for the future electricity used in California, regardless of whether it is generated in-State or purchased from other states.

California Green Building Code. The California Green Building Code (2008) referred to as “CalGreen,” is the first Statewide green building code. It was developed to provide a consistent, approach for green building within California. It lays out minimum requirements for newly constructed buildings in California, which will reduce greenhouse gas emissions through improved efficiency and process improvements. It requires builders to install plumbing that cuts indoor water use by as much as 20 percent, to divert 50 percent of construction waste from landfills to recycling, and to use low-pollutant paints, carpets, and floors.

Senate Bill 1 (Million Solar Roofs). SB 1 (2006) sets a goal to install 3,000 megawatts of new solar capacity by 2017 moving the State toward a cleaner energy future and helping lower the cost of solar systems for consumers. The Million Solar Roofs Program is a ratepayer-financed incentive program aimed at transforming the market for rooftop solar systems by driving down costs over time. It provides up to \$3.3 billion in financial incentives that decline over time.

Assembly Bill 811 (AB 811). AB 811 (2008) authorizes California cities and counties to designate districts within which willing property owners may enter into contractual assessments to finance the installation of renewable energy generation and energy efficiency improvements that are permanently fixed to the property.

California Air Resources Board (CARB). CARB has developed draft interim thresholds of significance for GHGs that may be adopted by local agencies for their own use. The proposal does not attempt to address every type of project that may be subject to CEQA, but instead focuses on common project types that, collectively, are responsible for substantial GHG emissions – specifically, industrial, residential, and commercial projects. CARB is developing thresholds in these sectors to advance climate objectives, streamline project review, and encourage consistency and uniformity in the analysis of GHG emissions under CEQA.

CARB has developed a multi-tiered approach to addressing GHG emissions. If a project is consistent with the first tier then it is considered to have a less than significant impact; if it is found to be inconsistent then consistency with the following tier should be evaluated, and so on. The tiers are as follows:

Industrial, Residential, and Commercial projects - Tier 1: The project is exempt under existing statutory or categorical exemptions. If “no” proceed to Tier 2.

Industrial projects - Tier 2: (a) The project meets both of the below minimum performance standards, or includes equivalent mitigation measures: 1). Construction - Meets an interim CARB performance standard for construction-related emissions; 2) Transportation - Meets an interim CARB performance standard for transportation, and (b) The project, with mitigation, will emit no more than 7,000 metric tons CO₂e per year from non-transportation related GHG sources (which addresses approximately 90 percent of industrial sector GHG emissions).

Residential and Commercial projects- Tier 2: The project complies with a previously approved plan that addresses GHG emissions (e.g., a local general plan). The previously approved plan must satisfy the following requirements: (1) meet a community level GHG target consistent with the Statewide emissions limit in AB 32 and, where the plan will apply beyond 2020, Executive Order S-3-05; (2) is consistent with a transportation related GHG reduction target adopted by CARB pursuant to SB375; (3) includes a GHG inventory and mechanisms to monitor and evaluate emissions; (4) includes specific, enforceable GHG requirements; (5) incorporates mechanisms that allow the plan to be revised in order to meet targets; and (6) has a certified final CEQA document.

Residential and Commercial projects - Tier 3: The project meets minimum performance standards, or includes equivalent mitigation measures. For construction, the project must meet an interim CARB performance standard for construction-related emissions. For operations, the project must meet an energy use performance standards defined as the California Energy Commissions' Tier II Energy Efficiency goal as well as interim CARB performance standards for water use, waste, and transportation.

Industrial, Residential, and Commercial projects -Tier 4: The project will have a significant GHG impact. An EIR must be prepared and all feasible mitigation measures must be implemented.

Regional

The South Coast Air Quality Management District (SCAQMD) adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy.

SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds. In its October 2008 document, the SCAQMD proposed the use of a percent emission reduction target (e.g., 30 percent) to determine significance for commercial/residential projects that emit greater than 3,000 metric tons per year. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for stationary source/industrial projects where the SCAQMD is the lead agency. However, SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects) and has formed a GHG Significance Threshold Working Group to further evaluate potential GHG significance thresholds.⁷

SCAQMD has convened a GHG CEQA Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. Members of the working group include government agencies implementing CEQA and representatives from various stakeholder groups that will provide input to the SCAQMD staff on developing CEQA GHG significance thresholds. The working group is currently discussing multiple methodologies for determining project significance. These methodologies include categorical exemptions, consistency with regional GHG budgets in approved plans, a numerical threshold, performance standards, and emissions offsets.

