

3.4 GLOBAL CLIMATE CHANGE

EXECUTIVE SUMMARY

This section describes the science of the global climate change phenomenon; provides information on the evolving regulatory framework that addresses global climate change; quantifies existing greenhouse gas (GHG) under the existing Area Plan and General Plan for the OVOV Planning Area, and under the proposed Area Plan and General Plan; compares the proposed projects' GHG emissions to the existing emissions under the existing Area Plan and General Plan; and determines if the project does not conflict with or impede state goals, strategies, and measures to reduce GHG emissions.

The global warming and climate change analysis is a regional analysis for the OVOV Planning Area. The County and City Planning Areas together comprise the OVOV Planning Area. The County's Planning Area consists of unincorporated land outside of the City's boundaries and adopted Sphere of Influence (SOI) but within the OVOV Planning Area boundaries. The City's Planning Area consists of its incorporated boundaries and adopted SOI. The impact analysis evaluates the proposed Area Plan policies and General Plan goals, objectives, and policies for their effectiveness at controlling GHG emissions. Implementation of the proposed Area Plan and General Plan would increase greenhouse gas (GHG) emissions over existing conditions; however, the amount of GHG emissions would be less than the amount generated should the OVOV Planning Area be built out consistent with existing Area Plan and General Plan designations. Potential impacts on climate change from implementation of the proposed Area Plan and General Plan would be less than significant; no mitigation measures are required.

EXISTING CONDITIONS

Global Climate Change

Climate change refers to any significant change in measures of climate (i.e., temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from

- natural factors, such as changes in the sun's intensity or slow changes in the earth's orbit around the sun;
- natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of GHG and other gases to the atmosphere from volcanic eruptions); and

- human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, desertification).¹

The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2 degree Celsius (°C) per decade. Climate change modeling shows that further warming would occur and would induce further changes in the global climate system during the current century (IPCC 2007). Changes to the global and California climate system and ecosystems would include, but would not be limited to

- the loss of sea ice and mountain snowpack 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;²
- a rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps, the Greenland and Antarctic ice sheets;³
- changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;⁴
- the decline of Sierra snowpack, 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;⁵

¹ United States Environmental Protection Agency. "State Action Recommendations: California." <http://yosemite.epa.gov/gw/statepolicyactions.nsf/exhibit?OpenForm&tier=0&state=California&type=state>. Online Review August 2008.

² Intergovernmental Panel on Climate Change. *Climate Change 2007: The Physical Science Basis, Technical Summary*. Cambridge: Cambridge University Press, 2007. Climate Change 2007: The Physical Science Basis may be viewed at <http://www.ipcc.ch/ipccreports/ar4-wg1.htm>. The Technical Summary may be viewed at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-ts.pdf>.

³ Intergovernmental Panel on Climate Change. *Climate Change 2007: The Physical Science Basis, Technical Summary*. Cambridge: Cambridge University Press, 2007. Climate Change 2007: The Physical Science Basis may be viewed at <http://www.ipcc.ch/ipccreports/ar4-wg1.htm>. The Technical Summary may be viewed at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-ts.pdf>.

⁴ Intergovernmental Panel on Climate Change. *Climate Change 2007: The Physical Science Basis, Technical Summary*. Cambridge: Cambridge University Press, 2007. Climate Change 2007: The Physical Science Basis may be viewed at <http://www.ipcc.ch/ipccreports/ar4-wg1.htm>. The Technical Summary may be viewed at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-ts.pdf>.

⁵ California Environmental Protection Agency, Climate Action Team. *Climate Action Team Report to Governor Schwarzenegger and the Legislature, Executive Summary*. Sacramento: California Environmental Protection Agency, March 2006. This report is available for review at http://www.climatechange.ca.gov/climate_action_team/reports/index.html.

- an 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;⁶ and
- high potential for erosion of California's coastlines and sea water intrusion into the Delta and associated levee systems due to the rise in sea level.⁷

Greenhouse Effect

Heat retention within the atmosphere is an essential process to sustain life on earth. The natural process through which heat is retained in the troposphere⁸ is called the "greenhouse effect." The greenhouse effect traps heat in the troposphere through the following three-fold process: 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 GHGs in the upper atmosphere absorb this long-wave radiation and emit it 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. Without the greenhouse effect, the earth's average temperature would be approximately -18°C (0°F) instead of its present 14°C (57°F).⁹ 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 as water vapor and carbon dioxide. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-radiate long-wave radiation. The GWP of a gas is determined using carbon dioxide, with a GWP of 1, as the reference gas. The Intergovernmental Panel on Climate Change (IPCC) sets the GWPs and regularly updates them in its assessment reports.

⁶ California Environmental Protection Agency, Climate Action Team. *Climate Action Team Report to Governor Schwarzenegger and the Legislature, Executive Summary*. Sacramento: California Environmental Protection Agency, March 2006. This report is available for review at http://www.climatechange.ca.gov/climate_action_team/reports/index.html.

⁷ California Environmental Protection Agency, Climate Action Team. *Climate Action Team Report to Governor Schwarzenegger and the Legislature, Executive Summary*. Sacramento: California Environmental Protection Agency, March 2006. This report is available for review at http://www.climatechange.ca.gov/climate_action_team/reports/index.html.

⁸ The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers).

⁹ National Climatic Data Center. "Global Warming Frequently Asked Questions." <http://lwf.ncdc.noaa.gov/oa/climate/globalwarming.html>. May 8, 2008.

Greenhouse Gases

Primary Greenhouse Gases

The seven major greenhouse gases that cause the greenhouse effect described above, include, but are not limited to, the following compounds:¹⁰

- *Water Vapor (H₂O)*. Although water vapor has not received the scrutiny of other GHGs and is not considered a pollutant, it is the primary contributor to the greenhouse effect. Water vapor and clouds contribute 66 to 85 percent of the greenhouse effect; water vapor alone contributes 36 to 66 percent.¹¹ 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.¹² 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 1 percent) to atmospheric concentrations of water vapor.¹³ Therefore, the control and reduction of water vapor emissions is not within reach of human actions. The IPCC has not assigned a GWP for water vapor.
- *Carbon Dioxide (CO₂)*. Carbon dioxide primarily is generated by fossil fuel combustion from stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources over the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35 percent.¹⁴ Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining the GWP of other GHGs. In 2004, 83.8 percent of California's GHG emissions were carbon dioxide.¹⁵
- *Methane (CH₄)*. Methane 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.¹⁶ Methane is the

¹⁰ All GWPs are given as 100-year GWP. Unless noted otherwise, all GWPs were obtained from the Intergovernmental Panel on Climate Change. *Climate Change 1995: The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*. Cambridge (UK): Cambridge University Press, 1996.

