SECTION 4.5
CLIMATE CHANGE

4.5.1 INTRODUCTION

This section evaluates the potential global climate change impacts associated with the *Butterfield Specific Plan.* The proposed Project's potential direct and cumulative contribution to greenhouse gas emissions and global climate change are analyzed. Additionally, it also recommends mitigation measures to avoid or lessen the significance of potential impacts. Information presented in this Section is based upon the *City of Banning General Plan* (January 2006), the *Environmental Impact Report for the City of Banning Comprehensive General Plan and Zoning Ordinance* (June 2005), the *City of Banning Municipal Code* (codified through January 2010), and Air Quality Data provided by the California Air Resources Board (CARB). Land use and traffic data are based on the proposed *Butterfield Specific Plan*, and the Project's *Traffic Impact Analysis* (Appendix I). Refer to Section 4.3, *Air Quality*, for detailed construction-related and operational emissions, as well as additional background information on air quality. Refer to Appendix B, *Air Quality Data* for detailed air quality modeling assumptions and results. Climate change modeling and mitigation guidance is taken from numerous sources noted in the text, including the CARB *Scoping Plan* (October 2008), the California Air Pollution Control Officers Association (CAPCOA) *CEQA and Climate Change White Paper* (January 2008), CAPCOA, *Quantifying Greenhouse Gas Mitigation Measures (*September 2010), and the California Attorney General recommended mitigation measures.

4.5.2 EXISTING CONDITIONS

4.5.2.1 ENVIRONMENTAL SETTING

Greenhouse Gases - Overview

The natural process through which heat is retained in the troposphere is called the "greenhouse effect."[1] The greenhouse effect traps heat in the troposphere through a three fold process summarized as follows: Short wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave radiation; and greenhouse gases (GHGs) in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This "trapping" of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

The most abundant GHGs are water vapor and carbon dioxide. Many other trace gases have greater ability to absorb and re-radiate long wave radiation; however, these gases are not as plentiful.

[1] The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers.

For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential for each GHG based on its ability to absorb and re-radiate long wave radiation. The Global Warming Potential of a gas is determined using carbon dioxide as the reference gas with a Global Warming Potential of 1.[5]

Greenhouse gases generated in the South Coast Air Basin (SCAB) and their relative contribution to the overall warming effect are CO_2 (55 percent), CFCs (24 percent), CH_4 (15 percent), and nitrous oxide (6 percent).[2] It is widely accepted that continued increases in GHGs will contribute to global climate change although there is uncertainty concerning the magnitude and timing of future emissions and the resultant warming trend. Human activities associated with industrial/manufacturing, utilities, transportation, residential, and agricultural sectors contribute to these GHGs. According to the California Energy Commission (CEC), in December 2006, transportation was responsible for 41 percent of the state's GHG emissions, followed by electricity generation in 2004.[3] More recently, in November 2007, CARB reported that transportation was 38 percent of the state's GHG emissions, followed by electricity generation in 2004.[4] Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing associated with agricultural practices, landfills, and wastewater treatment.

Greenhouse Gas Descriptions

GHGs include, but are not limited to, the following:[5]

- *Water Vapor (H_2O)*. Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively. The primary human related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a Global Warming Potential for water vapor.

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2 South Coast Air Quality Management District, *Guidance Document of addressing for Addressing Air Quality Issues in General Plans and Local Planning*, May 6, 2005.

3 California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004, Staff Final Report,* Publication CEC-600-2006-013-D, December 2006.

4 California Air Resources Board, *Staff Report - California 1990 Greenhouse Gas Emissions Level and 2020 Emission Limit*, November 16, 2007.

5 All Global Warming Potentials are given as 100 year Global Warming Potential. Unless noted otherwise, all Global Warming Potentials were obtained from the Intergovernmental Panel on Climate Change. Climate Change (Intergovernmental Panel on Climate Change, *Climate Change, The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*, 1996).

- *Carbon Dioxide (CO_2)*. Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of CO in the atmosphere has increased 35 percent.[6] Carbon dioxide is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.

- *Methane (CH_4)*. CH_4 is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation. CH_4 is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The Global Warming Potential of CH_4 is 21.

- *Nitrous Oxide (N_2O)*. N_2O is produced by both natural and human related sources. Primary human related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The Global Warming Potential of N_2O is 310.

- *Hydrofluorocarbons (HFCs)*. HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing, as the continued phase out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The Global Warming Potential of HFCs range from 140 for HFC-152a to 6,300 for HFC-236fa.

- *Perfluorocarbons (PFCs)*. PFCs are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semi conductor manufacturing. PFCs are potent GHGs with a Global Warming Potential several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).[7] The Global Warming Potential of PFCs range from 6,500to 9,200.

- *Sulfur hexafluoride (SF_6)*. SF_6 is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. SF_6 is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a Global Warming Potential of 23,900. However, its global warming contribution is not as high as the Global Warming

[6] United States Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 to 2004*, April 2006, http://www.epa.gov/climatechange/emissions/usinventoryreport.html.

[7] United States Environmental Protection Agency, *High GWP Gases and Climate Change*, October 19, 2006, http://www.epa.gov/highgwp/scientific.html#pfc.

Potential would indicate due to its low mixing ratio compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm]).[8]

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric O_3 depletors; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds:

- *Hydrochlorofluorocarbons (HCFCs)*. HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The GWPs of HFCs range from 140 (HFC-152a) to 11,700 (HFC-23).[9]

- *1,1,1 trichloroethane*. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. The Global Warming Potential of methyl chloroform is 110 times that of CO_2.[10]

- *Chlorofluorocarbons (CFCs)*. CFCs are used as refrigerants, cleaning solvents, and aerosols spray propellants. CFCs were also part of the U.S. Environmental Protection Agency (EPA) Final Rule (57 FR 3374) for the phase out of O_3 depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere contributing to the greenhouse effect. CFCs are potent GHGs with Global Warming Potentials ranging from 4,600 for CFC 11 to 14,000 for CFC 13.[11]

Global Setting

The gases believed to be most responsible for global warming are H_2O, CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Enhancement of the greenhouse effect can occur when concentrations of these gases exceed the natural concentrations in the atmosphere. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 primarily results from off-gassing associated

[8] United States Environmental Protection Agency, *High GWP Gases and Climate Change*, June 22, 2010, http://www.epa.gov/highgwp/scientific.html#sf6, accessed on May 16, 2011.

[9] United States Environmental Protection Agency, *High GWP Gases and Climate Change*, June 22, 2010, http://www.epa.gov/highgwp/scientific.html#hfc, accessed on May 16, 2011.

[10] United States Environmental Protection Agency, *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone Depleting Substances*, November 7, 2006, http://www.epa.gov/EPA-AIR/1996/January/Day-19/pr-372.html, accessed on May 16, 2011.

[11] United States Environmental Protection Agency, *Class I Ozone Depleting Substances*, March 7, 2006, http://www.epa.gov/ozone/ods.html, accessed on May 16, 2011.

with agricultural practices and landfills. SF_6 is a GHG commonly used in the utility industry as an insulating gas in transformers and other electronic equipment. SF_6, while comprising a small fraction of the total GHGs emitted annually worldwide[12], is a much more potent GHG with 22,800 times the GWP as CO_2.[13] There is widespread international scientific agreement that human-caused increases in GHGs has and will continue to contribute to global warming, although there is much uncertainty concerning the magnitude and rate of the warming. The EPA reports that the most-recent data (2006) on global emissions of CO_2 is between 25 and 30 billion metric tons per year.[14]

Intergovernmental Panel on Climate Change

The IPCC was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP) to assess "the scientific, technical and socioeconomic information relevant for the understanding of the risk of human-induced climate change." The IPCC issued Assessment Reports in 1990, 1995, 2001 and the latest in 2007 linking climate change to human activities. The 1st Assessment Report, released in 1990, played an important role in the discussions of the Intergovernmental Negotiating Committee for the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC was adopted in 1992 and in effect in 1994, and provides the overall policy framework and legal basis for addressing the climate change issue. The 2nd Assessment Report was released in 1995. The most cited finding from that plenary, on attribution of climate change, has been consistently reaffirmed by subsequent research: "The balance of evidence suggests a discernible human influence on global climate." The 2nd Assessment report provided key input to the negotiations that led to the adoption in 1997 of the Kyoto Protocol to the UNFCCC. The 3rd Assessment Report, was approved in January 2001. The predominant summary statements from the 3rd Assessment Report strengthened the 2nd Assessment Report's attribution statement: "An increasing body of observations gives a collective picture of a warming world and other changes in the climate system" and "There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities."[15]

The IPCC completed its 4th Assessment Report in 2007. The IPCC's 4th Assessment Report Working Group I concluded with more certainty than in its previous reports that "warming of

[12] World CO_2eq = 29,319 million metric tons; US CO_2eq = 5,833 million metric tons. The project's incremental contribution to global emissions is approximately 0.00042 percent, and approximately 0.0021 percent contribution to US emissions. Source: United Nations Statistics Division, Millennium Development Goals indicators: Carbon dioxide emissions (CO_2), thousand metric tons of CO_2, http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crid=, Accessed May 23, 2011. Note: Emissions are human-produced, direct emissions of carbon dioxide only. Excludes other greenhouse gases; land-use, land-use-change and forestry (LULUCF); and natural background flows of CO_2.

[13] GWP is the potential of a gas or aerosol to trap heat in the atmosphere. CO_2 is assigned a GWP of 1.

[14] United States Environmental Protection Agency, *Global Greenhouse Gas Data*, April 14, 2011, http://www.epa.gov/climatechange/emissions/globalghg.html, accessed on May 25, 2011.

[15] Intergovernmental Panel on Climate Change, *Climate Change 2007, Synthesis Report*, 2007.

the climate system is unequivocal."[16] The group's conclusions are based on a variety of evidence including historical, global average air and ocean temperatures, widespread observations of melting snow and ice, and rising global average sea level. Global concentrations of three key GHGs—CO_2, CH_4 and N_2O—have increased "markedly" and "as a result of human activities" since the Industrial Revolution of the 18th century. Ice core data on historical levels of GHGs was used by IPCC scientists to conclude that modern concentrations of these three GHGs "now far exceed pre-industrial values." The report also states that fossil fuel use and changes in land use are the primary contributors to increased CO_2 concentrations globally, and agriculture is the primary source of increased CH_4 and N_2O.

Previously, the IPCC's 3rd Assessment Report stated that the average global temperature is likely to increase by between 3.6 and 8.1°F by 2100; it also found larger temperature increases to be possible, but unlikely.[17] Temperature increases are expected to vary widely in specific locations, depending on many factors. The increase in temperature is expected to lead to higher temperature extremes, precipitation extremes leading to increased flooding and droughts, ocean acidification from increased carbon content, and rising sea levels.

Regional Setting

Climate models indicate that temperatures in California are expected to increase by 4.7°F to 10.5°F by the end of the century if GHG emissions continue to proceed at a medium or high rate.[18] Lower emission rates would reduce the projected warming to 3.0°F to 5.6°F. Almost all climate scenarios include a continuing trend of warming through the end of the century given the vast amounts of GHGs already released, and the difficulties associated with reducing emissions to a level that would stabilize the climate. Total GHG emissions in California have been approximated by the CEC, which found that 492 million metric tons (MMT) of CO_2 equivalent (CO_2eq)[19] GHG emissions were produced in California in 2004.[20] The CEC study also found transportation to be the source of 41 percent of the state's GHG emissions; followed by electricity generation at 22 percent and industrial sources at 21 percent.