Local

The City of Los Angeles has issued guidance promoting green building to reduce GHG emissions. The goal of the Green LA Action Plan (Plan) is to reduce greenhouse gas emissions 35 percent below 1990 levels by 2030.⁸ The Plan identifies objectives and actions designed to make the City a leader in confronting global climate change. The measures would reduce emissions directly from municipal facilities and operations, and create a framework to address City-wide GHG emissions. The Plan lists various focus areas in which to implement GHG reduction strategies. Focus areas listed in the Plan include energy, water, transportation, land use, waste, port, airport, and ensuring that changes to the local climate are incorporated into planning and building decisions. The Green LA Action Plan discusses City goals for each focus area, as follows:

Energy

- Increase the generation of renewable energy;
- Encourage the use of mass transit;
- Develop sustainable construction guidelines;
- Increase City-wide energy efficiency; and
- Promote energy conservation.

⁷South Coast Air Quality Management District, Greenhouse Gases CEQA Significance Thresholds, <http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html>, accessed February 6, 2012.

⁸City of Los Angeles, *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*, May 2007.

Water

- Decrease per capita water use to reduce electricity demand associated with water pumping and treatment.

Transportation

- Power the City vehicle fleet with alternative fuels; and
- Promote alternative transportation (e.g., mass transit and rideshare).

Other Goals

- Create a more livable City through land use regulations;
- Increase recycling, reducing emissions generated by activity associated with the Port of Los Angeles and regional airports;
- Create more City parks, promoting the environmental economic sector; and
- Adapt planning and building policies to incorporate climate change policy.

In order to provide detailed information on action items discussed in GreenLA, the City published an implementation document titled “ClimateLA”. ClimateLA presents the existing GHG inventory for the City, includes enforceable GHG reduction requirements, provides mechanisms to monitor and evaluate progress, and includes mechanisms that allow the plan to be revised in order to meet targets. By 2030, the plan aims to reduce GHG emissions by 35 percent from 1990 levels which were estimated to be approximately 54.1 million metric tons.

Therefore, the City will need to lower annual GHG emissions to approximately 35.1 million metric tons per year by 2030. To achieve these reductions the City has developed strategies that focus on energy, water use, transportation, land use, waste, open space and greening, and economic factors. To reduce emissions from energy usage, ClimateLA proposes the following goals: increase the amount of renewable energy provided by the Los Angeles Department of Water and Power; present a comprehensive set of green building policies to guide and support private sector development; reduce energy consumed by City facilities and utilize solar heating where applicable; and help citizens to use less energy. With regard to waste, ClimateLA sets the goal of reducing or recycling 70 percent of trash by 2015. With regard to open space and greening, ClimateLA includes the following goals: create 35 new parks; revitalize the Los Angeles River to create open space opportunities; plant one million trees throughout the City; identify opportunities to “daylight” streams; identify promising locations for stormwater infiltration to recharge groundwater aquifers; and collaborate with schools to create more parks in neighborhoods.

The City adopted an ordinance to establish a green building program in April 2008. The ordinance establishes green building requirements for projects involving 50 or more dwelling units. The Green Building Program was established to reduce the use of natural resources, create healthier living environments and minimize the negative impacts of development on local, regional, and global ecosystems. The program addresses the following five areas:

- Site: location, site planning, landscaping, storm water management, construction and demolition recycling
- Water Efficiency: efficient fixtures, wastewater reuse, and efficient irrigation
- Energy and Atmosphere: energy efficiency, and clean/renewable energy
- Materials and Resources: materials reuse, efficient building systems, and use of recycled and rapidly renewable materials
- Indoor Environmental Quality: improved indoor air quality, increased natural lighting, and thermal comfort/control

In addition, the City has set forth the following land use-related sustainability goals and objectives to improve air quality:

- LU.7.1: Promote sustainable land use, streetscape and building policies to protect the environment and public health. Require large projects to address sustainable development.
- LU.7.2: Promote land use policies which support mobility options to reduce auto dependence. Promote the General Plan Framework's transit-oriented development policies, which encourage compact, mixed-use development near transit to reduce vehicle trips and improve air quality.
- LU.7.3: Promote building policies which minimize use of toxic chemicals, minimize waste through use of recycled materials and support the use of clean, efficient, renewable energy. Implement City policies to promote Green Building practices for new construction of residential, commercial and industrial structures, and public facilities.
- LU.7.4: Encourage green space, landscaping and street management policies which reduce the energy costs of cooling, support the pedestrian environment, and improve the public realm.
- LU.7.5: Promote the planting of street trees to provide comfortable, shady walking environments, cooling, and absorption of carbon dioxide.
- LU.7.15: Encourage the temporary closure of local and collector streets for the purpose of providing space for Farmers' Markets, where appropriate.
- LU.7.19: Encourage the joint use of public facilities for the purpose of promoting the efficient use of space, energy and public resources.
- LU.7.20: Promote the use of clean, renewable energy that is diverse in technology and location to decrease dependence on fossil fuels, reduce emissions of greenhouse gases and increase reliability of power supply.
- LU.7.21: Support the use of wind energy, hydropower, geothermal energy, biomass energy and solar power. Encourage passive and active solar energy systems, particularly photo voltaic.
- LU.7.22: Promote energy efficiency in the production and delivery of electricity. Encourage local generation of clean, renewable power at or near the point of use to improve reliability of service, reduce energy costs and protect the environment.
- LU.7.23: Encourage flexibility in building designs of residential, commercial, and industrial uses, and public facilities to accommodate solar panels.
- LU.7.25: Improve preparedness for disasters, including those related to climate change. Coordinate with other City departments to assess preparedness for increased frequency of extreme weather events, such as heat waves, drought, wildfires, flooding, and sea level rise.
- LU.7.26: Support adaptation to climate change through the preparation of land use plans, building codes and zoning codes which mitigate impacts.
- LU.7.26.1: Review current zoning and building codes to minimize climate change impact.
- LU.7.27: Encourage the use of fire-resistant building design, materials, and siting.
- LU.7.29: Encourage mixed-use projects to include a green business tenant.

EXISTING SETTING

California is the fifteenth largest emitter of GHG on the planet, representing about two percent of the worldwide emissions.⁹ **Table 4.7-1** shows 2002 to 2004 Statewide average emissions and estimates for projected emissions in 2020 without any GHG reduction measures (business-as-usual case). The 2020 business-as-usual forecast does not take any credit for reductions from measures included in the AB 32 Scoping Plan, including the Pavley GHG emissions standards for vehicles, full implementation of the Renewables Portfolio Standard beyond current levels of renewable energy, or solar measures. The Transportation sector – largely the cars and trucks that move goods and people – is the largest contributor with 38 percent of the State’s total GHG emissions. **Table 4.7-1** shows that if no action is taken, GHG emissions in the Transportation sector are expected to grow by approximately 25 percent by 2020 (an increase of 46 million metric tons of CO₂e).

Sector	2002 to 2004 Average Emissions (Million Metric Tons of CO₂e)	Projected 2020 Emissions (Million Metric Tons of CO₂e)
Transportation	179.3	225.4
Electricity	109.0	139.2
Commercial and Residential	41.0	46.7
Industry	95.9	100.5
Recycling and Waste	5.6	7.7
High Global Warming Potential	14.8	46.9
Agriculture	27.7	29.8
Forest Net Emissions	(4.7)	0.0
Emissions Total	469	596

SOURCE: CARB, *Climate Change Scoping Plan*, December 2008.

The Electricity and Commercial/Residential Energy sector is the next largest contributor with over 30 percent of the Statewide GHG emissions. Although electricity imported into California accounts for only about a quarter of our electricity, imports contribute more than half of the GHG emissions from electricity because much of the imported electricity is generated at coal-fired power plants. AB 32 specifically requires CARB to address emissions from electricity sources both inside and outside of the State.

California’s Industrial sector includes refineries, cement plants, oil and gas production, food processors, and other large industrial sources. This sector contributes almost 20 percent of California’s GHG emissions, but the sector’s emissions are not projected to grow significantly in the future. The sector termed recycling and waste management is a unique system, encompassing not just emissions from waste facilities but also the emissions associated with the production, distribution and disposal of products throughout the economy.