¹¹ Real Climate. "Water Vapour: Feedback or Forcing?" <http://www.realclimate.org/index.php/archives/2005/04/water-vapour-feedback-or-forcing/#more-142>. April 6, 2005.

¹² United States Geological Survey. "The Water Cycle: Evaporation." <http://ga.water.usgs.gov/edu/watercycleevaporation.html>. August 13, 2008.

¹³ Energy Information Administration. "Alternatives to Traditional Transportation Fuels 1994, Volume 2, Greenhouse Gas Emissions." <http://www.eia.doe.gov/cneaf/alternate/page/environment/chap1.html>. January 10, 2008.

¹⁴ United States Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2006* [USEPA #430-R-08-005]. Washington DC: United States Environmental Protection Agency, April 2008, p. 1-3.

¹⁵ California Energy Commission. *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004*, CEC-600-2006-0123-SF. Sacramento: California Energy Commission, December 2006. This document may be reviewed at <http://www.energy.ca.gov/2006publications/CEC-600-2006-013/CEC-600-2006-013-SF.PDF>.

¹⁶ United States Environmental Protection Agency. "Methane: Sources and Emissions." <http://www.epa.gov/methane/sources.html>. October 19, 2006.

primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21.

- *Nitrous Oxide (N₂O)*. Nitrous oxide 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 GWP of nitrous oxide is 310.
- *Hydrofluorocarbons (HFCs)*. HFCs typically are used as refrigerants in both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing, particularly as the continued phase-out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs range from 140 for HFC-152a to 6,300 for HFC-236fa.
- *Perfluorocarbons (PFCs)*. Perfluorocarbons are compounds consisting of carbon and fluorine. They primarily are created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a GWP 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).¹⁷ The GWPs of PFCs range from 5,700 to 11,900.
- *Sulfur Hexafluoride (SF₆)*. Sulfur hexafluoride 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. Sulfur hexafluoride is the most potent GHG that has been evaluated by the IPCC with a GWP of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio, as compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm]).¹⁸

Other Greenhouse Gases

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 previously were identified as stratospheric ozone depletors; therefore, their gradual phaseout currently is in effect. A few of these compounds are discussed below.

- *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 Protocol are subject to a consumption cap and gradual phase-out of HCFCs. The United States is scheduled to achieve a 100

¹⁷ Energy Information Administration. "Emissions of Greenhouse Gases in the United States 2003, Other Gases: Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride." http://www.eia.doe.gov/oiaf/1605/archive/gg04rpt/other_gases.html. December 2004.

¹⁸ United States Environmental Protection Agency. "High Global Warming Potential (GWP) Gases, Science: High GWP Gases and Climate Change." <http://www.epa.gov/highgwp/scientific.html>. October 19, 2006.

percent reduction to the cap by 2030. The GWPs of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.¹⁹

- *1,1,1-trichloroethane*. 1,1,1-trichloroethane, or methyl chloroform, is a solvent and degreasing agent commonly used by manufacturers. In 1992, the United States Environmental Protection Agency (U.S. EPA) issued Final Rule 57 FR 33754, which scheduled the phase-out of methyl chloroform by 2002.²⁰ The GWP of methyl chloroform is 110 times that of carbon dioxide.²¹
- *Chlorofluorocarbons (CFCs)*. CFCs are used as refrigerants, cleaning solvents, and aerosol spray propellants. CFCs also are part of the US EPA's Final Rule 57 FR 3374, and have been scheduled for phase-out. 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 GWPs ranging from 4,600 for CFC-11 to 14,000 for CFC-13.²²
- *Ozone*. Ozone occurs naturally in the stratosphere, where it is largely responsible for filtering harmful ultraviolet (UV) radiation. In the troposphere, ozone acts as a GHG by absorbing and re-radiating the infrared energy emitted by the Earth. As a result of the industrial revolution and rising emissions of oxides of nitrogen (NO_x) and volatile organic compounds (VOCs), both of which act as ozone precursors, the concentrations of ozone in the troposphere have increased.²³ Due to the short life span of ozone in the troposphere, its concentration and contribution to global climate change are not well established. However, the greenhouse effect of tropospheric ozone is considered small, as the radiative forcing²⁴ of ozone is 25 percent of that of carbon dioxide.²⁵

¹⁹ United States Environmental Protection Agency. *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone-Depleting Substances* [Federal Register: January 19, 1996 (Volume 61, Number 13)]. Washington, DC: Government Printing Office, 1996. This document is available for review at <http://www.epa.gov/EPA-AIR/1996/January/Day-19/pr-372.html>.

²⁰ United States Environmental Protection Agency. "The Accelerated Phase-Out of Class 1 Ozone-Depleting Substances." <http://www.epa.gov/ozone/title6/phaseout/acfact.html>. July 10, 2008.

²¹ United States Environmental Protection Agency. *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone-Depleting Substances* [Federal Register: January 19, 1996 (Volume 61, Number 13)]. Washington, DC: Government Printing Office, 1996. This document is available for review at <http://www.epa.gov/EPA-AIR/1996/January/Day-19/pr-372.html>.

²² United States Environmental Protection Agency. "Class I Ozone Depleting Substances." <http://www.epa.gov/ozone/science/ods/classone.html>. July 10, 2008.

²³ Intergovernmental Panel on Climate Change. *Climate Change I: The Scientific Basis*. Cambridge: Cambridge University Press, 2001, Section 4.2.4 Tropospheric O₃. This document may be viewed at http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/wg1/142.htm.

²⁴ Radiative forcing, measured in Watts/m², is an externally imposed perturbation (e.g., stimulated by GHGs) in the radiative energy budget of the Earth's climate system (i.e., energy and heat retained in the troposphere minus energy passed to the stratosphere).

²⁵ Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. November 12-17, 2007. This report may be viewed at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

Global Contributions to Greenhouse Gas Emissions

Worldwide anthropogenic (man-made) GHG emissions as of 2005 (i.e., the latest year for which data are available for Annex I countries) totaled approximately 37,408 million metric tons of CO₂e (MMTCO₂e).²⁶ The top five countries and the European Union accounted for approximately 52 percent of the total global GHG emissions in 2005 (See **Table 3.4-1, Top Five GHG Producer Countries and the European Union**). The GHG emissions in more recent years may differ from the inventories presented in **Table IV.B.2-2**; however, the data is representative of currently available global inventory data.