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16 Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, from http://www.ipcc.ch/ipccreports/ar4-wg1.htm, accessed October 28, 2008.

17 International Panel on Climate Change, *Climate Change 2001- The Scientific Basis*, 2001.

18 California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004, Staff Final Report*, Publication CEC-600-2006-013-D, December 2006.

19 Carbon dioxide-equivalents (CO_2eq) provide a universal standard of measurement against which the impacts of different greenhouse gases can be evaluated. Every greenhouse gas has a Global Warming Potential (GWP), a measurement of the impact that particular gas has on 'radiative forcing'; that is, the additional heat/energy which is retained in the Earth's ecosystem through the addition of this gas to the atmosphere.

20 *Ibid*.

According to the 2006 California Climate Action Team Report (2006 CAT Report), the following climate change effects are predicted in California over the course of the next century:[21]

- A diminishing Sierra snowpack declining by 70 to 90 percent, threatening the state's water supply.
- Increasing temperatures from 8 to 10.4 °F under the higher emission scenarios, leading to a 25 to 35-percent increase in the number of days that ozone pollution levels are exceeded in most urban areas.
- Coastal erosion along the length of California and seawater intrusion into the Delta from a four- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions.
- Increased vulnerability of forests due to pest infestation and increased temperatures. Increased challenges for the state's important agriculture industry from limited water shortage, increasing temperatures, and saltwater intrusion into the Delta.
- Increased electricity demand, particularly in the hot summer months. Therefore, temperature increases could lead to environmental impacts in a wide variety of areas, including: reduced snowpack resulting in changes to the existing water resources, increased risk of wildfires, changing weather expectations for farmers and ranchers, and public health hazards associated with higher peak temperatures, heat waves, and decreased air quality.

These climatological and environmental impacts have been identified in the 2nd and 3rd Assessment Reports prepared by the IPCC in 1995 and 2001. In an effort to provide more information, in December, 2009, a team of California state agencies released a report: "The 2009 Climate Adaptation Strategy." It states that 2.5 trillion dollars' worth of infrastructure in California is at risk from the various projected climate-related changes in our environment. The estimated cost of addressing the impacts on that infrastructure is about $3.9 billion, annually. The report identifies a number of steps to be taken in the near term to appropriately plan for and address this threat. Highlights of the actions include: the formation of a Climate Adaptation Advisory Panel; new approaches to water management; revised land-use planning to avoid construction in highly vulnerable areas; evaluation of all state infrastructure projects to avoid exacerbating threats to infrastructure; and, more specific planning by emergency response agencies, public health agencies, and others to fortify existing communities and resources, and prepare for future stressors.[22]

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[21] California Climate Action Team, *Report to Governor Schwarzenegger and the California Legislature,* http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF, 2006, accessed July 1, 2009.

[22] California Energy Commission, http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF, accessed on May 16, 2011.

Regional Water Resources

Depending on the climate model, precipitation is predicted to increase or decrease slightly. However, the form in which precipitation occurs could change substantially. Warmer winters would lead to less snow and more rain. As a result, the Sierra snowpack would be reduced and would melt earlier. This change could lead to increased flood risks as more water flows into reservoirs and rivers during the winter rainy period. Furthermore, late spring and summer flows to reservoirs would be reduced due to reduced snow packs, thereby reducing the chance of unrestricted water supplies for cities, agriculture, and rivers. Increased temperatures would also lead to a rise in the sea level, from both thermal expansion and melting land-based glaciers. The State Department of Water Resources (DWR) notes that "adapting to the current and future effects of climate change is essential for DWR and California's water managers. DWR addresses climate change in its California Water Plan, which is updated every five years. The California Water Plan provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. DWR continues to improve and expand the analysis of climate change in the California Water Plan. The 2009 California Water Plan Update includes multiple scenarios of future climate conditions and stresses the inclusion of uncertainty, risk, and sustainability."[23]

During the past century, sea levels along the California coast have risen by approximately seven inches. Climate forecasts indicate the sea level would rise by seven to 23 inches over the next 100 years depending on the climate model.[24] Substantial melting of either the Greenland or Antarctic ice sheets would lead to an even greater increase in sea levels; however, the IPCC models do not indicate that this would occur within the next 100 years, which is the boundary of most climate models. Longer forecast periods are inherently less reliable as they require more assumptions, and tend to compound the effects of assumptions that may be incorrect. Increases in sea level could lead to increased coastal flooding, salt water intrusion into aquifers, and disrupt wetlands and estuaries. Water supply issues are addressed in Section 4.14, *Water Supply*.

Regional Wildfires

Increased temperatures would lead to increases in evapotranspiration. The summers would likely be drier, and vegetation would also be more likely to dry out, resulting in increasingly larger areas of flammable forests and wild lands. In addition, warmer temperatures could lead to the expansion of pests that kill and weaken trees, leading to increases in the amount of highly

[23] California Department of Water Resources, http://www.water.ca.gov/climatechange/, accessed on September 21, 2010.

[24] Meehl, G.A.; T.F. Stocker; W.D. Collins; P. Friedlingstein; A.T. Gaye; J.M. Gregory; A. Kitoh; R. Knutti; J.M. Murphy; A. Noda; S.C.B. Raper; I.G. Watterson; A.J. Weaver; and Z.-C. Zhao, Global *Climate Projections, Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 2007.

flammable dead trees, also increasing the risk of large forest fires. Local wildfire hazards are addressed in Section 4.8, *Hazards and Hazardous Materials.*

Regional Weather Extremes

The temperature increases presented in climate change models are yearly averages. Within those averages is the potential for substantially hotter summers and/or colder winters. As a result of global climate change, the weather is expected to become more variable, with larger extremes. In California, the increase in temperatures is expected to lead to more days with temperatures in excess of 95 degrees. An increase in the number of days with extreme heat has implications for public health as Californians would face greater risk of death or disability from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat. In addition, increased temperatures have implications for agricultural crops, particularly long-term crops such as grapes and fruit trees that are planted in particular locations to take advantage of micro-climates.

Regional Air Quality

As indicated in the discussion of weather extremes, increased temperatures can increase air quality problems. Increased temperatures create the conditions in which ozone formation can increase. In addition, hotter temperatures would likely result in increased electricity use to power air conditioners and refrigerators. Increased power usage has the potential to result in increased air pollutant emissions as more electrical generation is needed to meet the demand. Climate change has been factored into local and regional air quality planning, as noted by CARB, through implementation of AB 32 and related programs.[25]

4.5.2 REGULATORY FRAMEWORK

Thus far, the approach to addressing the emission of GHGs has been through environmental regulations enforced through air quality laws.

Federal

The federal Clean Air Act (CAA) requires the EPA to define national ambient air quality standards (national standards) to protect public health and welfare in the U.S. The CAA does not specifically regulate GHG emissions; however, on April 2, 2007 the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency*, determined that GHGs are pollutants that can be regulated under the CAA. The EPA adopted an endangerment finding and cause or contribute finding for GHGs on December 7, 2009. The final findings were published in the

[25] California Air Resources Board, http://www.arb.ca.gov/cc/cc.htm, accessed on September 21, 2010.

Federal Register (www.regulations.gov) on December 15, 2009 under Docket ID No. EPA-HQ-OAR-2009-0171. The final rule was effective January 14, 2010.

Under the endangerment finding, the Administrator found that the current and projected atmospheric concentrations of the six, key, well-mixed GHGs (i.e., CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) threaten the public health and welfare of current and future generations. Under the cause of contribute finding, the Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare. Based on these findings, on April 1, 2010, EPA finalized the light-duty vehicle rule controlling GHG emissions. This rule confirmed that January 2, 2011, is the earliest date that a 2012 model year vehicle meeting these rule requirements may be sold in the United States.

On May 13, 2010, EPA issued the final GHG Tailoring Rule. This rule set thresholds for GHG emissions that define when permits under the Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities. Currently, EPA rules do not cover residential construction projects. Implementation of the federal rules is expected to reduce the level of emissions from new motor vehicles and large stationary sources.

The EPA annually publishes the *Inventory of U.S. Greenhouse Gas Emissions and Sinks* for estimating sources of GHGs that is generally consistent with the IPCC methodology developed in its *Guidelines for National Greenhouse Gas Inventories*.

State

Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring, and that there is a real potential for severe adverse environmental, social, and economic effects in the long term. Every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

Assembly Bill 1493 (Pavley)

In 2002, then-Governor Gray Davis signed AB 1493 (Chapter 200, Statutes of 2002, amending Section 42823 of the California Health and Safety Code and adding Section 43018.5 to the code). AB 1493 required CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State."

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR Section 1900, 1961), and adoption of Section 1961.1 (13 CCR Section 1961.1), require automobile manufacturers, beginning with the 2009 model year, to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons). The regulations would reduce GHG emissions from California passenger vehicles by about 22 percent by 2012 and about 30 percent by 2016.[26]

Executive Order S-3-05

Then-Governor Schwarzenegger established Executive Order S-3-05 in 2005, in recognition of California's vulnerability to the effects of climate change. Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- 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 directed the secretary of the Cal/EPA to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of Cal/EPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

[26] California Air Resources Board, *Fact Sheet, Climate Change Emission Control Regulations*, http://www.arb.ca.gov/cc/ccms/factsheets/cc_newfs.pdf, 2009, accessed on July 1, 2009.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 sets a statewide GHG emissions limit based at 1990 levels by 2020. To achieve the statewide emissions limit, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using this criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020. By January 1, 2012, GHG rules and market mechanisms adopted by CARB take effect and become legally enforceable.

Senate Bill 1368

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007. SB 1368 also required CEC to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas–fired plant. Furthermore, the legislation states that all electricity provided to California, including imported electricity, must be generated by plants that meet the standards set by CPUC and CEC.

Executive Order S-1-07

Executive Order S-1-07, which was signed in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in

California by at least ten percent by 2020. This order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 MMT in 2020. The LCFS is designed to reduce California's dependence on petroleum, create a lasting market for clean transportation technology, and stimulate the production and use of alternative, low-carbon fuels in California. The LCFS is designed to provide a durable framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. One standard is established for gasoline and the alternative fuels that can replace it. A second similar standard is set for diesel fuel and its replacements.

The standards are "back-loaded"; that is, there are more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the LCFS will be based on a combination of strategies involving lower carbon fuels and more efficient, advanced-technology vehicles.

Reformulated gasoline mixed with corn-derived ethanol at 10 percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity are also low carbon fuels and result in significant reductions of GHGs when used in fuel cell or electric vehicles due to significant vehicle power train efficiency improvements over conventionally-fueled vehicles. As such, these fuels are included in the LCFS as low carbon options. Other fuels may be used to meet the standards and are subject to meeting existing requirements for transportation fuels.

Senate Bill 97

SB 97, signed August 2007 (Chapter 185, Statutes of 2007; PRC Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's OPR, which is part of the state Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA, by July 1, 2009. The Resources Agency is required to certify and adopt those guidelines by January 1, 2010. SB 97 also removes, both retroactively and prospectively, the legitimacy of litigation alleging inadequate CEQA analysis of effects of GHG emissions in the environmental review of projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of

2006 or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1B or 1E). This provision will be repealed by operation of law on January 1, 2010; at that time, any such projects that remain unapproved will no longer be protected against litigation claims of failure to adequately address climate change issues. In the future, this bill will only protect a handful of public agencies from CEQA challenges on certain types of projects, and only for a few years time.