Although high global warming potential gases are a small contributor to historic GHG emissions, levels of these gases are projected to increase sharply over the next several decades, making them a significant source by 2020.

The Forest sector is unique in that forests both emit GHG and uptake CO₂. While the current inventory shows forests as a sink of 4.7 million metric tons of CO₂e, carbon sequestration has declined since 1990. For this reason, the 2020 projection assumes no net emissions from forests.

The agricultural GHG emissions shown are largely methane emissions from livestock, both from the animals and their waste. Emissions of GHG from fertilizer application are also important contributors from the Agricultural sector. CARB has begun a research program to better understand the variables affecting these

⁹CARB, *Climate Change Scoping Plan*, December 2008.

emissions. Opportunities to sequester CO₂ in the Agricultural sector may also exist; however, additional research is needed to identify and quantify potential sequestration benefits.

In December 2007, CARB approved a GHG emissions target for 2020 equivalent to the State's calculated GHG emissions level in 1990. CARB developed the 2020 target after extensive technical work and a series of stakeholder meetings. The 2020 target of 427 million metric tons of CO₂e requires the reduction of 169 million metric tons of CO₂e, or approximately 30 percent, from the State's projected 2020 emissions of 596 million metric tons of CO₂e (business-as-usual) and the reduction of 42 million metric tons of CO₂e, or almost ten percent, from 2002 to 2004 average emissions.

On a local level, the majority of GHG emissions within the West Adams CPA can be attributed to automobile exhaust. The project area is bisected by the Santa Monica Freeway and a number of primary roadways. Direct sources of emissions include solid waste decomposition and haul trucks and the use of refrigerant compounds.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to greenhouse gases if it would:

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

IMPACTS

The proposed project is the adoption of the West Adams New Community Plan and its implementing ordinances. These ordinances, which include standards and guidelines for projects within the West Adams CPA, include a Community Plan Implementation Overlay District (CPIO) containing several subdistricts throughout the plan area, as well as amendments to the existing Crenshaw Corridor Specific Plan. The proposed project further involves General Plan Amendments and zone changes to create consistency with the City's General Plan Framework Element, as well as create consistency between both planned and existing uses of parcels and their relationship to surrounding areas. Through implementation of the CPIO, the proposed project further restricts detrimental uses, incentivizes development in targeted areas, and provides development standards to ensure that new construction is consistent with neighborhood character, as well as corrects minor errors within the existing West Adams Community Plan. While there are greenhouse gas emission impacts to consider within the West Adams CPA, they are subject to the local regulations mentioned above; therefore, the proposed West Adams New Community Plan and its implementing ordinances do not contain any specific guidelines that would affect greenhouse gas emissions.

Impacts from GHG emissions associated with the proposed project were evaluated based on CARB's interim tiered threshold. The proposed project is not applicable with respect to the first tier as it is not categorically exempt under CEQA. With regard to the second tier, the City of Los Angeles published a climate action plan in 2007 titled "GreenLA." As previously discussed, in order to provide detailed information on action items discussed in GreenLA, the City published an implementation document titled ClimateLA. ClimateLA presents the existing GHG inventory for the City, includes enforceable GHG reduction requirements, provides mechanisms to monitor and evaluate progress, and includes mechanisms that allow ClimateLA to be revised in order to meet targets. By 2030, ClimateLA aims to reduce GHG emissions by 35 percent from 1990 levels which were estimated to be approximately 54.1 million metric tons. Therefore, the City will need to lower annual GHG emissions to approximately 35.1 million metric tons per year by 2030.

CONSTRUCTION

Greenhouse Gas Emissions

The proposed project could result in a number of construction projects occurring simultaneously every year. Without adequate construction schedules or information regarding project locations and schedules, construction emissions for individual projects cannot be quantified. Even so, there is sufficient data available to determine the types of construction that may occur (e.g., residential, commercial, and industrial), and associated square footage and, therefore, to estimate average annual emissions over the planning horizon of the proposed project.

Table 4.7-2 provides an estimate of average annual GHG emissions that could be associated with construction under the proposed project. The analysis assumed that individual projects would be constructed ‘evenly’ during the entire plan horizon. This represents average annual emissions and is not based on project specific assumptions (e.g., location and schedule). This data provides an average of emissions each year between 2008 and 2030.