**Table 3.4-1
Top Five GHG Producer Countries and the European Union**

Emitting Countries	GHG Emissions (MMTCO₂e)
China	7,250
United States	7,098
European Union (EU), 27 Member States	5,342
Russian Federation	1,992
India	1,863
Japan	1,383
Total	19,586

*Source: World Resources Institute, "Climate Analysis Indicators Tool (CAIT)," <http://cait.wri.org/>. 2009.
Excludes emissions and removals from land use, land-use change and forestry (LULUCF).*

United States Contributions to Greenhouse Gas Emissions

As noted in **Table 3.4-1**, the US was the top producer of greenhouse gas emissions as of 2005. Based on GHG emissions in 2004, six of the states—Texas, California, Pennsylvania, Ohio, Illinois, and Florida, in ranked order—would each rank among the top 30 GHG emitters internationally.²⁷ The primary greenhouse gas emitted by human activities in the United States was CO₂, representing approximately 84

²⁶ World Resources Institute, "Climate Analysis Indicators Tool (CAIT)," <http://cait.wri.org/>. 2009. Excludes emissions and removals from land use, land-use change and forestry (LULUCF).

²⁷ World Resources Institute, "How US State GHG Emissions Compare Internationally," <http://www.wri.org/stories/2006/10/how-us-state-ghg-emissions-compare-internationally>. Online Review March 2009.

percent of total greenhouse gas emissions.²⁸ Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 80 percent of US GHG emissions.²⁹

California Contributions to Greenhouse Gas Emissions

Based upon the 2004 GHG inventory data (the latest year available) compiled by the California Air Resource Board (CARB) for California's 1990 greenhouse gas emissions inventory, California emitted 484 MMTCO₂E in 2004, including emissions resulting from out-of-state electrical generation.³⁰ Based on the CARB inventory and GHG inventories for countries contributing to the worldwide GHG emissions inventory compiled by the United Nations Framework Convention on Climate Change (UNFCCC) for 2005, California's GHG emissions rank second in the US (Texas is number one) with emissions of 423.1 MMTCO₂E (excluding emissions related to imported power).³¹

A California Energy Commission emissions inventory report placed CO₂ produced by fossil fuel combustion in California as the largest source of California's GHG emissions in 2004, accounting for 80 percent of the total GHG emissions.³² Emissions of CO₂ from other sources contributed 3.1 percent of the total GHG emissions; methane emissions 6.4 percent; nitrous oxide emissions 7.6 percent; and the remaining 3.2 percent was composed of emissions of high-Global Warming Potential gases.³³ These high Global Warming Potential gases are largely composed of refrigerants, with small contributions of SF₆ used in connection with insulating materials for electricity transmission and distribution.

The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, and other sources, which include commercial and residential activities. **Table 3.4-2, GHG Emissions in California**, provides a

²⁸ United States Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2006* [USEPA #430-R-08-005]. Washington DC: United States Environmental Protection Agency, April 2008.

²⁹ United States Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2006* [USEPA #430-R-08-005]. Washington DC: United States Environmental Protection Agency, April 2008.

³⁰ California Air Resources Board. "California 1990 Greenhouse Gas Emissions Level and 2020 Limit," <http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm>. September 19, 2008.

³¹ United Nations Framework Convention on Climate Change. "Annex I Parties – GHG total without LULUCF." http://unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/items/3841.php. Online Review 2008

³² California Energy Commission, "Revisions to the 1990-2004 Greenhouse Gas Emissions Inventory Report, Published in December 2006," http://www.energy.ca.gov/2006publications/CEC-600-2006-013/2007-01-23_GHG_INVENTORY_REVISIONS.PDF. 2007.

³³ Ibid.

summary of GHG emissions reported in California in 1990 and 2004 separated by categories defined by the Intergovernmental Panel on Climate Change.

**Table 3.4-2
GHG Emissions in California**

Source Category	1990 (MMTCO_{2e})	Percent of Total	2004 (MMTCO_{2e})	Percent of Total
ENERGY	386.41	89.2%	420.91	86.9%
Energy Industries	157.33	36.3%	166.43	34.4%
Manufacturing Industries & Construction	24.24	5.6%	19.45	4.0%
Transport	150.02	34.6%	181.95	37.6%
Other (Residential/Commercial/Institutional)	48.19	11.1%	46.29	9.6%
Non-Specified	1.38	0.3%	2.16	0.4%
Fugitive Emissions from Oil & Natural Gas	2.94	0.7%	2.54	0.5%
Fugitive Emissions from Other Energy Production	2.31	0.5%	2.07	0.4%
INDUSTRIAL PROCESSES & PRODUCT USE	18.34	4.2%	30.78	6.4%
Mineral Industry	4.85	1.1%	5.90	1.2%
Chemical Industry	2.34	0.5%	1.32	0.3%
Non-Energy Products from Fuels & Solvent Use	2.29	0.5%	1.37	0.3%
Electronics Industry	0.59	0.1%	0.88	0.2%
Substitutes for Ozone Depleting Substances	0.04	0.0%	13.97	2.9%
Other Product Manufacture and Use	3.18	0.7%	1.60	0.3%
Other	5.05	1.2%	5.74	1.2%
AGRICULTURE, FORESTRY, & OTHER LAND USE	19.11	4.4%	23.28	4.8%
Livestock	11.67	2.7%	13.92	2.9%
Land	0.19	0.0%	0.19	0.0%
Aggregate Sources & Non-CO ₂ Sources on Land	7.26	1.7%	9.17	1.9%
WASTE	9.42	2.2%	9.44	1.9%
Solid Waste Disposal	6.26	1.4%	5.62	1.2%
Wastewater Treatment & Discharge	3.17	0.7%	3.82	0.8%
EMISSIONS SUMMARY				
Gross California Emissions	433.29		484.40	
Sinks from Forests and Rangelands	-6.69		-4.66	
Net California Emissions	426.60		479.74	

Source: California Air Resources Board, Draft California Greenhouse Gas Inventory by IPCC Category, (2007).