As set forth more fully below, in June 2008, OPR published a technical advisory recommending that CEQA lead agencies make a good-faith effort to estimate the quantity of GHG emissions that would be generated by a proposed project. Specifically, based on available information, CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic, energy consumption, water usage, and construction activities to determine whether project-level or cumulative impacts could occur, and should mitigate the impacts where feasible.[27] OPR requested CARB technical staff to recommend a method for setting CEQA thresholds of significance as described in Section 15064.7 of the CEQA Guidelines that will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state.

On December 30, 2009, the Resources Agency adopted the CEQA Guidelines Amendments prepared by OPR, as directed by SB 97. On February 16, 2010, the Office of Administration Law approved the CEQA Guidelines Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The CEQA Guidelines Amendments became effective on March 18, 2010.

Senate Bills 1078 and 107 and Executive Order S-14-08

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. Executive Order S-14-08 was signed in November 2008 and expands the state's Renewable Energy Standard to 33 percent renewable power by 2020.[28] Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the state come from renewable energy by 2020. CARB adopted the "Renewable Electricity Standard" on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers, including the City of Banning's electricity system. On April 12, 2011, Governor Jerry Brown reinforced the requirements of Executive Order S-21-09, and signed Senate Bill 2, which requires California to get 33 percent of its electricity from renewable sources by the year 2020.

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[27] Governor's Office of Planning and Research (OPR), *CEQA AND CLIMATE CHANGE: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*, October 23, 2008, http://opr.ca.gov/index.php?a=ceqa/index.html, accessed on July 1, 2009.

[28] Office of the Governor, *Press Release: Governor Schwarzenegger Advances State's Renewable Energy Development*, November 17, 2008, http://gov.ca.gov/press-release/11073/, accessed on July 1, 2009.

Senate Bill 375

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs regional transportation plan. CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects may not be eligible for funding programmed after January 1, 2012.

On August 9, 2010 CARB proposed regional GHG Emission reduction targets pursuant to SB 375. CARB developed proposed regional targets through an extensive public process over the past 18 months, with significant contributions from the affected MPOs. Substantial data and analysis, developed by the regions, served as the basis for predicting the amount of change that can reasonably be expected in coming decades and demonstrated significant regional differences which are reflected in the targets.

CARB staff is proposing per capita greenhouse gas reductions of 7 to 8 percent by 2020, and between 13 and 16 percent in 2035 for each of California's largest urban areas through regional land use and transportation strategies. These benefits are magnified when California's vehicle and fuels programs to reduce greenhouse gases are taken into account.

Banning is located within the Southern California Association of Governments (SCAG) region which is one of the largest MPO's in the state, and is also part of the Western Riverside Council of Governments (WRCOG). CARB proposed targets for SCAG of 8 percent by 2020 and 13 percent by 2035. In response to CARB proposed targets, the Regional Council of the SCAG voted on September 2, 2010 to recommend to the CARB its own targets for GHG reductions. The Regional Council recommended reduction targets of 6 percent for 2020 and 8 percent for 2035. It should be noted that WRCOG also has authority to develop its own SCS and APS, but it has not announced plans to do so. For the SCAG region, the next Regional Transportation Plan (RTP) is scheduled to be completed in 2012 and the Housing Element Update is scheduled for 2014. Therefore, completion of an SCS or APS would not be expected to occur for at least 3 years.

This law also extends the minimum time period for the regional housing needs allocation cycle from 5 to 8 years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

CARB Early Action Measures

In June 2007, CARB directed staff to pursue 37 early actions for reducing GHG emissions under AB 32. The broad spectrum of strategies to be developed – including a LCFS, regulations for refrigerants with high GWP, guidance and protocols for local governments to facilitate GHG reductions, and green ports – reflects the government's responsive actions to immediately address GHGs.[29]

In addition to approving the 37 GHG reduction strategies, CARB directed staff to further evaluate early action recommendations made at the June 2007 meeting, and to report back to CARB within 6 months. CARB's approach suggested a desire to try to pursue greater GHG emissions reductions in California in the near-term. Since the June 2007 CARB hearing, CARB staff has evaluated all 48 recommendations submitted by several stakeholders and several internally-generated staff ideas, and has published the *Draft List of Early Action Measures To Reduce Greenhouse Gas Emissions In California Recommended For Board Consideration*.[30]

The Board has identified 9 Discrete Early Action measures to date, including potential regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations, and other sources in 2007. The Board has already approved 2 Discrete Early Action measures (ship electrification at ports and reduction of high GWP gases in consumer products). Regulatory development for the remaining measures is underway.[31]

California Climate Action Team

In response to Executive Order Executive Order S-3-05, the Secretary of Cal/EPA created the CAT, which consists of 14 agencies and divided into 11 subgroups, 9 of which address specific economic sectors, and 2 that address implementing a multi-sector approach to addressing climate change. The subgroups consist of representatives from appropriate state agencies and departments.

In March 2006, the CAT published the 2006 CAT Report for then-Governor Schwarzenegger and the Legislature.[32] The 2006 CAT Report identifies strategies that the state could pursue to reduce the potential for climate change from GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the Governor's targets are met and can be met with existing authority of state agencies. The 2006 CAT Report provides GHG emission reduction strategies, which include the following:

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[29] California Air Resources Board, *Draft List of Early Action Measures To Reduce Greenhouse Gas Emissions In California Recommended For Board Consideration*, September 2007.

[30] *Ibid*.

[31] California Air Resources Board, *Climate Change Draft Scoping Plan: A Framework for Change,* June 2008.

[32] California Climate Action Team, *Report to Governor Schwarzenegger and the California Legislature*, http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF, accessed on July 1, 2009.

Climate Change Standards. AB 1493 (Pavley) requires the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by CARB in September 2004.

Green Buildings Initiative. Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by 2015, as compared with 2003 levels. The Executive Order and related action plan spell out specific actions state agencies are to take with state-owned and state-leased buildings. The order and plan also provide various strategies and incentives to encourage private building owners and operators to achieve the 20-percent target. The State has adopted the 2010 CALGREEN building standards, which became effective January 1, 2011. These standards address such measures as new energy efficiency regulations through the California Energy Commission, water conservation (reduce indoor use by at least 20 percent), irrigation controllers, waste reduction, VOC limits on construction materials, and HVAC system design.[33]

Diesel Anti-Idling. In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.

Building Energy Efficiency Standards in Place and in Progress. PRC Section 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (applicable to newly constructed buildings, and additions to and alterations to existing buildings).

Appliance Energy Efficiency Standards in Place and in Progress. PRC Section 25402 authorizes the CEC to adopt and periodically update its appliance energy efficiency standards (applicable to devices and equipment using energy that are sold or offered for sale in California).

Fuel-Efficient Replacement Tires & Inflation Programs. State legislation established a statewide program to encourage the production and use of more efficient tires.

Measures to Improve Transportation Energy Efficiency. Builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools, and information that advance cleaner transportation and reduce climate change emissions.

In March 2008, CAT subgroups submitted more than 100 GHG reduction measures to the CARB Office of Climate Change to be considered for inclusion in CARB's Scoping Plan. Cal/EPA also submitted a Report Card collected from CAT agencies on proposed GHG reduction measures,

[33] California Building Standards Commission, http://www.bsc.ca.gov/CALGreen/default.htm, accessed on September 21, 2010.

including an estimate of the actual emissions reductions anticipated from those measures. This report will be updated annually, with the most recent update included in CARB's Scoping Plan adopted in December 2008.

CARB Climate Change Scoping Plan

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California under AB 32 through subsequently enacted regulations.[34] CARB's Scoping Plan contains the main strategies California will implement to reduce CO_2eq emissions by 174 MMT, or approximately 30 percent, from the state's projected 2020 emissions level of 596 MMT of CO_2eq under a BAU (Business as Usual) scenario (This is a reduction of 42 MMT CO_2eq, or almost ten percent, from 2002 to 2004 average emissions, but requires the reductions in the face of population and economic growth through 2020).

CARB's Scoping Plan calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors, i.e. transportation, electrical power, commercial and residential, industrial etc. CARB used three-year average emissions, by sector, for 2002-2004 to forecast emissions to 2020. At the time CARB's Scoping Plan process was initiated, 2004 was the most recent year for which actual data was available.[35] The measures described in CARB's Scoping Plan are intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32.

CARB's Scoping Plan also breaks down the amount of GHG emissions reductions CARB recommends for each emissions sector of the state's GHG inventory. CARB's Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2eq);
- The LCFS (15.0 MMT CO_2eq);
- Energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems (26.3 MMT CO_2eq); and
- A renewable portfolio standard for electricity production (21.3 MMT CO_2eq).

CARB has identified a GHG reduction target of 5 MMT (of the 174 MMT total) through regional planning efforts to link land use/transportation/housing strategies in ways that reduce

[34] California Air Resources Board, *Climate Change Scoping Plan, A Framework for Change*, December 2008.

[35] California Air Resources Board, *Greenhouse Gas Inventory 2020*, as shown on the website http://www.arb.ca.gov/cc/inventory/data/forecast.htm, accessed on July 1, 2009.

emissions from passenger vehicles and light duty trucks (Table 2 of CARB's Scoping Plan), by Implementation of Reduction Strategy T-3 regarding Regional Transportation-Related GHG Targets. CARB's Scoping Plan states that successful implementation of the plan relies on local governments' land use, planning, and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. CARB's Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity. The measures approved by the Board will be developed over the next 2 years and be in place by 2012.