TABLE 4.7-2: ESTIMATED AVERAGE ANNUAL GREENHOUSE GAS EMISSIONS	
Source	CO₂ Emissions (Metric Tons)
Residential	167,357
Commercial	15,804
Public Facility	9,790
Industrial	3,483
Total	196,434
Average Tons	8,929

SOURCE: TAHA, 2012.

Construction emissions are directly related to new development in the West Adams CPA. Strong economic years would typically lead to increased development projects and above average emissions. Conversely, weak economic years would experience fewer projects and below average emissions. In addition, equipment emissions would decrease in future years as engines become more efficient under new regulations. Construction-related GHG emissions cannot be avoided during construction of any project. The proposed project would not increase construction GHG emissions beyond what is anticipated for construction GHG emissions under the existing Plan. Therefore, the proposed project would result in a less-than-significant impact related to construction GHG emissions.

Applicable Plans, Policies or Regulations

As previously demonstrated, the City is committed to reducing GHG emissions, including those from construction activities. For example, ClimateLA sets the goal of reducing or recycling 70 percent of trash (including construction waste) by 2015. The proposed project would help promote this goal through policies such as Policy LU.7.13, which would reduce waste by encouraging recycling of construction materials and encouraging reuse of materials rather than demolition and dumping. The proposed project would not impede implementation of such measures. Therefore, the proposed project would result in a less-than-significant impact related to applicable construction plans, policies, and regulations.

OPERATIONS

Greenhouse Gas Emissions

Long-term project emissions would be generated by on-road vehicles, general electricity use, water-related electricity use, wastewater management, solid waste decomposition, and natural gas use. Under the proposed project, daily vehicle miles traveled (VMT) will increase from approximately 3,559,800 in 2008 to 4,111,500

in 2030 as a result of population growth.¹⁰ This VMT count incorporates transit-oriented development (TOD). The potential TOD areas are located directly adjacent to Phase I of the Expo LRT stations at Exposition/Crenshaw Boulevards, La Brea/Farmdale Avenues, Jefferson/La Cienega Boulevards, and Venice/Robertson Boulevards. In addition, TOD areas are considered for station areas for the proposed Crenshaw/LAX Corridor LRT Project. These TODs would allow for an increase in both jobs and housing. Locating jobs near housing can help reduce commutes and increase walking and biking rates, thereby creating a benefit for public health. TODs also begin to address the goals of the SCS, now required by SB 375 as mentioned above, by improving the relationship between housing, land use, and transportation, thereby reducing greenhouse gas emissions. Daily operational emissions from increased VMT were calculated using CARB's EMFAC2007 emission factor model.

Area source emissions were estimated based on emission factors and pollutant emission formulas built into the California Emissions Estimator Model (CalEEMod). CalEEMod is a Statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operational from a variety of land use projects. The model quantifies direct emissions from construction and operation (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

GHG emission factors for natural gas and electricity were obtained from the California Climate Action Registry (CCAR) General Reporting Protocol (Protocol) and applied to the respective consumption rates to calculate annual GHG emissions in metric tons. The California Energy Commission has reported that the energy intensity of the water use cycle in Southern California is 13,022 kilowatt-hours per million gallons. Solid waste was estimated using generation rates provided by the California Department of Resources Recycling and Recovery. USEPA has stated that solid waste decomposition generates 3.1 metric tons of CO₂e per ton of waste.

Table 4.7-3 shows estimated GHG emissions under existing (2008) conditions and under future (2030) conditions with implementation of the Proposed Plan. Estimated future emissions from area sources, electricity consumption, and landfills do not account for reductions that would occur under ClimateLA. This is due to 1) such reductions are highly uncertain as most policies will only “encourage” or “promote” various measures, and 2) the reductions that could be achieved by these measures are difficult to quantify without specific data. Furthermore, a large amount of the increase in emissions is a direct result of increased VMT. Estimated future VMT under the proposed project does include reductions that would result from the Transportation Improvement and Mitigation Program (TIMP) and in particular, an increase in the modal split will be facilitated through the implementation of TOD.