Between 1990 and 2004, the population of California grew by approximately 6.5 million (from 29.8 to 36.3 million).³⁴ This represents an increase of 22 percent from 1990 population levels. In addition the California economy, measured as gross state product, grew from \$788 billion in 1990 to \$1.1 trillion in 2000 representing an increase of approximately 40 percent—the largest gross state product growth in the United States during this period. Despite the population and economic growth, California’s net GHG emissions only grew by 12.5 percent. The California Energy Commission attributes the slow rate of growth to the success of California’s renewable energy programs and its commitment to clean air and clean energy.³⁵

Human Influences on Global Climate Change

The impact of anthropogenic activities on global climate change is indicated in the observational record. For example, surface temperature data shows that 11 of the 12 years from 1995 to 2006 rank among the 12 warmest since 1850, the beginning of the instrumental record for global surface temperature.³⁶ In addition, the atmospheric water vapor content has increased since at least the 1980s over land, sea, and in the upper atmosphere, consistent with the capacity of warmer air to hold more water vapor; ocean temperatures are warmer to depths of 3,000 feet; and a marked decline has occurred in mountain glaciers and snowpack in both hemispheres, and in polar ice and ice sheets in both the Arctic and Antarctic regions.³⁷

Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of carbon dioxide, methane, and nitrous oxide from before the start of the industrialization, around 1750, to over 650,000 years ago. For that period, it was found that carbon dioxide concentrations ranged from 180 parts per million (ppm) to 300 ppm. For the period from around 1750 to the present, global carbon dioxide concentrations increased from a pre-industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-

³⁴ U.S. Census Bureau, “Data Finders,” <http://www.census.gov/>. 2009; California Department of Finance, “E-5 City / County Population and Housing Estimates, 2008, Revised 2001-2007, with 2000 Benchmark,” http://www.dof.ca.gov/research/demographic/reports/estimates/e-5_2001-06/. 2008.

³⁵ California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004*, (2006).

³⁶ Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. November 12-17, 2007. This report may be viewed at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

³⁷ Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. November 12-17, 2007. This report may be viewed at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

industrial period range.³⁸ Global methane and nitrous oxide concentrations show similar increases for the same period (see **Table 3.4-3, Comparison of Global Pre-Industrial and Current GHG Concentrations**).

**Table 3.4-3
Comparison of Global Pre-Industrial and Current GHG Concentrations¹**

Greenhouse Gas	Early Industrial Period Concentrations (ppm)	Natural Range for Last 650,000 Years (ppm)	2005 Concentrations (ppm)
Carbon Monoxide	280	180-300	379
Methane	715	320-790	1774
Nitrous Oxide	270	N/A	319

Sources:

¹ Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*, (2007).

Effects of Global Climate Change

The primary effect of global climate change has been a rise in the average global tropospheric temperature of 0.2°C per decade, determined from meteorological measurements worldwide between 1990 and 2005.³⁹ Climate change modeling using 2000 emission rates shows that further warming is likely to occur, which may induce further changes in the global climate system during the current century.⁴⁰ Changes to the global climate system and ecosystems and to California would include, but would not be limited to,

³⁸ Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. November 12-17, 2007. This report may be viewed at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

³⁹ Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. November 12-17, 2007. This report may be viewed at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

⁴⁰ Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. November 12-17, 2007. This report may be viewed at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

- declining sea ice and mountain snowpack levels, thereby increasing sea levels and 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;⁴¹
- rising average global sea levels, primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets;⁴²
- changing weather patterns, including changes to precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;⁴³
- declining Sierra snowpack levels, which account for approximately half of the surface water storage in California;⁴⁴
- increasing number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas located in the Los Angeles area and the San Joaquin Valley by the end of the 21st century;⁴⁵ and
- increasing potential for erosion of California's coastlines and sea water intrusion into the Delta and associated levee systems due to the rise in sea level.⁴⁶

⁴¹ Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. November 12-17, 2007. This report may be viewed at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

⁴² Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. November 12-17, 2007. This report may be viewed at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

⁴³ Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. November 12-17, 2007. This report may be viewed at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

⁴⁴ California Environmental Protection Agency, Climate Action Team. *Climate Action Team Report to Governor Schwarzenegger and the Legislature, Executive Summary*. Sacramento: California Environmental Protection Agency, March 2006. This report is available for review at http://www.climatechange.ca.gov/climate_action_team/reports/index.html.

⁴⁵ California Environmental Protection Agency, Climate Action Team. *Climate Action Team Report to Governor Schwarzenegger and the Legislature, Executive Summary*. Sacramento: California Environmental Protection Agency, March 2006. This report is available for review at http://www.climatechange.ca.gov/climate_action_team/reports/index.html.

⁴⁶ California Environmental Protection Agency, Climate Action Team. *Climate Action Team Report to Governor Schwarzenegger and the Legislature, Executive Summary*. Sacramento: California Environmental Protection Agency, March 2006. This report is available for review at http://www.climatechange.ca.gov/climate_action_team/reports/index.html.

REGULATORY FRAMEWORK

International Activities to Control Greenhouse Gas Emissions

Kyoto Protocol

The original Kyoto Protocol was negotiated in December 1997 and came into force on February 16, 2005. As of January 14, 2009, 183 countries and the European Economic Community had ratified the agreement.⁴⁷ Notably, however, the United States has not ratified the protocol. Participating nations are separated into Annex 1 (i.e., industrialized countries) and Non-Annex 1 (i.e., developing countries) countries that have differing requirements for GHG reductions. The goal of the protocol is to achieve overall emissions reduction targets for six GHGs by the period 2008 to 2012. The six GHGs regulated under the protocol are carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, HFCs, and PFCs. Each nation has an emissions reduction target under which they must reduce GHG emissions a certain percentage below 1990 levels (e.g., 8 percent reduction for the European Union, 6 percent reduction for Japan). The average reduction target for nations participating in the Kyoto Protocol is approximately 5 percent below 1990 levels.⁴⁸ Although the United States has not ratified the protocol, in 2002 President Bush committed the nation to a comprehensive strategy to reduce the greenhouse gas emission intensity of the American economy by 18 percent by 2012.⁴⁹ Greenhouse gas intensity is the ratio of GHG emissions to economic output (i.e., gross domestic product).

Intergovernmental Panel on Climate Change

The World Meteorological Organization and United Nations Environmental Program established the IPCC in 1988. The goal of the IPCC is to evaluate the risk of climate change caused by human activities. Rather than performing research or monitoring climate, the IPCC relies on peer-reviewed and published scientific literature to make its assessment. The IPCC assesses information (i.e., scientific literature) regarding human-induced climate change, impacts of human-induced climate change, and options for adaptation and mitigation of climate change. The IPCC reports its evaluation through special reports called “assessment reports.” The latest assessment report (i.e., *Fourth Assessment Report*, consisting of

⁴⁷ United Nations Framework Convention on Climate Change. “Status of Ratification [as of March 2009].” http://unfccc.int/kyoto_protocol/background/status_of_ratification/items/2613.php. Online Review March 2009.

⁴⁸ Pew Center on Global Climate Change. “Bush Policy vs. Kyoto.” http://www.pewclimate.org/what_s_being_done/in_the_world/bush_intensity_targe_2.cfm. Online Review August 2008.