CARB's Scoping Plan expands the list of 9 Discrete Early Action Measures to a list of 39 Recommended Actions contained in Appendices C and E of CARB's Scoping Plan. These measures are presented in Table 4.5-1, *Recommended Actions from the Climate Change Proposed Scoping Plan.*

Table 4.5-1
GHG Reduction Measures in CARB Scoping Plan

ID #	Sector	Strategy Name
T-1	Transportation	Pavley I and II – Light-Duty Vehicle GHG Standards
T-2	Transportation	LCFS (Discrete Early Action)
T-3	Transportation	Regional Transportation-Related GHG Targets
T-4	Transportation	Vehicle Efficiency Measures
T-5	Transportation	Ship Electrification at Ports (Discrete Early Action)
T-6	Transportation	Goods-movement Efficiency Measures
T-7	Transportation	Heavy Duty Vehicle GHG Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)
T-8	Transportation	Medium and Heavy-Duty Vehicle Hybridization
T-9	Transportation	High Speed Rail
E-1	Electricity and Natural Gas	Increased Utility Energy efficiency programs More stringent Building and Appliance Standards
E-2	Electricity and Natural Gas	Increase Combined Heat and Power Use by 30,000GWh
E-3	Electricity and Natural Gas	Renewables Portfolio Standard
E-4	Electricity and Natural Gas	Million Solar Roofs
CR-1	Electricity and Natural Gas	Energy Efficiency
CR-2	Electricity and Natural Gas	Solar Water Heating
GB-1	Green Buildings	Green Buildings
W-1	Water	Water Use Efficiency
W-2	Water	Water Recycling
W-3	Water	Water System Energy Efficiency
W-4	Water	Reuse Urban Runoff
W-5	Water	Increase Renewable Energy Production
W-6	Water	Public Goods Charge (Water)
I-1	Industry	Energy Efficiency and Co-benefits Audits for Large Industrial Sources
I-2	Industry	Oil and Gas Extraction GHG Emission Reduction
I-3	Industry	GHG Leak Reduction from Oil and Gas Transmission
I-4	Industry	Refinery Flare Recovery Process Improvements
I-5	Industry	Removal of CH_4 Exemption from Existing Refinery Regulations

Table 4.5-1 (continued)
GHG Reduction Measures in CARB Scoping Plan

RW-1	Recycling and Waste Management	Landfill CH_4 Control (Discrete Early Action)
RW-2	Recycling and Waste Management	Additional Reductions in Landfill CH_4 – Capture Improvements
RW-3	Recycling and Waste Management	High Recycling/Zero Waste
F-1	Forestry	Sustainable Forest Target
H-1	High GWP Gases	Motor Vehicle Air Conditioning Systems (Discrete Early Action)
H-2	High GWP Gases	SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)
H-3	High GWP Gases	Reduction in Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)
H-4	High GWP Gases	Limit High GWP Use in Consumer Products (Discrete Early Action, Adopted June 2008)
H-5	High GWP Gases	High GWP Reductions from Mobile Sources
H-6	High GWP Gases	High GWP Reductions from Stationary Sources
H-7	High GWP Gases	Mitigation Fee on High GWP Gases
A-1	Agriculture	CH_4 Capture at Large Dairies
Source: CARB, 2008		

In *Association of Irritated Residents, et al. v. California Air Resources Board, et al.*, the Superior Court of California for the County of San Francisco (Superior Court) issued a "Statement of Decision" on March 18, 2011 that prevents CARB from implementing a statewide GHG regulatory program under AB 32 until the agency complies with the requirements of CEQA. The decision partially grants a petition for a writ of mandate brought by a coalition of environmental justice organizations (Petitioners) that alleged that CARB's Scoping Plan violated both AB 32 and CEQA. Although the Superior Court denied all claims related to AB 32, the court found that CARB: 1) failed to adequately discuss and analyze the impacts of alternatives in its proposed Scoping Plan as required by its CEQA implementing regulations; and 2) improperly approved the Scoping Plan prior to completing the environmental review required by CEQA. In upholding the Petitioners' challenge on these two CEQA issues, the Superior Court issued a Peremptory Writ of Mandate and enjoined CARB from further implementation of the Scoping Plan until it complies with all CEQA requirements.

South Coast Air Quality Management District (SCAQMD) Draft Screening Thresholds

As an interim method for determining significance under CEQA until statewide significance thresholds are established, SCAQMD developed a draft tiered flowchart in August 2008 for determining significance thresholds for GHGs and CEQA for industrial projects where SCAQMD is acting as the lead agency.[36] In October 2008, an update to the SCAQMD tiered flowchart modified its original flowchart slightly, in conformance with CARB's October 2008 Preliminary Draft Staff Proposal, by adding separate Significance Screening Levels for industrial projects (10,000 $MTCO_2eq$/year) versus commercial/residential projects (3,000 MT/year CO_2E). Sources to be considered relative to the screening thresholds consist of both stationary and mobile (transportation) sources. In December 2008, SCAQMD adopted these thresholds for industrial facilities, but only with respect to projects where SCAQMD is the lead agency. These thresholds, as well as the interim draft tiering approach, are not mandated for local government approvals, and have not been adopted by the City of Banning. Additionally, SCAQMD is not recommending Tier 4 of these Screening Levels.

The SCAQMD flowchart uses a tiered approach in which a proposed project is deemed to have a less than significant impact related to GHG emissions when any of the following conditions are met:

- GHG emissions are within GHG budgets in an approved regional plan;
- Incremental increases in GHG emissions due to the project are below the defined Significance Screening Levels, or Mitigated to Less than the Significance Screening Level;
- Performance standards are met by incorporating project design features and/or implementing emission; and
- Carbon offsets are made to achieve target significance screening level.

SCAQMD GHG Rule Implementation

On December 5, 2008, SCAQMD adopted Rule 2700 – General, and Rule 2701 – So Cal Climate Solutions Exchange, which establishes the administrative structure for a voluntary program designed to quantify GHG emission reductions. Rule 2701 enables private parties to generate certified GHG emission reductions for projects in the district. Rule 2701 requires that reductions follow specific protocols. Approved protocols include Forest Projects, Urban Tree Planting and Manure Management. Of these, the Urban Tree Planting protocol would be applicable to the project. SCAQMD has not yet developed protocols for other reduction measures. The process of certifying GHG emission reductions requires submission of a Plan that must be approved prior to generating the certified GHG emissions that details the nature of the reductions, the

[36] South Coast Air Quality Management District, *Greenhouse Gas CEQA Significance Threshold: Significance Threshold Stakeholder Working Group #5*, August 27, 2008, http://www.aqmd.gov/ceqa/handbook/GHG/aug27mtg/ghgmtg5.pdf, accessed on October 23, 2008.

funding amount and source, the specific protocol that will be followed, the location of the project, the date the reductions are projected to begin, the length of time the project is anticipated to continue, the person responsible for the emission reduction project and the initial owner of the certified GHG emission reductions, once reductions have been verified and certified by the Executive Officer of SCAQMD. The Executive Officer will approve or deny the Plan within 60 days, unless mutually extended. Depending on the protocol utilized, the emissions reductions may not be certified until after information is provided quantifying the reductions for each calendar year. The Executive Officer issues the certified GHG emission reductions within 90 days of receipt of the information.

Rule 2702 – Greenhouse Gas Reduction Program, was approved in February 6, 2009. Rule 2702 establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to purchase or fund GHG reduction projects within two years, unless extended by the Governing Board. The implementation of this program will also allow any party to eventually request GHG emission reduction credits, as available, which would be evaluated and either accepted or denied by the Executive Officer. Priority will be given to projects that result in co-benefit emission reductions of criteria and toxic air pollutants within environmental justice areas. These projects would follow pre-approved CARB and AQMD protocols. Currently, three protocols approved by CARB are included in Proposed Rule 2702: Forest Projects, Urban Tree Planting and Manure Management. Because projects are to follow protocols in the process, and because protocols only exist for three project types, voluntary applicability of the program is limited at present. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, a regional plan or a federal cap and trade program.

Western Climate Initiative

California is working closely with six other states and four Canadian provinces in the Western Climate Initiative (WCI) to design a regional GHG emissions reduction program that includes a cap-and-trade approach. California's participation in WCI creates an opportunity to provide substantially greater reductions in GHG emissions throughout the region than could be achieved by California alone. The larger scope of the program also expands the market for clean technologies and helps avoid leakage; that is, the shifting of emissions from sources within California to sources outside the state. The WCI partners released the recommended design for a regional cap-and-trade program in September 2008. CARB embraces the WCI effort, and will continue to work with WCI partners. The creation of a robust regional trading system can complement the other policies and measures included in this plan, and provide the means to achieve the reduction of GHG emissions needed from a wide range of sectors as cost-effectively as possible.

CARB is currently conducting workshops to develop a cap-and-trade system. Pursuant to AB 32, the program will be launched by January 1, 2012.

4.5.3 SIGNIFICANCE THRESHOLD CRITERIA

As specified in Appendix G (Section VII) of the State CEQA Guidelines, a project may create a significant environmental impact involving greenhouse gas emissions if it causes one or more of the following to occur:

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

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

Greenhouse Gas Emissions

At this time, there is no agreed consensus in the State of California among CEQA lead agencies regarding the analysis of global climate change and the selection of significance criteria. In fact, numerous organizations, both public and private, have released advisories and guidance with recommendations designed to assist decision-makers in the evaluation of GHG emissions given the current uncertainty regarding when emissions reach the point of significance. That being said, several options are available to lead agencies.

First, lead agencies may elect to rely on thresholds of significance recommended or adopted by state or regional agencies with expertise in the field of global climate change (see CEQA Guidelines, §15064.7(c)). However, to date, neither CARB nor SCAQMD have adopted significance thresholds for GHG emissions for residential or commercial development under CEQA. CARB has suspended all efforts to develop a threshold, and SCAQMD's threshold remains in draft form. Accordingly, this option (i.e., reliance on an adopted threshold) is not viable for the City of Banning.

Of note, in December 2009, the San Joaquin Valley Unified Air Pollution Control District adopted guidance for use by lead agencies in the valley, in assessing the significance of a project's GHG emissions under CEQA. The guidance relies on the use of performance-based standards, and requires that projects demonstrate a 29-percent reduction in GHG emissions, from business-as-usual, to determine that a project would have a less than significant impact. The guidance is for valley land use agencies and not applicable to areas outside the district. Similarly, the Bay Area Air Quality Management District adopted its own GHG thresholds of significance on June 2, 2010. The threshold is based on quantitative standards including a per capita emission standard and project emission standard, as well as a qualitative standard based on compliance with a qualified GHG reduction strategy. The BAAQMD thresholds are based on an analysis of local inventories of GHG emissions and local reduction programs; therefore,

they would not be an appropriate basis for a GHG significance threshold in the City of Banning. It should be noted that the California Building Industry Association filed a lawsuit in November 2010 challenging the BAAQMD thresholds, alleging that the BAQMD violated CEQA when it failed to conduct any environmental review before adopting new standards.

Second, lead agencies may elect to use a zero-based threshold, such that any emission of GHGs is considered to be a significant and unavoidable impact. This type of threshold is not viable because it may indirectly truncate the analysis provided in CEQA documents and the mitigation commitments secured from new development, and could result in the preparation of extensive environmental documentation for even the smallest of projects, thereby inundating lead agencies and creating an administrative burden. Moreover, because the GHG analysis is a cumulative analysis, a zero based threshold would be inconsistent with CEQA Guidelines Section 15130(a)(3), which requires that cumulatively significant impacts, such as GHG emissions, be "cumulatively considerable", as defined by Section 15065(a)(3).

Third, lead agencies may elect to utilize their own significance criteria, so long as such criteria are informed and supported by substantial evidence. Here, the City has elected to identify its own significance criterion until such time as a state or regional threshold is adopted by a competent authority (e.g., CARB or SCAQMD). Recent amendments to the CEQA Guidelines, and specifically the addition of CEQA Guidelines Section 15064.4, subdivision (b), informed the City's selection of a significance criterion:

> *"A 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".*

Appendix G of the CEQA Guidelines also has been revised to provide some guidance regarding the criteria that may be used to assess whether a project's impacts on global climate change are significant. The Appendix G environmental checklist form asks whether a project would: (i) generate GHG emissions, either directly or indirectly, that may have a significant impact on the

environment; or (ii) conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

4.5.4 IMPACT ANALYSIS AND MITIGATION

ANALYTICAL METHOD

This section describes the methodologies and assumptions used for identifying and analyzing the proposed Project's emissions of GHGs. The discussion includes the criteria for determining the level of significance of effects and describes the methods and assumptions used to conduct the analysis. As noted above, the increased concentration of GHGs in the atmosphere has been linked to global warming which can lead to climate change. GHG emissions have the potential to adversely affect the environment because they contribute, on a cumulative basis, to global climate change. The construction and operation of the project would contribute incrementally to GHG emissions. Therefore, project impacts of GHG emissions are analyzed on a cumulative basis.