Table 4.7-3, above, growth under the proposed project would result in an increase of approximately 205,417 metric tons of CO₂e per year from existing conditions. Approximately 108,750 metric tons of this increase can be attributed to growth in VMT. Therefore, even if emissions from electricity, area sources, and landfills would not increase due to measures discussed previously, VMT increases would still result in increased GHG emissions. This increase in emissions would have the potential to interfere with implementation of the ClimateLA plan, and subsequently could interfere with the State's ability to meet its goals under AB 32. Therefore, without mitigation, the proposed project would result in a significant impact related to operational GHG emissions.

¹⁰Daily VMT was estimated using the assumption that AM and PM peak hour VMT combine to represent 14 percent of daily VMT.

TABLE 4.7-3: ESTIMATED GREENHOUSE GAS EMISSIONS OPERATIONS	
Scenario	CO₂ Equivalent Emissions (Metric Tons per Year)
EXISTING CONDITIONS (2008)	
Mobile	594,379
General Electricity	270,345
Water-Related Electricity	65,243
Wastewater	54,875
Natural Gas	251
Solid Waste	6
Total	985,099
FUTURE WITH PROJECT (2030)	
Mobile	703,129
General Electricity	330,729
Water-Related Electricity	84,342
Wastewater	71,992
Natural Gas	317
Solid Waste	7
Total	1,190,516
Net Emissions	205,417
SOURCE: TAHA, 2012.	

Applicable Plans, Policies or Regulations

As discussed above under Regulatory Framework, the ClimateLA presents the existing GHG inventory for the City, includes enforceable GHG reduction requirements, provides mechanisms to monitor and evaluate progress, and includes mechanisms that allow the plan to be revised in order to meet targets. The City has developed strategies that focus on transportation, energy, water use, land use, waste, open space and greening, and economic factors to achieve emissions reductions.

With regard to transportation, ClimateLA primarily focuses on reducing emissions from City owned vehicles. However, it does also include measures to help reduce GHG emissions from private vehicle use. Policy LU.7.2 from the proposed project would help achieve these goals by promoting land use policies to reduce auto dependence and promoting transit-oriented development policies to reduce vehicle trips. Additionally, Policies LU.6.53 and 6.54 would encourage health and social services to pursue transit-oriented goals, thereby reducing GHG emissions. Land use policies such as promoting high density near transportation, promoting transit-oriented development, and making underutilized land available for housing and mixed-use development, especially when near transit, are included in the ClimateLA plan. As discussed above, Policy LU.7.2 would promote transit-oriented development to reduce vehicle trips. Furthermore, the proposed project uses a strategy for targeted growth which encourages mixed-use development at nodes and centers along commercial corridors well served by public transportation.

To reduce emissions from energy usage, ClimateLA proposes the following goals: increase the amount of renewable energy provided by the Los Angeles Department of Water and Power; present a comprehensive set of green building policies to guide and support private sector development; reduce energy consumed by City facilities and utilize solar heating where applicable; and help citizens to use less energy. Policy LU.7.20 from the proposed project would help the City achieve these goals by promoting the use of clean, renewable energy that is diverse in technology and location to decrease dependence on fossil fuels, reduce emissions of GHGs, and increase the reliability of the power supply. Similarly, Policy LU.7.21 would support the use of wind energy, hydropower, geothermal energy, biomass energy, and both passive and active solar energy systems. Policy LU.7.22 would promote energy efficiency in the production and delivery of electricity and would encourage local generation of clean, renewable power at or near the point of use to improve reliability of service, reduce energy costs, and protect the environment. To help increase solar panel usage, Policy LU.7.23 would encourage

flexibility in building design to accommodate such panels. Additionally, Policy LU.7.12 would support facilities that convert wastewater into electricity such as the Hyperion Treatment Plant.

With regard to water, ClimateLA sets the following goals: meet all additional demand for water resulting from growth through water conservation and recycling; reduce per capita water consumption by 20 percent; and implement the City's water and wastewater integrated resources plan that will increase conservation, and maximize the capture and reuse of storm water. Policy LU.7.6 from the proposed project would be consistent with these goals by promoting policies which conserve water, recharge local groundwater aquifers and reduce the pollution of water resources to help meet increases in demand for water. Policy LU.7.7 would maximize the use of recycled water, including capture and reuse of stormwater. Policies LU.7.8 and LU.7.9 would help improve storm water infiltration by promoting use of permeable surfaces and by encouraging "day lighting" of streams buried under public right of way. Policy LU.7.10 would also help improve the quality of stormwater runoff and groundwater by promoting watershed management policies. These policies would be consistent with goals set forth in the ClimateLA plan.