⁴⁹ Council of Environmental Policy. “Addressing Global Climate Change.” <http://www.whitehouse.gov/ceq/global-change.html>. Online Review August 2008.

three working group reports and a synthesis report based on the first three reports) was published in 2007.⁵⁰

United States Activities to Control Greenhouse Gas Emissions

Executive Order 13432

On April 2, 2007, the Supreme Court released its ruling in the case of the *Massachusetts vs. EPA*. In that case, the Supreme Court held that the U.S. EPA has the statutory authority under Section 202 of the CAA to regulate GHGs from new motor vehicles. The court did not hold that the U.S. EPA was required to regulate GHG emissions; however, it did indicate that the agency must decide whether GHGs from motor vehicles cause or contribute to air pollution that is reasonably anticipated to endanger public health or welfare. Upon the final decision, President Bush signed Executive Order 13432 on May 14, 2007, directing the U.S. EPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court's decision. The order requires the U.S. EPA to coordinate closely with other federal agencies and to consider the president's Twenty-in-Ten plan in this process. The Twenty-in-Ten plan establishes a process whereby US gasoline consumption would be reduced by 20 percent within ten years from the date Executive Order 13432 was signed, or by 2017, thereby stemming the projected growth of CO₂ emissions from cars, light trucks, and SUVs. The two primary ways to achieve this reduction would be by (1) increasing the supply of renewable and alternative fuels, and (2) improving average fuel economy standards for cars and light trucks.

California Activities to Control Greenhouse Gas Emissions

Assembly Bill 1493

In a response to a 1997 finding by CARB that the transportation sector accounted for more than half of California's CO₂ emissions,⁵¹ Assembly Bill 1493 (AB 1493, Pavley) was enacted on July 22, 2002. AB 1493 requires CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill requires that CARB set the GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. In setting these standards, CARB must consider cost-effectiveness, technological feasibility, economic impacts, and provide maximum flexibility

⁵⁰ The IPCC's Fourth Assessment Report is available online at <http://www.ipcc.ch/>.

⁵¹ California Energy Commission. *1997 Global Climate Change; Greenhouse Gas Emissions Reduction Strategies for California*. Sacramento: California Energy Commission, January 1998. This document may be reviewed at <http://www.climatechange.ca.gov/publications/97GLOBALVOL1.PDF>

to manufacturers. CARB adopted the standards in September 2004. These standards are intended to reduce emissions of CO₂ and other greenhouse gases (e.g., nitrous oxide, methane), and would phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22 percent in greenhouse gas emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30 percent. Some currently used technologies that achieve GHG reductions include small engines with superchargers, continuously variable transmissions, and hybrid electric drive.

In December 2004, these regulations were challenged in federal court by the Alliance of Automobile Manufacturers that claimed that the law regulated vehicle fuel economy, which is a duty assigned to the federal government. The case had been put on hold by a federal judge in Fresno pending the U.S. Supreme Court's decision in *Massachusetts vs. EPA*. The U.S. Supreme Court's ruling in favor of the state of Massachusetts has been discussed as a likely vindication of state efforts to control GHG emissions. In December 2007, Judge Ishii of the U.S. District Court for the Eastern District dismissed the case by the Alliance of Automobile Manufacturers. However, before these regulations may go into effect, the U.S. EPA must grant California a waiver under the federal Clean Air Act, which ordinarily preempts state regulation of motor vehicle emission standards. Following the issuance of the *Massachusetts vs. EPA* decision, the US EPA announced that it would decide whether to grant California a waiver by December 2007. On December 19, 2007, Stephen Johnson, the U.S. EPA Administrator, denied the waiver citing the need for a national approach to reducing greenhouse gas emissions, the lack of a "need to meet compelling and extraordinary conditions," and the benefits to be achieved through the Energy Independence and Security Act of 2007.⁵² The California Attorney General subsequently filed suit in January 2008 to overturn the administrator's decision.

Executive Order S-3-05

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050. CARB has the primary responsibility for reduced GHG emissions in the state; however, actions by other state agencies are essential for achieving the required emissions reductions.

⁵² Johnson, Stephen L. United States Environmental Protection Agency, Washington, D.C. Correspondence to Arnold Schwarzenegger, http://www.cleancarscampaign.org/web-content/newsroom/docs/121907_EPALetter.pdf (December 19, 1007).

In order to achieve the reduction by implementing global warming emissions reduction programs, the Climate Action Team comprised of representatives of the following state organizations was formed: Cal/EPA, CARB; the CEC; the Business, Transportation and Housing Agency; the California Department of Food and Agriculture; State and Consumer Services Agency, California Department of Forestry and Fire Protection, Department of General Services, Department of Water Resources, Integrated Waste Management Board, and the California Public Utilities Commission (CPUC). The Climate Action Team is organized into two subgroups: the market-based options subgroup and the scenario analysis subgroup.

As Chairman of The Climate Action Team, the Secretary of Cal/EPA coordinates the efforts of these agencies in order to collectively and efficiently reduce GHGs. The secretary is required to submit a biannual progress report from the Climate Action Team to the governor and state legislature disclosing the progress made toward GHG emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, the coastline, and forestry, and reporting possible mitigation and adaptation plans to combat these impacts. The Climate Action Team has fulfilled both of these report requirements through its most recent (March 2006) *Climate Action Team Report to Governor Schwarzenegger and the Legislature*.⁵³

Some strategies currently being implemented by state agencies to meet the requirements of Executive Order S-3-05 include introducing vehicle climate change standards and diesel anti-idling measures (CARB), implementing building and appliance efficiency standards (CEC), and implementing a green building initiative (Cal/EPA). Future emission reduction strategies recommended by the Climate Action Team include using only low-GWP refrigerants in new vehicles, developing ethanol as an alternative fuel, reforestation, solar power initiatives for homes and businesses, and investor-owned utility energy efficiency programs. According to the March 2006 report, implementation of current and future emission reduction strategies have the potential to achieve the goals set forth in Executive Order S-3-05.

Senate Bill 1078 and 107

In 2002, Senate Bill 1078 (SB 1078, Sher) established California's Renewable Portfolio Standard which requires investor-owned utilities, such as Pacific Gas and Electric, Southern California Edison, and San Diego Gas and Electric, to increase energy production from renewable source 1 percent per year up to a minimum of 20 percent of total energy generation by 2017. SB 107 (Simitian), signed by the Governor on

⁵³ California Environmental Protection Agency, Climate Action Team. *Climate Action Team Report to Governor Schwarzenegger and the Legislature, Executive Summary*. Sacramento: California Environmental Protection Agency, March 2006. http://www.climatechange.ca.gov/climate_action_team/reports/index.html (March 2006)

September 26, 2008, accelerated the Renewable Portfolio Standard by requiring investor-owned utilities to meet the 20 percent target by 2010.