No regulatory agency having jurisdiction over the Project, including the SCAQMD, has formally adopted a significance threshold for GHG emissions generated by a proposed project (for which SCAQMD is not the lead agency), or a uniform methodology for analyzing impacts related to GHG emissions on global climate change. Similarly, the City of Banning has not adopted any significance criteria or guidelines for GHG analysis.

Therefore, the GHG analysis below uses quantification methodology recommended by the CAPCOA document Quantifying Greenhouse Gas Mitigation Measures (August 2010), including quantitative estimates of construction and operational emissions. As noted above, the previously approved the Deutsch Specific Plan and certified Deutsch Specific Plan EIR addressed development of the Project site with up to 5,400 dwelling units. This analysis has been updated to reflect the currently proposed Butterfield Specific Plan, including the off-site infrastructure and 21-acre unincorporated parcel. The Project's impacts are analyzed at full Project build-out and in the Interim Phase between the site's initial grading and full build-out. In addition, long-term and construction phase impacts are analyzed for both on-site and off-site activity, including installation of off-site infrastructure.

PROJECT DESIGN FEATURES AND EXISTING REGULATIONS, RULES, AND REQUIREMENTS

Existing local, State and federal regulations noted below will avoid or mitigate potential impacts related to climate change. The following Project Design Features would also reduce, avoid or offset potentially adverse impacts:

1) The Project is proposed to be phased, with the initial Phase IA grading limited to the area necessary to achieve mass balancing and proper drainage of the overall

property, leaving approximately 40% (over 500 acres) of the site in its current native condition until such time the remaining phases begin to develop. This phased development will reduce the overall area being disturbed at any one time, and will reduce the overall annual grading emissions.

2) Project design features incorporate applicable recommendations from the Attorney General, as discussed in Impact 4.5-1 below.

3) The Project's water supply sources are focused first on local supplies, which will reduce reliance upon imported water, thereby reducing GHG emissions associated with energy required for pumping and delivering the water to the site.

4) Tables 4.5-3 and 4.5-4 identify Project Design Features that will reduce greenhouse gas emissions, as well as criteria pollutant emissions.

5) The Project has been redesigned from the currently approved Deutsch Specific Plan. The redesigned Project substantially increases the total open space, resulting in increased carbon sequestration, reduced grading emissions, and reduced operational emissions, as discussed further below.

IMPACT ANALYSIS AND MITIGATION MEASURES

Impact 4.5-1: Greenhouse Gas Emissions

Threshold: *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Determination: Potentially Significant and Unavoidable with Mitigation Incorporated

Effects of Climate Change on the Project

The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2 degrees Celsius per decade, determined from meteorological measurements worldwide between 1990 and 2005.[37] Climate change modeling using year 2000 emission rates shows that further warming would occur, which would include further changes in the global climate system during the current century.[38] Changes to the global climate system and ecosystems and to California could include, but are not limited to:

[37] Ibid.
[38] Ibid.

- The loss of sea ice and mountain snow pack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;[39]
- Rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps and the Greenland and Antarctic ice sheets;[40]
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;[41]
- Decline of the Sierra snow pack (which accounts for approximately half of the surface water storage in California) by 70 percent to as much as 90 percent over the next 100 years;[42]
- Increase in the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas of Los Angeles and the San Joaquin Valley by the end of the 21st century;[43] and
- High potential for erosion of California's coastlines and sea water intrusion into the Delta and levee systems due to the rise in sea level.[44]

While there is broad agreement on the causative role of GHGs to climate change, there is considerably less information or consensus on how climate change would affect any particular location, operation, or activity. The IPCC has published numerous reports on potential impacts of climate change on the human environment. These reports provide a comprehensive and up-to-date assessment of the current state of knowledge on climate change. Despite the extensive peer review of reports and literature on the impacts of global climate change, the IPCC notes the fact that there is little consensus as to the ultimate impact of human interference with the climate system and its causal connection to global warming trends.

Other predicted physical and environmental impacts associated with climate change include heat waves, alteration of disease vectors, biome shifts, impacts on agriculture and the food supply, reduced reliability in the water supply, and strain on the existing capacity of sanitation and water-treatment facilities (potential climate change effects upon water supply are further discussed in Appendix J, *Water Supply Assessment*). While these issues are a concern for society at large, none of these impacts would have a disproportionate effect on the implementation of the proposed Specific Plan. A disproportional effect is when the effects of climate change would impact the Project site more than another location. As indicated in the analysis above,

[39] Ibid.
[40] Ibid.
[41] Ibid.
[42] California Environmental Protection Agency, *Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature (Executive Summary)*, March, 2006.
[43] Ibid.
[44] Ibid.

the impacts to the project would be similar to a majority of other locations in western Riverside County.

Greenhouse Gas Emissions

Direct Project Related Sources of Greenhouse Gases

Direct project-related GHG emissions include emissions from construction activities, area sources, and mobile sources. Table 4.5-2, *Estimated Greenhouse Gas Emissions*, estimates the CO_2, N_2O, and CH_4 emissions of the proposed Project. The Specific Plan does not propose land uses that would generate other forms of GHG emissions in quantities that would facilitate a meaningful analysis. Therefore, this analysis focuses on these three forms of GHG emissions.

Mobile source emissions are based on the Project fleet mix and resultant vehicle miles traveled (VMT). URBEMIS2007 extrapolates fleet mixes from the EMFAC2007 files that are specific for the region. Additionally, VMT is calculated based Caltrans survey data specific to Southern California[45]. As seen in Table 4.5-2, Business as Usual (BAU) GHG emissions associated with area sources (i.e., natural gas usage and landscape equipment) and mobile sources would be 18,386.51 $MTCO_2eq$/year, and 110,474.45 $MTCO_2eq$/year, respectively. BAU emissions refer to the emissions that would be expected to occur in the absence of GHG reductions from project design features or GHG mitigation measures. GHG emissions from construction are amortized over the lifetime of the proposed Project (30 years) and later added to the total operational emissions, resulting in 3,472.57 $MTCO_2eq$/year.[46]

Indirect Project Related Sources of Greenhouse Gases

Electricity Consumption. Indirect GHG emissions from electricity usage are based on emissions factors from the California Air Pollution Control Officers Association (CAPCOA) and the California Climate Action Registry (CCAR)[47] specific to the power content for the City of Banning; refer to Appendix B, *Air Quality Data*. The City of Banning Electric Department provides electricity to the City and procures the majority of its electricity through contracts with the Southern California Public Power Authority. These contracts include participation in the San Juan coal plant, the Palo Verde nuclear plant, and the Hoover hydropower facility. As indicated by the Banning Electric Utility Department, the power generation resource mix for the City is made up of 20 percent renewable (geothermal), 65 percent coal, 1 percent hydroelectric,

[45] California Department of Transportation, *Caltrans Statewide Survey Data*, 1991, Rimpo and Associates, *URBEMIS2007 for Windows Users' Guide Appendices*, November 2007.

[46] The project lifetime is based on the standard 30 year assumption of the South Coast Air Quality Management District (http://www.aqmd.gov/hb/2008/December/081231a.htm).

[47] California Air Pollution Control Officers Association, *Quantifying Greenhouse Gas Mitigation Measures*, September 2010, and California Climate Action Registry Database, Power/Utility Protocol (PUP) Report, 2006.

and 13 percent nuclear. The emission factors for electricity use would be 641 pounds of CO_2 per megawatt hour [MWh], 0.036 pounds of N_2O per MWh, and 0.024 pounds of CH_4 per MWh.[48]

The proposed Project would have an electric energy demand of approximately 53,092 MWh per year. Of that, residential dwelling units would represent approximately 66 percent, commercial uses would represent 29 percent, the elementary school would represent 1 percent, the wastewater treatment plant would represent 3 percent, and the golf course would represent 1 percent. The potential development within the Plan area would indirectly result in 15,715.31 $MTCO_2eq$/year due to electricity usage; refer to Table 4.5-2. It should be noted that SB 1078 requires retail sellers of electricity to provide at least 20 percent of their supply from renewable sources by 2017. This legislation also requires that each retail seller increase its total procurement of eligible renewable energy resources by at least an additional 1 percent of retail sales per year so that 20 percent of its retail sales are procured from eligible renewable energy resources. CARB has also adopted the "Renewable Electricity Standard" on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers. SB 2 also requires California to get 33 percent of its electricity from renewable sources by the year 2020. As a result, emissions from electricity consumption in the City would decrease, and at the time of the Project buildout, emissions would be less than current projections.

Water Supply. Water demand for the proposed uses would be approximately 4,224 acre-feet per year, based on estimations from the Water Supply Assessment prepared for the Project for the proposed Specific Plan land uses. Emissions from indirect energy impacts due to water supply, treatment, distribution, and wastewater treatment would result in 9,671.93 $MTCO_2eq$/year.

Solid Waste. Based on solid waste generation rates from the Department of Resources Recycling and Recovery (CalRecycle), solid the proposed Project would generate approximately 13,502 tons of solid waste per year. Emissions from indirect solid waste disposal and off-gassing would result in 3,125.21 $MTCO_2eq$/year.

Total Project-related business as usual operational emissions (direct and indirect) would result in 161,118.99 $MTCO_2eq$/year without incorporation of Project design features (reduction measures). This would be a significant Project impact. An analysis of the reduction measures is included below.

[48] California Air Pollution Control Officers Association, *Quantifying Greenhouse Gas Mitigation Measures*, September 2010, California Climate Action Registry (CCAR) Database, *Power/Utility Protocol (PUP) Report*, 2006, and U.S. Energy Information Administration, *Domestic Electricity Emissions Factors 1999-2002*, October 2007.

Table 4.5-2
Estimated Greenhouse Gas Emissions[49]

Source	CO_2	N_2O		CH_4		Total Metric Tons of CO_2eq/yr[6]
	Metric Tons/yr	Metric Tons/yr	Metric Tons of CO_2eq/yr[6]	Metric Tons/yr	Metric Tons of CO_2eq/yr[6]	
Construction Emissions[1]						
Phase 1 (2012–2015)	24,958.25	0.44	9.30	1.96	607.72	25,575.27
Phase 2 (2016–2018)	10,199.09	0.02	0.52	0.12	39.12	10,238.72
Phase 3 (2019–2031)	60,191.09	0.94	20.67	5.55	1,712.55	61,924.31[8]
Phase 4 (2032–2034)	2,929. 62	0.04	0.93	0.20	64.47	2,995.02
Phase 5 (2035–2037)	3,124.01	0.05	1.18	0.26	81.14	3,443.63
Amortized Construction Emissions (over 30 years)	***3,380.07***	***0.05***	***1.09***	***0.27***	***83.50***	***3,472.57***
Operational Emissions						
Direct Emissions						
Area Source[2]	18,386.35	0.00	0.16	0.00	0.01	*18,386.51*
Mobile Source[3]	100,354.78	32.99	10,266.31	7.93	166.53	*110,747.45*
Total Direct Emissions[7]	***118,741.12***	***32.99***	***10226.31***	***7.93***	***166.54***	***129,133.97***
Indirect Emissions						
Electricity Consumption[4]	15,436.53	0.86	266.74	0.57	12.05	*15,715.31*
Water Supply[5]	9,621.00	0.16	50.70	0.01	0.23	*9,671.93*
Solid Waste	--	--	--	148.82	3,125.21	*3,125.21*
Total Indirect Emissions[7]	***25,057.53***	***1.02***	***317.44***	***0.58***	***12.28***	***28,512.43***
Total Project-Related Business as Usual GHG Emissions	*161,118.99 $MTCO_2eq/yr$*					
Total Mitigated Project-Related Emissions	***124,024.67 $MTCO_2eq/yr$***[7]					

(notes continued on next page)

[49] These estimates do not account for certain non-standard Project Design Features and Project-specific mitigation measures, such as use of ***machine-guided grading*** (estimated to reduce construction emissions by up to 15 percent), and allowance for renewable energy features such as rooftop solar panels, electric vehicle charging, and/or hydrogen vehicle charging stations.