With regard to waste, ClimateLA sets the goal of reducing or recycling 70 percent of trash by 2015. The proposed project would help promote this goal through policies such as Policy LU.7.11 which would promote recycling and waste reduction by supporting appropriately located recycling centers which transform waste disposal into resource recovery and economic development opportunities. With regard to open space and greening, ClimateLA includes the following goals: create 35 new parks; revitalize the Los Angeles River to create open space opportunities; plant one million trees throughout the City; identify opportunities to "daylight" streams; identify promising locations for stormwater infiltration to recharge groundwater aquifers; and collaborate with schools to create more parks in neighborhoods. The proposed project would help promote such measures through Policy LU.7.4, which would encourage green space, landscaping, and street management policies. Also, as discussed previously, Policies LU.7.7 through 7.10 would promote increased water infiltration, "day lighting" of streams, and reuse and capture of stormwater. Economic measures outlined in ClimateLA include measures to create demand and catalyze growth of the green economic sector.

With regard to open space and greening, ClimateLA includes the following goals: create 35 new parks; revitalize the Los Angeles River to create open space opportunities; plant one million trees throughout the City; identify opportunities to "daylight" streams; identify promising locations for stormwater infiltration to recharge groundwater aquifers; and collaborate with schools to create more parks in neighborhoods. The proposed project would help promote such measures through Policy CF.7.1, which recognizes the importance of street trees; Policy CF.7.2, which requires inclusion of on-site trees in new development projects whenever possible; Policy CF.7.3, which encourages community and private partnership involvement in urban forestry issues; and Policy CF.7.4, which facilitates the planting and maintenance of street trees. Policies CF.5.1 through CF.5.9 pertain to providing open space and parks throughout the City.

As demonstrated, the proposed project would be consistent with many policies designed to reduce GHG emissions. In addition, the proposed project encourages compact development by emphasizing a mix of housing types that substantially increases the development of apartments, condominiums and townhomes, and small lot single-family, relative to large lot single-family. Because of this smaller overall development footprint, the proposed project would have reduced per household emissions. However, the substantial overall growth in population and development would result in higher total emissions (see **Table 4.7-3**) that would interfere with GHG reduction plans. Therefore, without mitigation, the proposed project would result in a significant operational impact related to GHG plans, policies, and regulations.

MITIGATION MEASURES

CONSTRUCTION

Greenhouse Gas Emissions

Impacts related to construction GHG emissions would be less than significant. No mitigation measures are required.

Applicable Plans, Policies or Regulations

Impacts related to construction plans, policies, and regulations would be less than significant. No mitigation measures are required.

OPERATIONS

Greenhouse Gas Emissions

GHG1 As a condition of approval for any Discretionary or “Active Change Area Project”, as defined in Section 3.4 of the Project Description, the City shall require developers to implement applicable GHG reduction measures in project design and comply with regulatory targets. Sources of GHG reduction measures include the California Attorney General’s Office *Addressing Climate Change at the Project Level* (January 6, 2010) document and the California Air Pollution Control Officers Association *Model Policies for Greenhouse Gases in General Plans* (June 2009) document.

Applicable Plans, Policies or Regulations

Refer to Mitigation Measure **GHG1**.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

CONSTRUCTION

Greenhouse Gas Emissions

No impacts related to construction GHG emissions would occur.

Applicable Plans, Policies or Regulations

No impacts related to construction GHG plans, policies, or regulations would occur.

OPERATIONS

Greenhouse Gas Emissions

Impacts related to operational GHG emissions were determined to be significant without mitigation. Mitigation Measure **GHG1** would not reduce emissions to less than existing levels. Therefore, the proposed project would result in a significant and unavoidable impact related to GHG emissions.

Applicable Plans, Policies or Regulations

Impacts related to operational plans, policies, and regulations were determined to be significant without mitigation. Mitigation Measure **GHG1** would not reduce emissions to less than existing levels. Therefore, the proposed project would result in a significant and unavoidable impact related to applicable plans, policies, and regulations.