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

In furtherance of the goals established in Executive Order S-3-05, the Legislature enacted Assembly Bill 32 (AB 32, Nuñez and Pavley), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006. AB 32 represents the first enforceable statewide program to limit GHG emissions from all major industries with penalties for noncompliance.

CARB Early Action Measures

CARB is responsible for carrying out and developing the programs and requirements necessary to achieve the goals of AB 32—the reduction of California's GHG emissions to 1990 levels by 2020. The first action under AB 32 resulted in CARB's adoption of a report listing three specific early action greenhouse gas emission reduction measures on June 21, 2007. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32. These early action GHG reduction measures are to be adopted and enforced before January 1, 2010, along with 32 other climate-protecting measures CARB is developing between now and 2011. The early action measures are divided into three categories:

- Group 1 - GHG rules for immediate adoption and implementation
- Group 2 - Several additional GHG measures under development
- Group 3 - Air pollution controls with potential climate co-benefits

The original three adopted early action regulations meeting the narrow legal definition of “discrete early action GHG reduction measures” include:

- A low-carbon fuel standard to reduce the “carbon intensity” of California fuels;
- Reduction of refrigerant losses from motor vehicle air conditioning system maintenance and to restrict the sale of “do-it-yourself” automotive refrigerants; and
- Increased methane capture from landfills by requiring broader use of state-of-the-art methane capture technologies.

The additional six early action regulations adopted on October 25, 2007, also meeting the narrow legal definition of “discrete early action GHG reduction measures,” include:

- Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology;
- Reduction of auxiliary engine emissions of docked ships by requiring port electrification;
- Reduction of perfluorocarbons from the semiconductor industry;
- Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products);
- Require that all tune-up, smog check and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency; and
- Restriction on the use of sulfur hexafluoride (SF₆) from non-electricity sectors if viable alternatives are available.

State of California 1990 Greenhouse Gas Inventory

As required under AB 32, on December 6, 2007, CARB approved the 1990 greenhouse gas emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMTCO₂e. The inventory revealed that in 1990, transportation, with 35 percent of the state's total emissions, was the largest single sector generating carbon dioxide; followed by industrial emissions, 24 percent; imported electricity, 14 percent; in-state electricity generation, 11 percent; residential use, 7 percent; agriculture, 5 percent; and commercial uses, 3 percent. (These figures represent the 1990 values.) AB 32 does not require individual sectors to meet their individual 1990 GHG emissions inventory; the total statewide emissions are required to meet the 1990 threshold by 2020.

CARB Mandatory Reporting Requirements

In addition to the 1990 emissions inventory, CARB also adopted regulations requiring the mandatory reporting of GHG emissions for large facilities on December 6, 2007. The mandatory reporting regulations require annual reporting from the largest facilities in the state, which account for approximately 94 percent of greenhouse gas emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 tons of carbon dioxide each year from on-site stationary combustion sources. Transportation sources, which account for 38 percent of California's total greenhouse gas emissions as of the 2002-2004 GHG inventory conducted by CARB⁵⁴,

⁵⁴ California Air Resources Board, "Greenhouse Gas Inventory Data – 2020 Forecast," <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>. 2009.

are not covered by these regulations but will continue to be tracked through existing means. Affected facilities will begin tracking their emissions in 2008, to be reported beginning in 2009 with a phase-in process to allow facilities to develop reporting systems and train personnel in data collection. Emissions for 2008 may be based on best available emission data. Beginning in 2010, however, emissions reporting requirements will be more rigorous and will be subject to third-party verification. Verification will take place annually or every three years, depending on the type of facility.

AB 32 Climate Change Scoping Plan

As indicated above, AB 32 requires CARB to adopt a scoping plan indicating how reductions in significant GHG sources will be achieved through regulations, market mechanisms, and other actions. CARB released the *Climate Change Proposed Scoping Plan* in October 2008, which contains an outline of the proposed State strategies to achieve the 2020 greenhouse gas emission limits. The CARB Governing Board approved the *Climate Change Scoping Plan* on December 11, 2008. Key elements of the Scoping Plan include the following recommendations:

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

Under the Scoping Plan, approximately 85 percent of the state's emissions are subject to a cap-and-trade program where covered sectors are placed under a declining emissions cap. The emissions cap incorporates a margin of safety whereby the 2020 emissions limit will still be achieved even in the event that uncapped sectors do not fully meet their anticipated emission reductions. Emissions reductions will be achieved through regulatory requirements and the option to reduce emissions further or purchase allowances to cover compliance obligations. It is expected that emission reduction from this cap-and-trade program will account for a large portion of the reductions required by AB 32.

Table 3.4-4, AB 32 Scoping Plan Measures, lists CARB's preliminary recommendations for achieving greenhouse gas reductions under AB 32 along with a brief description of the reduction strategies.

**Table 3.4-4
AB 32 Scoping Plan Measures**

Scoping Plan Measure	Description
SPM-1: California Cap-and-Trade Program linked to Western Climate Initiative	Implement a broad-based cap-and-trade program that links with other Western Climate Initiative Partner programs to create a regional market system. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms. Capped sectors include transportation, electricity, natural gas, and industry. Projected 2020 business-as-usual emissions for capped sectors are estimated at 512 MTCO _{2e} ; preliminary 2020 emissions limit under cap-and-trade program are estimated at 365 MTCO _{2e} (29 percent reduction).
SPM-2: California Light-Duty Vehicle GHG Standards	Implement adopted Pavley standards and planned second phase of the program. AB 32 states that if the Pavley standards (AB 1493) do not remain in effect, CARB shall implement equivalent or greater alternative regulations to control mobile sources.
SPM-3: Energy Efficiency	Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts. The Proposed Scoping Plan considers green building standards as a framework to achieve reductions in other sectors, such as electricity.
SPM-4: Renewables Portfolio Standard	Achieve 33 percent Renewable Portfolio Standard by both investor-owned and publicly owned utilities.
SPM-5: Low Carbon Fuel Standard	Develop and adopt the Low Carbon Fuel Standard. CARB identified the Low Carbon Fuel Standard as a Discrete Early Action item and the final regulation will be adopted and implemented by 2010. In January 2007, Governor Schwarzenegger issued Executive Order S-1-07, which called the reduction of the carbon intensity of California's transportation fuels by at least ten percent by 2020.
SPM-6: Regional Transportation-Related Greenhouse Gas Targets	Develop regional greenhouse gas emissions reduction targets for passenger vehicles. SB 375 requires CARB to develop, in consultation with metropolitan planning organizations, passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035 by September 30, 2010. SB 375 requires metropolitan planning organizations to prepare a sustainable communities strategy to reach the regional target provided by CARB.
SPM-7: Vehicle Efficiency Measures	Implement light-duty vehicle efficiency measures. CARB is pursuing fuel-efficient tire standards and measures to ensure properly inflated tires during vehicle servicing.
SPM-8: Goods Movement	Implement adopted regulations for port drayage trucks and the use of shore power for ships at berth. Improve efficiency in goods movement operations.