(notes continued from previous page)

Notes:
1. Emissions calculated using CARB's Construction Equipment Emissions Table and the URBEMIS 2007 computer model. Construction emissions are total emissions per phase and not per year. For purposes of this GHG emissions summary, construction emissions are amortized over the 30-year life of the Project to calculate "net" GHG emissions, including construction and operation.
2. Emissions calculated using URBEMIS 2007 computer model for CO_2 and the SCAQMD's *CEQA Handbook for N_2O and CH_4*. Area sources include natural gas consumption.

Footnotes continued on next page.
Footnotes continued from prior page.

3. Emissions calculated using URBEMIS 2007 computer model and EMFAC2007, *Highest (Most Conservative) Emission Factors for On-Road Passenger Vehicles and Delivery Trucks*.
4. Electricity Consumption emissions are based on demand factors from the City of Banning Electric Department and GHG emissions factors are from the following sources: CAPCOA, *Quantifying Greenhouse Gas Mitigation Measures*, September 2010 and the CCAR Database, Power/Utility Protocol (PUP) Report, 2006.).
5. Water usage based on the water consumption identified in the *Water Supply Assessment for the Butterfield Specific Plan*, May 13, 2011. Emissions are based on Banning Electric energy emissions factors and energy usage factors for water conveyance from the California Energy Commission, *Water Energy Use in California*, accessed July 2010. http://www.energy.ca.gov/research/iaw/industry/water.html.
6. CO_2 Equivalent values calculated using the U.S. Environmental Protection Agency Website, *Greenhouse Gas Equivalencies Calculator*, http://www.epa.gov/cleanenergy/energy-resources/calculator.html, accessed July 2010.
7. Totals are approximate due to rounding. Refer to discussion below and Appendix B for detailed mitigation calculations.
8. Phase 3 emissions would occur over an approximate 12 year period (2019-2031). Therefore, GHG emissions are higher during this phase, as compared to Phases 1, 2, 4, and 5, which occur over approximately 3-4 years each.

Consistency with the California Attorney General's Mitigation Measures

The proposed Specific Plan would incorporate several design features that are consistent with the California Office of the Attorney General's updated recommended measures to reduce GHG emissions[50]. A list of the Attorney General's recommended measures and the Project's compliance with each applicable measure are listed in Table 4.5-3, *Project Consistency with the Attorney General's Recommendations*. The Specific Plan would incorporate sustainable practices which include water, energy, solid waste, land use, and transportation efficiency measures. The California Attorney General's recommendations comprehensively outline the various categories of reduction measures and provide a framework for the GHG analysis. The measures are not necessarily exhaustive, and are not utilized as thresholds.

Table 4.5-3 also identifies GHG emissions reductions associated with the measures that would implemented by the Project. The emissions reductions calculations are based on the CAPCOA document, *Quantifying Greenhouse Gas Mitigation Measures*, September 2010. This resource document primarily focuses on the quantification of project-level mitigation of greenhouse gas emissions associated with land use, transportation, energy use, and other related project areas. Various strategies also require the implementation of other strategies to be effective. When these strategies are implemented together, the combination can result in either an enhancement

[50] California Attorney General, *The California Environmental Quality Act Addressing Global Warming Impacts at the Project Level*, January 2010.

to the primary strategy by improving its effectiveness or a measurable improvement in mitigation effectiveness. Therefore, this is accounted for in the emissions reduction calculations to avoid double counting. Refer to Appendix B, *Air Quality Data*, for the emissions reductions calculations.

Table 4.5-3
Project Consistency with the Attorney General's Recommendations

Attorney General's Recommended Measures	Project Applicability	Emissions Source Percent Reduction[1]	Overall Percent Reduction
Energy Efficiency			
Incorporate green building practices and design elements. Meet recognized green building and energy efficiency benchmarks. Install energy efficient lighting (e.g., light emitting diodes [LEDs]), heating and cooling systems, appliances, equipment, and control systems. Use automatic covers, efficient pumps and motors, and solar heating for pools and spas.	The proposed Project would comply with the 2010 California Green Building Code, which became effective on January 1, 2011. The Green Building Code requires a 20 percent reduction in water usage and a 50 percent reduction of construction waste. It also requires inspection of energy systems to ensure the efficiency of heating, ventilation, and air conditioning (HVAC) units, and other mechanical equipment. Mitigation Measure GHG-1 includes energy efficiency measures to ensure compliance with voluntary Tier 1 measures of the 2010 California Green Building Standards, which results in a 15-percent overall reduction in energy consumption. [51] Section A4.203 of the *2010 California Green Building Standards Code* Provides the following definition for the voluntary tiers: ***A4.203.1 Energy performance.*** *Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, calculate each building's energy and CO_2 emissions, and compare it to the standard or "budget" building to achieve the following:* *Tier 1. Exceed the California Energy Code based on the 2008 energy standards requirements by 15 percent.* This 15-percent reduction is based on implementation of Mitigation Measure GHG-1, which requires energy efficiency measures including the applicant's "Livingsmart" program. GHG-1 requires a 15-percent reduction in energy/natural gas usage beyond the requirements of Title 24 and consistent with Tier 1 of the	15%	3.17%

[51] Section A4.203 (Performance Approach for Residential Voluntary Tiers) and Section A5.601.2.3 (Non Residential Voluntary Tiers) of the *2010 California Green Building Standards Code*, requires Tier 1 voluntary measures to exceed the California Energy Code based on the 2008 energy standards requirement by 15 percent.

Table 4.5-3 (continued)
Project Consistency with the Attorney General's Recommendations

	2010 California Green Building Standards. Tier 1 of the Green Building Standards Code is voluntary. While the Project will comply with all mandatory requirements of the Code, it is also agreeing to this additional 15-percent reduction by complying with Tier 1 of the voluntary residential measures. Also, the City of *Banning Clean and Green Report and Recommendations* (CGRR) addresses energy conservation and efficiency. Energy conservation measures include an expanded green building program, efficient equipment, appliances, and systems, on-site energy generation (i.e., photovoltaics), and expanded use of alternative fuels. The CGRR also identifies utilizing natural daylight, passive heating/cooling, and Energy Star appliances. The CGRR identifies photovoltaic, energy conservation/weatherization, central air conditioning and heat pump, air conditioning replacement, new construction energy conservation, Energy Star appliances, ultra low-flush toilet, shade tree, and energy audit rebate and incentive programs offered by the City's Public Utilities Department.		
Use passive solar design, e.g., orient buildings and incorporate landscaping to maximize passive solar heating during cool seasons, minimize solar heat gain during hot seasons, and enhance natural ventilation. Design buildings to take advantage of sunlight.	Trees would be incorporated into the Project site design which would provide shade throughout the site. Additionally, the Project would include energy efficient HVAC systems, appliances and equipment, and efficient control systems. Key energy efficiency strategies would include codes and standards, existing buildings, improved utility programs, solar water heating, and combined heat and power, among others. However, the Specific Plan does not include ***requirements*** for passive solar design.	N/A	N/A
Install light colored "cool" roofs and cool pavements.	Roofs of proposed residential structures would be California Green Building Standard Code Tier 1 Cool Roofs. Shade trees would also be incorporated into the Project site design. Section 3.2.5 of the Specific Plan requires reduced street lights on local streets. Per City approval, the Specific Plan would include a dark sky program to reduce the number of street lights in tracts. In local areas, street lights would only be located at local street intersections, knuckles, and cul-de-sacs, they would not be located mid-blocks. LEDs would be utilized for streetlights and traffic signals.	Accounted for Above N/A	N/A N/A

Table 4.5-3 (continued)
Project Consistency With the Attorney General's Recommendations

Attorney General's Recommended Measures	Project Applicability	Emissions Source Percent Reduction[1]	Overall Percent Reduction
Renewable Energy			
Install solar, wind, and geothermal power systems and solar hot water heaters. Install solar panels on unused roof and ground space and over carports and parking areas. Where solar systems cannot feasibly be incorporated into the project at the outset, build "solar ready" structures.	The proposed Project would include a solar ready roof for future solar uses. A minimum of 300 square feet of unobstructed roof area facing within 30 degrees of south would be provided for future solar collector or photovoltaic panels. Rough-in penetrations through the roof surface within 24 inches of the boundary of the unobstructed roof area would be provided for electrical conduit and water piping. However, GHG reductions are not able to be quantified as of yet, as the amount of units that would actually install photovoltaic panels is unknown at this time.	N/A	N/A
Water Conservation and Efficiency			
Incorporate water-reducing features into building and landscape design. Create water-efficient landscapes. Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls. Design buildings to be water-efficient. Install water-efficient fixtures and appliances.	The Project would include energy-efficient clothes and dishwashers, water-saving faucets and fixtures, drought-tolerant landscaping, and multi-programmable irrigation clocks. Implementation of Mitigation Measure GHG-1 would ensure that water conservation measures are included in the proposed Project. The Specific Plan would also be subject to the water conservation measures within Municipal Code Chapters 13.16.020 and 13.16.030. These measures restrict water use during water supply emergencies and limit the time and amount of water usage. Also, Municipal Code measures, including Chapter 17.32, Landscape Standards, require the use of xeriscape, which combines landscape features and other techniques to reduce water consumption associated with landscaping. Drought-tolerant and native landscaping would be utilized throughout the Plan area. Additionally, the CGRR addresses water conservation and efficiency. The CGRR includes measures relating to the use of updated technology enabling developers and homeowners to install efficient equipment and appliances (i.e., faucet aerators, low-flow shower head, low-flow toilets, etc.), and landscape/irrigation systems that would reduce water demand.	20%	1.20%
Implement low-impact development practices that maintain the existing hydrology of the site to manage storm water and protect the environment.	The Project would include water quality features consisting of vegetated detention basins and vegetated flow through swales that would be located in the golf course areas, open space areas, or and in the residential	N/A	N/A

Table 4.5-3 (continued)
Project Consistency With the Attorney General's Recommendations

Attorney General's Recommended Measures	Project Applicability	Emissions Source Percent Reduction[1]	Overall Percent Reduction
	areas.		
Offset water demand from new projects so that there is no net increase in water use.	The Specific Plan proposes a large multi-use basin in the northern portion of the Project site. The basin would capture drainage flows, and would also potentially store recycled water, stormwater, and raw (pre-treated) State Water Project water which would be used for irrigation and groundwater recharge purposes. The proposed Project includes an on-site recycled water distribution system to reduce imported water demands (accomplished through either an onsite satellite treatment plant or expansion of the City's existing treatment plant). Recycled water would be used to irrigate the golf course and the common landscaped areas of the Project in order to reduce the demand for potable water. The proposed Project would have a overall water demand of 1,376 million gallons per year and reclaimed water would offset approximately 454 million gallons of water used outdoors for irrigation; refer to Section 4.14, Water Supply. Using reclaimed water uses less energy than using potable water that is pumped and transported and treated more extensively.	53%	3.18%
Solid Waste Measures			
Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).	The Specific Plan requires future development to include trash enclosures that accommodate waste and recyclables. According to CalRecycle, as of 2006, the City of Banning has a diversion rate of 53 percent.[52] Also, construction waste would be recycled to obtain maximum use of raw materials. However, the use of alternative construction fuels is the only form of quantifiable reductions. Sustainable building materials would be utilized and would be manufactured using renewable and carbon-neutral biomass fuels.	53%	1.02%
Integrate reuse and recycling into residential, industrial, institutional and commercial projects.			
Provide easy and convenient recycling opportunities for residents, the public, and tenant businesses.			
Land Use Measures			
Ensure consistency with "smart growth" principles – mixed-use, infill, and higher density projects that provide alternatives to individual vehicle travel and promote the	The Specific Plan includes proposed medium density and high density residential development. A total of 1,960 medium density dwelling units are proposed, with an average gross density of six dwelling units per acre. A total of 1,205 high density dwelling units are	10.24%	6.96%

[52] The 53% reduction is based on the usage of reclaimed water. Refer to the reduction calculations in Appendix B2, *Climate Change/Greenhouse Gas Data*.