Scoping Plan Measure	Description
SPM-9: Million Solar Roofs Program	Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.
SPM-10: Heavy/Medium-Duty Vehicles	Adopt heavy- and medium-duty vehicle and engine measures. Measures targeting aerodynamic efficiency, vehicle hybridization, and engine efficiency are recommended.
SPM-11: Industrial Emissions	Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
SPM-12: High Speed Rail	Support implementation of a high-speed rail system. This measure supports implementation of plans to construct and operate a high-speed rail system between Northern and Southern California serving major metropolitan centers.
SPM-13: Green Building Strategy	Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
SPM-14: High Global Warming Potential Gases	Adopt measures to reduce high global warming potential gases. The Proposed Scoping Plan contains 6 measures to reduce high global warming potential gases from mobile sources, consumer products, stationary sources, and semiconductor manufacturing.
SPM-15: Recycling and Waste	Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.
SPM-16: Sustainable Forests	Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The federal government and California's Board of Forestry and Fire Protection has the regulatory authority to implement the Forest Practice Act to provide for sustainable management practices. This measure is expected to play a greater role in the 2050 goals.
SPM-17: Water	Continue efficiency programs and use cleaner energy sources to move water. California will also establish a public goods charge for funding investments in water efficiency that will lead to as yet undetermined reductions in greenhouse gases.
SPM-18: Agriculture	In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020. Increase efficiency and encourage use of agricultural biomass for sustainable energy production. CARB has begun research on nitrogen fertilizers and will explore opportunities for emission reductions.

Source: California Air Resources Board, Climate Change Scoping Plan, (2008).

Senate Bill 1368

Just two days after signing AB 32, Governor Schwarzenegger reiterated California's commitment to reducing GHGs by signing SB 1368 (Perata) on September 29, 2006. SB 1368 requires the CEC and the CPUC to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local publicly owned utilities, whether or not the electricity is generated in California. The CPUC adopted its standards on January 25, 2007, and the CEC adopted its standards, which are consistent with the CPUC standards, on May 23, 2007.

The CPUC and the CEC share responsibility for implementing and enforcing SB 1368. The CEC has jurisdiction over municipal utilities, while the CPUC regulates all other entities that supply electricity to customers in the state.

Executive Order S-1-07

On January 18, 2007, California further solidified its commitment to reducing GHGs by setting a new Low Carbon Fuel Standard (LCFS) for transportation fuels sold within the state. Executive Order S-1-07 sets a declining standard for GHG emissions measured in CO₂-equivalent gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The LCFS will apply to refiners, blenders, producers, and importers of transportation fuels, and will use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods. The Executive Order requires the Secretary of Cal/EPA to coordinate with actions of the CEC, CARB, the University of California, and other agencies to develop a protocol to measure the "life-cycle carbon intensity" of transportation fuels. Furthermore, the executive order directs CARB to consider initiating a regulatory proceeding to establish and implement the LCFS. In response, CARB identified the LCFS as an early action item and adopted the LCFS regulation in April 2009.

Senate Bill 97

In August 2007, as part of the legislation accompanying the state budget negotiations, the legislature enacted SB 97, which directs (1) the Governor's Office of Planning and Research (OPR) to prepare and submit guidelines to the California Resources Agency for the mitigation of GHG emissions and their effects by July 1, 2009. SB 97 also directs the Resources Agency to adopt the regulations by January 1, 2010

(the same data that CARB is required to adopt regulations for early action measures to reduce GHG emissions under AB 32).

In a collaborative effort, OPR, Resources Agency, Cal/EPA, and CARB prepared *Technical Advisory- CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*, which provides informal guidance for public agencies as they address the issue of climate change in their CEQA documents. The advisory provides OPR's perspective on the issue and precedes the development of draft implementing regulations for CEQA, in accordance with Senate Bill 97.

Pursuant to Senate Bill 97 (Chapter 185, 2007) the OPR is in the process of developing CEQA guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, and is required to provide the guidelines to the Resources Agency on or before July 1, 2009. The Resources Agency must certify and adopt the guidelines on or before January 1, 2010. As part of this process, OPR has asked CARB technical staff to recommend statewide interim thresholds of significance for greenhouse gases. On October 24, 2008, CARB released its *Preliminary Draft Staff Proposal [for] Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases Under the California Environmental Quality Act*.⁵⁵ CARB is currently coordinating with the CEC and other state agencies that serve as lead agencies under CEQA on their approaches to setting GHG thresholds of significance.

Senate Bill 375

SB 375 (Steinberg) requires the regional governing bodies in each of the state's major metropolitan areas to adopt, as part of their regional transportation plan, a "sustainable community strategy" that will meet the region's target for reducing GHG emissions. The strategies would promote development near public transit, projects that include a mix of residential and commercial uses, and projects that include affordable housing closer to existing transportation sources. It was signed into law on September 30, 2008. Under the law, the California Air Resources Board has two years—until September 30, 2010—to set regional greenhouse gas reduction targets after consultation with local governments. The target must then be incorporated within that region's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy. SB 375 also requires each region's Regional Housing Needs Assessment (RHNA) to be adjusted based on the Sustainable Communities

⁵⁵ Governor's Office of Planning and Research. *Technical Advisory- CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Sacramento: Governor's Office of Planning and Research, June 19, 2008. This document is available for review at <http://www.opr.ca.gov/index.php?a=ceqa/index.html>.

Strategy in its RTP. Additionally, SB 375 will reform the environmental review process to create incentives to implement the strategy, especially transit priority projects.

Regional Activities to Control Greenhouse Gas Emissions

In April 2008, the South Coast Air Quality Management District (SCAQMD), in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents, convened a "GHG CEQA Significance Threshold Working Group."⁵⁶ The goal of the working group was to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be utilized on an interim basis until CARB (or some other state agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA.

On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. This interim threshold will be used for determining significant impacts for proposed projects. Once CARB adopts the statewide significance thresholds, staff will report back to the Board regarding any recommended changes or additions to the SCAQMD's interim threshold.