Table 4.5-3 (continued)
Project Consistency With the Attorney General's Recommendations

Attorney General's Recommended Measures	Project Applicability	Emissions Source Percent Reduction[1]	Overall Percent Reduction
efficient delivery of services and goods.	proposed, with an average gross density of 16.4 dwelling units per acre. School, commercial, and open space land uses are dispersed throughout the Project site next to residential land uses. The proximity of multiple land uses would reduce vehicle reliance and associated vehicle miles traveled (VMT). The Specific Plan has also been designed to encourage pedestrian movement with dedicated walking paths and access to natural open space. The Specific Plan includes lanes and paths for low impact forms of travel including bicycle paths, neighborhood electric vehicles (NEVs) with access to commercial and recreational centers.		
Incorporate public transit into the project's design.	The Specific Plan would expand bus service to the Project site, as well as within the site. The Project would coordinate with the Banning Pass Transit and the Riverside County Transit agencies to expand transit service and frequency. The Project would expand and incorporate public transit along Wilson Street, Highland Home Road, and Highland Springs Avenue. As noted in Appendix B2, *Climate Change/Greenhouse Gas Data*, this reduction is based on the expansion of the transit network that is required in Mitigation Measure GHG-3 and calculations are based on CAPCOA factors and criteria. For this reduction, the CAPCOA criteria requires a bus stop within 3 miles of the Project. Higher reductions are available for transit within one-half mile of the Project. Mitigation Measure GHG-3 requires expansion of the existing transit system based on coordination with the City and the appropriate transit agencies. The addition of even one transit stop along any of the Project arterial streets would qualify the Project for the reduction referenced above, because it would place a stop within 3 miles of any point in the Project.	6.37%	4.33%
Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio.	The proposed Project includes 428.9 acres of open space, which has been increased from the 268 acres of open space designated under the previously approved Deutsch Specific Plan. The increase in open space for the proposed Project is due to the use of clustered development and a more efficient land use design.	N/A	N/A
Include pedestrian and bicycle	The Specific Plan proposes designated on-street bicycle	0.625%	0.43%

Table 4.5-3 (continued)
Project Consistency With the Attorney General's Recommendations

Attorney General's Recommended Measures	Project Applicability	Emissions Source Percent Reduction[1]	Overall Percent Reduction
facilities within projects and ensure that existing non-motorized routes are maintained and enhanced.	lanes, trails, pathways, sidewalks, and combination sidewalks/trails for pedestrian and bicycle use. The southwestern corner of the Plan area is located approximately 300 feet from an existing bus stop (at the hospital on the corner of North Highland Springs Avenue and West Wilson Street). Also, the Banning Pass Transit and the Riverside County Transit agencies would coordinate to expand bus service to the Project site, as well as within the site. Bicycle racks would be provided at commercial uses and at the multi-family dwelling units. Additionally, traffic calming devices are proposed for the Plan area (i.e., raised medians and landscaped medians within the roadways). The Specific Plan includes a circulation plan to accommodate neighborhood electric vehicles or low speed electric vehicles, which encourages additional modes of travel within the Plan area. Incentives or a program giving preference to local residents or employees working within a specified radius may be considered in order to reduce VMT. To the extent practical, Pardee would utilize the local workforce during construction of the proposed Project. The proposed Project includes a variety of alternative transportation modes such as a pedestrian trail system, accommodation for Neighborhood Electric Vehicles (NEV), and bicycle lanes. Local streets would provide access from arterial highways to proposed residential areas, parks, schools, commercial sites, golf course, and other recreational areas. The circulation plan includes internal loop roads that facilitate transit and connectivity. The Project roadways that are modified collector classification or higher are designed to provide on-street bicycle lanes, minimum 6 feet wide, providing connections to regional and local facilities, and residential areas within the Project. Trails/pathways and sidewalks providing pedestrian safety from vehicles will also be provided along roadways within the Project. Additionally, proposed Project improvements for		

Table 4.5-3 (continued)
Project Consistency With the Attorney General's Recommendations

Attorney General's Recommended Measures	Project Applicability	Emissions Source Percent Reduction[1]	Overall Percent Reduction
	Highland Springs Avenue and Highland Home Road would include a bike lane on each side of the right-of-way, as well as other improvements.		
Transportation and Motor Vehicles			
Promote "least polluting" ways to connect people and goods to their destinations.	Bicycle lanes would be incorporated into the on-site street design for encouragement of alternative transportation modes. Bicycle racks would be provided at commercial uses and at the multi-family dwelling units. Also, the Project would be located in the vicinity of multiple recreational trails, encouraging walking and bicycling. The Specific Plan includes a circulation plan to accommodate neighborhood electric vehicles or low speed electric vehicles, which encourages additional modes of travel within the Plan area. Incentives or a program giving preference to local residents or employees working within a specified radius may be considered in order to reduce VMT.	Accounted for Above	N/A
Incorporate bicycle lanes, routes and facilities into street systems, new subdivisions, and large developments.			
Require amenities for non-motorized transportation, such as secure and convenient bicycle parking.			
Connect parks and open space through shared pedestrian/bike paths and trails to encourage walking and bicycling. Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.			
Work with the school districts to improve pedestrian and bike access to schools and to restore or expand school bus service using lower-emitting vehicles.	The school sites within the Specific Plan would be located within the residential neighborhoods in order to improve bicycle and pedestrian access. The location of the schools and inclusion of bicycle and pedestrian amenities would reduce the number of vehicle trips in the area.	Accounted for Above	N/A
Create a ride sharing program. Promote existing ride sharing programs e.g., by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading for ride sharing vehicles, and providing a web site or message board for coordinating rides.	The proposed Specific Plan would provide an area for ride sharing that would allow employers to coordinate with commuters to share rides or use alternative forms of transportation.	Accounted for Above	N/A
Create local "light vehicle" networks, such as neighborhood electric vehicle systems.	The Specific Plan would accommodate neighborhood electric vehicles or low speed electric vehicles, which encourages additional modes of travel within the Plan area. On-site residential units would be supplied with a dedicated circuit for electrical vehicles, which could incentivize residents to purchase low- or zero-emission	N/A	N/A
Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles.			

Table 4.5-3 (continued)
Project Consistency With the Attorney General's Recommendations

Attorney General's Recommended Measures	Project Applicability	Emissions Source Percent Reduction[1]	Overall Percent Reduction
	vehicles.		
Enforce and follow limits idling time for commercial vehicles, including delivery and construction vehicles.	Construction vehicles are required by CARB to meet the terms set forth in CARB Regulation for in-use Off Road Diesel Vehicles, paragraph (d)(3) Idling. All vehicles, including diesel trucks accessing the Project site, would be subject to CARB measures and would be required to adhere to the five-minute limit for vehicle idling. Also refer to Mitigation Measures AQ1 and AQ2.	N/A	N/A
Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas and other open space that provide carbon sequestration benefits.	The Specific Plan buildout would include trees and open space throughout the Plan area, including 24 park areas ranging from neighborhood mini-parks to community parks. As noted in the Specific Plan, the Project would include ornamental trees and vegetation, including landscaped parkways within the Project's circulation system. Future projects would be subject to Municipal Code Chapter 12.48, which includes provisions for tree protection, new tree planting, and trees in new development areas. Projects would also be subject to the requirements of the City's Streetscape/Landscape Guidelines.	N/A	N/A
Protect existing trees and encourage the planting of new trees. Adopt a tree protection and replacement ordinance.			
	Total Reduction Percentage:	--	***20.29%***
Source: California Office of the Attorney General, *Addressing Climate Change at the Project Level*, updated January 6, 2010.			
Notes: 1. These values represent the emissions reductions in each individual sector (e.g., emissions from energy usage, water usage, transportation, etc.). Each sector's reduction percentages are scaled proportionally to their contribution to the total project-generated emissions. For example, transportation emissions account for 68.7 percent of total emissions, and 23.6 percent reduction would apply to transportation related emissions. Therefore, the reduction is calculated by multiplying 0.687 by 0.236 for a scaled reduction of 0.162 (16.2 percent). This was completed for each sector. The total emissions reduction applied to the project is a sum of the scaled sector reduction percentages. Emissions reductions calculated in accordance with the California Air Pollution Control Officers Association guidance document, *Quantifying Greenhouse Gas Mitigation Measures*, September 2010 (refer to Appendix B, *Air Quality Data*).			

Analysis

The proposed Specific Plan would facilitate the construction of residential, commercial, school, golf course, and open space uses within an undeveloped area of Banning. The conservative nature of the analysis should be noted because a large percentage of the operational GHG emissions estimate does not reflect improvements in technology and other reductions in GHG emissions from vehicles and other sources that would occur pursuant to State regulations, such as SB 2, AB 1493, SB 1368, AB 32, and Executive Order S-3-05, as well as regulations that have yet to be created. For example, mobile source emissions make up approximately 68.7 percent of

the Project's total Business as Usual GHG emissions. The emissions inventory depicted in Table 4.5-2 does not account for emissions reductions that would result from the implementation of AB 1493.

As shown in Table 4.5-2, the proposed Project would result 161,118.99 $MTCO_2eq$/year of direct and indirect GHGs without reductions from Project design features. Mitigation Measure GHG-1 and GHG-2 have been formulated in order to ensure such GHG Project design features are incorporated into the implementation of the Specific Plan. To quantify GHG emissions reductions resulting from Project operations, the CAPCOA *Quantifying Greenhouse Gas Mitigation Measures* (September 2010) guidance document was utilized. With implementation of Mitigation Measure GHG-1 and GHG-2, the Specific Plan would be required to incorporate sustainable practices which include water, energy, solid waste, and transportation efficiency measures that are summarized in Table 4.5-3. Based on the reduction measures in Table 4.5-3, the proposed Specific Plan would reduce its GHG emissions 20.29 percent below the Business as Usual scenario, to 124,024.67 $MTCO_2eq$/year. Compared to global emissions of 25 to 30 billion $MTCO_2eq$, the Project's incremental contribution is less than 0.0005%.

As described above, the proposed Project includes various design features that would reduce vehicle miles traveled and promote efficiency and sustainability. For example, the proposed Project would increase open space to 428.8 acres from the 268 acres designated under the previously approved Deutsch Specific Plan. The increase in open space for the proposed Project is due to the use of clustered development and a more efficient land use design, resulting in increased carbon sequestration from additional open space, and reduced GHG emissions during construction and operation due to reduced grading footprint and clustered development. The efficient land use design would facilitate alternative forms of transit throughout the Project, including biking and neighborhood electric vehicles (NEVs). Furthermore, the Project would expand public transit network to provide service throughout the site. These features would ensure that the Project is consistent with regional land use planning goals. However, it should be noted that SCAG has not yet adopted specific implementation strategies that would be relevant for individual projects.

Conclusion

The Project has implemented reasonable and feasible mitigation measures and has incorporated special Project Design Features to reduce greenhouse gas emissions to the extent feasible. In addition, the Project is consistent with the Deutsch Specific Plan represented in the adopted City of Banning General Plan, and therefore is consistent with the regional growth emissions included in SCAG, SCAQMD, and CARB climate change planning and policy documents.

While the Project's design features and mitigation measures would reduce GHG emissions by approximately 20% over BAU, the project's cumulative contribution would remain at approximately 124,000 metric tons of CO_2E. Without any applicable numeric standards, it can

not be concluded that these emissions are not cumulatively significant. Further, because GHG emission impacts are global and result from the buildup of GHG emissions over many years, the global cumulative effects could remain potentially significant and unavoidable without regard to the Project's design features and mitigation measures.

Impact 4.5-2: Greenhouse Gas Reduction Plan

Threshold: *Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Determination: Potentially Significant and Unavoidable with Mitigation Incorporated

The City does not currently have an adopted plan, policy, or regulation for the purpose of reducing GHGs; however, there are regional and State plans described above, including proposed AB 32 scoping plan, SCAG SB 375 targets and the State's regulatory framework. No other applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions apply to the Project area, other than those noted above.

Achieving the statewide AB 32 target of 28.5 percent is not required for individual projects to demonstrate consistency or the lack of a significant impact, as this target is statewide, and the majority of GHG emissions are generated from industrial sources (such as electrical generating plants) and mobile vehicle emissions, both of which are regulated by other state and federal agencies and are outside the control of the City of Banning. Executive Order S-3-05 includes a long-term goal of 80 percent GHG reduction by 2050, although the mechanisms for achieving this target have not been identified, and are also outside the control of the City of Banning.

On September 23, 2010, CARB adopted Resolution 10-31, establishing SB 375[53] regional targets for all MPOs in California. The SB 375 target set for SCAG is a 13 percent reduction in GHG emissions from automobiles and light duty truck exhausts by 2035 (compared to SCAG's

[53] Senate Bill 375 (SB 375, Steinberg, Statutes of 2008) enhances California's ability to reach its AB 32 goals by promoting good planning with the goal of more sustainable communities. SB 375 requires CARB to develop regional greenhouse gas emission reduction targets for passenger vehicles. CARB is to establish targets for 2020 and 2035 for each region covered by one of the State's 18 metropolitan planning organizations (MPOs). Each of California's MPOs then prepare a "sustainable communities strategy (SCS)" that demonstrates how the region will meet its greenhouse gas reduction target through integrated land use, housing and transportation planning. Once adopted by the MPO, the SCS will be incorporated into that region's federally enforceable regional transportation plan (RTP). CARB is also required to review each final SCS to determine whether it would, if implemented, achieve the greenhouse gas emission reduction target for its region. If the combination of measures in the SCS will not meet the region's target, the MPO must prepare a separate "alternative planning strategy (APS)" to meet the target. The APS is not a part of the RTP. SB 375 also establishes incentives to encourage implementation of the SCS and APS. Developers can get relief from certain environmental review requirements under the California Environmental Quality Act (CEQA) if their new residential and mixed-use projects are consistent with a region's SCS (or APS) that meets the target (see Cal. Public Resources Code §§ 21155, 21155.1, 21155.2, 21159.28.).

recommended target of 8 percent). As discussed above relative to AB 32 consistency, the Project implements reasonable and feasible measures to reduce GHG from stationary, mobile and indirect sources. The SB 375 targets, although they do not have binding regulatory effect upon the Project at this time, provide further context along with AB 32 targets noted above, relative to the Project's GHG impact. In an effort to further reduce transportation-related GHG, the applicant has agreed to an additional measure, GHG-3, to further reduce Project traffic generation and trip lengths by expanding the public transportation system throughout the project and providing alternative transportation options. Expansion of the public transportation system to serve the project site would facilitate ridership, thereby reducing individual automobile trips.

No single project would in fact hinder the ability of the State of California to achieve its desired GHG goals reflected in AB32 and SB375, considering that residential/commercial sources represent a small percentage of State, national and global GHG, with the vast majority of development-related emissions (such as energy consumption and transportation fuels) regulated by CARB, EPA, SCAQMD and agencies other than local municipalities such as the City of Banning.[54] One of the largest sources of global GHG, other than fossil fuel burning (from power plants and industrial sources) and transportation emissions, is deforestation, as this removes important "carbon sinks" from Earth's surface, resulting in greater CO_2 retained in the atmosphere. In this regard, the U.S. is a global leader in maintaining and creating carbon sequestering forests.[55] With particular respect to the Project, the site has no "forest lands" and minimal carbon sequestering value (consisting mostly of grasslands), and this would be replaced with a diverse urban landscape complete with extensive array of carbon sequestering trees throughout the estimated 1,460 acres of developed area. Emissions offsets due to carbon sequestrating trees are conservatively not included in emissions inventory for the Project, and no credit or reduction was taken.

With implementation of project design features and mitigation measures, the Project would not obstruct or conflict with the statewide goals of AB32 and regional targets under SB375. However, because measures implementing AB32 and the SB375 require further action by other state and federal agencies and implementation and effectiveness is not assured, as well as the continuing effects of past human-induced GHG emissions, the Project's incremental contribution to climate change would remain potentially significant and unavoidable.

GHG-1 Prior to the issuance of building permits, the following measures shall be reflected on applicable tract maps, building permits, improvement plans, landscape plans and/or grading plans:

a) Green Building Practices

[54] http://climatechangefacts.info/ (accessed December 21, 2010).
[55] http://www.appinsys.com/GlobalWarming/GW_5GH_CO2Sources.htm (accessed December 21, 2010).

1) Water Conservation – All appliances such as showerheads, lavatory faucets and sink faucets shall comply with efficiency standards set forth in Title 20, California Administrative Code Section 1604(f). Title 24 of the California Administrative Code Section 1606(b) prohibits the installation of fixtures unless the manufacturer has certified to the California Energy Conservation compliance with the flow rate standards.

2) Water Conservation – Low-flush toilets shall be installed as specified in California State Health and Safety Code Section 17921.3 and the County Green Building Ordinance [as applicable in Riverside County].

3) Water Conservation – All common area irrigation areas shall be capable of being operated by a computerized irrigation system which includes an on-site weather station/ET gage capable of reading current weather data and making automatic adjustments to independent run times for each irrigation valve based on changes in temperature, solar radiation, relative humidity, rain and wind. In addition, the computerized irrigation system shall be equipped with flow sensing capabilities, thus automatically shutting down the irrigation system in the event of a mainline break or broken head. All common area irrigation controllers shall also include a rain-sensing automatic shutoff.

4) Water Conservation – Common-area landscaping shall emphasize drought-tolerant vegetation. Plants of similar water use shall be grouped to reduce over-irrigation of low-water-using plants. Those areas not designed with drought-tolerant vegetation shall be gauged to receive irrigation using the minimal requirements.

5) Water Conservation – Residential occupants shall be informed as to the benefits of low-water-using landscaping and sources of additional information related to water conservation.

6) Water Conservation – Community Center or Recreational Facilities with a pool amenity shall be conditioned to provide and use a pool cover to reduce water evaporation and retain heat.

7) Water Conservation – Water conservation standards shall be as noted in the Tier 1 measures of the 2010 California Green Building Standards.

8) Energy, Water, and Recycling

The builder shall be conditioned to provide the following:

- Energy efficient appliances;
- Energy efficient indoor lighting

- Water efficient smart controllers for landscaping
- Water efficient plumbing in all buildings
- Integrate recycling into residential home design. Create areas in the home to promote recycling (additional trash cans in cabinets, etc.)
- Energy Efficiency standards shall be as noted in the Tier 1 measures of the 2010 California Green Building Standards.

9) Carbon Sequestration – The builder shall plant an average of approximately 40 trees per landscaped acre (where landscaping is provided) as a means to capture (sequester) carbon dioxide emissions and to provide shade to the buildings, which can decrease the need for air conditioning.

10) Green Education Program - In order to increase awareness of green building practices and to promote water and energy conservation, the builder(s) will develop and implement a green educational program. The program will include but not necessarily be limited to a pamphlet that educates and promotes conservation practices that homeowners can implement, with specific guidance on landscaping with drought tolerant plants, use of efficient irrigation systems, compact florescent lighting, and other measures that help lower GHG emissions.

11) Energy Efficient Outdoor Lighting – Lighting for public streets, parking areas, and recreation areas shall utilize energy efficient light and mechanical, computerized or photo cell switching devices to reduce unnecessary energy usage.

12) Energy Conservation – Community Center or Recreational Facilities with a pool amenity shall be conditioned to install energy efficient pumps and motors, such as variable speed motors.

b) ***Solid Waste Measures***

1) Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).

2) Shall comply with state model ordinance AB 1327, Chapter 18 California Solid Water Reuse and Recycling Access Act of 1991, which requires interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.

c) Transportation and Motor Vehicles

1) Limit idling time for commercial vehicles, including delivery and construction vehicles, pursuant to applicable SCAQMD and City requirements.

2) Promote ride sharing programs (e.g., by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles, and providing a web site or message board for coordinating rides). The actual percentage of potential ride sharing vehicle spaces will be determined in coordination with the City Planning Director or designee based on square footage and use type (e.g., shopping center, office, fitness center, etc.) prior to approval of a site plan within the commercial land use Planning Areas.

3) Provide adequate bicycle parking near non-residential building entrances to promote cyclist safety, security, and convenience. Provide facilities that encourage bicycle commuting (e.g., locked bicycle storage or covered or indoor bicycle parking).

4) All golf carts and Neighborhood Electric Vehicles (NEVs) shall be electrical powered only.

GHG-2 The Butterfield Specific Plan shall be conditioned to allow the following uses (as reflected on future tract maps and commercial site plans), to further promote renewable energy resources, including:

a) Allowing rooftop solar on all structures, subject to City Municipal Code and related building permit provisions;
b) Allowing electric vehicle charging stations at all commercial, park, golf course, multi-family residential, and school areas, subject to a Conditional Use Permit; and
c) Allowing hydrogen vehicle fueling stations within the Commercial zone, subject to a Conditional Use Permit.

GHG-3 As part of future tract map, grading plan, site plan and/or improvement plan submittals, the applicant shall identify bus stop along arterial streets, through consultation with the City Engineer and Banning Pass Transit, including stops on Highland Springs Road, Wilson Street, Highland Home Road, and F Street as determined appropriate.

4.5.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Even with Project design features and mitigation measures for reducing GHG emissions, Project-related incremental contributions and cumulative development would cause GHG impacts to may remain significant and unavoidable, and could hinder the statewide GHG reduction goals of AB 32.