As of March 2009, SCAQMD's threshold is for stationary sources only, and does not include residential or commercial uses. Therefore, it is not applicable to the proposed Area Plan or General Plan. The thresholds do, however, state that projects should, at a minimum, comply with AB 32 GHG reduction goals; include emissions estimates agreed upon by either CARB or the SCAQMD, have been analyzed under CEQA, and have a certified Final CEQA document.⁵⁷

Local Activities to Control Greenhouse Gas Emissions

In January 2007, the Los Angeles County Board of Supervisors adopted the Countywide Energy and Environmental Policy (Policy), which provides guidelines for sustainability and green building design within County departments. The Policy states that the County will join the California Climate Action Registry (CCAR) to establish goals for reducing GHG emissions. The Policy also incorporates a

⁵⁶ For more information see: <http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html>.

⁵⁷ South Coast Air Quality Management District. "Board Meeting Date: December 5, 2008 Agenda No. 31." <http://www.aqmd.gov/hb/2008/December/081231a.htm>. November 28, 2008.

sustainable building program into County capital improvement projects and seeks to integrate energy efficient and sustainable designs into future County building plans.⁵⁸

In addition, the court settlement in August 2007 regarding the lack of GHG mitigation strategies in the San Bernardino County General Plan prompted Los Angeles County to pursue more immediate and formal mitigation strategies. Accordingly, the County prepared its “Report on the Impact of the State Action Against San Bernardino County Regarding its General Plan Update,” which contains numerous recommendations for future requirements to combat global warming.⁵⁹ The report has three main sections: (i) energy efficiency and climate change, (ii) green buildings, and (iii) low-impact development.

In order to secure implementation of green building practices, the Board of Supervisors adopted three ordinances, on October, 7 2008, relating to green building, low-impact development, and native, drought-tolerant landscape. These ordinances became applicable in unincorporated portions of Los Angeles County as of January 1, 2009.

The green building standards ordinance would apply to four categories of development, with corresponding requirements for each: (i) small residential and nonresidential projects; (ii) medium-sized residential projects; (iii) medium-sized (i.e., 10,000 to 25,000 square feet) nonresidential, commercial, mixed-use, or first-time tenant improvement projects; and (iv) large nonresidential, commercial, mixed-use, or first-time tenant improvement projects greater than 25,000 square feet, and all new high-rise buildings greater than 75 feet in height. In addition, the proposed ordinance also would contain minimum standards for all applicable projects:

- *Energy:* 15 percent better than Title 24;
- *Water:* Smart controller in landscaped areas, 75 percent of the landscaped area to use drought-tolerant plants, turf restrictions, hydrozones;
- *Resources:* Minimum 50 percent waste diversion during construction;
- *Trees:* Two trees planted per single family home, one tree planted per 5,000 square feet of lot area for multi-family projects, three trees planted per 10,000 square feet of lot area for nonresidential projects; and
- *Low Impact Development:* Single-family residences to use three of seven approved low-impact development best management practices.

⁵⁸ Documents relating to this County Policy are available online at <http://lacounty.info/bos/sop/supdocs/29480.pdf> and <http://lacounty.info/bos/sop/supdocs/29932.pdf>.

⁵⁹ This report is available online at <http://planning.co.la.ca.us/docOfficial.htm>.

THRESHOLDS OF SIGNIFICANCE

While AB 32 created a framework for the reduction of GHGs in California, the Act did not address the role of CEQA in achieving the goals of the Act. To date, CARB has not adopted CEQA significance criteria for GHG emissions, and the specific significance criteria for GHG emissions adopted by the SCAQMD applies to stationary sources only, and does not apply to residential or commercial uses. SCAQMD thresholds do, however, state that projects should, at a minimum, comply with AB 32 GHG reduction goals; include emissions estimates agreed upon by either CARB or the SCAQMD, have been analyzed under CEQA, and have a certified Final CEQA document.

In the absence of quantitative emissions thresholds, the proposed project would result in a significant air quality impact on global climate change if it impedes or conflicts with the emissions reduction targets and strategies prescribed in or developed to implement Executive Order S-3-05 and AB 32.

IMPACT ANALYSIS

This impact analysis section evaluates the potential effects of the proposed Area Plan policies and General Plan goals, objectives, and policies on global climate change within the OVOV Planning Area using emissions reduction targets and strategies prescribed in or developed to implement Executive Order S-3-05 and AB 32.

Construction Impacts

Impact 3.4-1: Construction greenhouse gas emissions from the proposed Area Plan and General Plan would not impede or conflict with the emission reduction targets and strategies prescribed in, or developed to implement, AB 32.

Sources of GHG Emissions During Construction

Exhaust from (1) off-road heavy-duty construction equipment, (2) on-road heavy-duty trucks delivering equipment and construction materials, (3) on-road heavy-duty trucks hauling demolition debris and construction wastes; and (4) on-road vehicles used by construction worker commutes would directly contribute to climate change. The majority of off-road construction equipment (e.g., backhoes; cranes; rubber-tired loaders; scrapers; haul trucks) and on-road heavy-duty trucks rely on fossil fuels, primarily diesel, as an energy source. The typically light-duty and medium-duty automobiles and trucks used for worker trips also used fossil fuels, but primarily gasoline. The combustion of diesel and gasoline results in GHG emissions of CO₂ and smaller amounts of CH₄ and N₂O.

The manufacture of construction materials would indirectly contribute to climate change (upstream emission source). Upstream emissions refer to emissions that are generated during the manufacture of products used for construction (e.g., cement, steel, and transport of materials to the region). The upstream GHG emissions, which may also include perfluorocarbons and sulfur hexafluoride, are not estimated in this impact analysis because they are not within the control of the developers and the lack of data precludes their quantification without speculation.

Construction Equipment GHG Emissions

Annual construction CO₂ emissions were estimated using URBEMIS2007. To convert CO₂ emissions from construction diesel trucks and equipment to GHG emissions on a carbon dioxide equivalent (CO₂E) basis, the CO₂ emissions associated with off-road and on-road equipment were multiplied by a factor based on the assumption that CO₂ represents approximately 99.4 and 99.0 percent, respectively, of the CO₂E emissions. These assumptions were derived from the California Climate Action Registry⁶⁰ and the California Energy Commission.⁶¹

Under the existing Area Plan and General Plan, the maximum daily construction CO₂ emissions would be approximately 594,800 MTCO₂E. Under the proposed Area Plan and General Plan, the maximum daily construction CO₂ emissions would be approximately 577,300 MTCO₂E. CO₂ emissions under the proposed Area Plan and General Plan would, therefore, be less than under the existing Area Plan and General Plan.

Goal CO 8 promotes development designed to improve energy efficiency, reduce energy and natural resource consumption, and reduce GHG emissions. This goal would be achieved through the following objectives and policies: **Objectives CO 8.1 and CO 8.2; Policies CO 8.1.3, CO 8.2.1, and CO 8.2.7.** GHG emissions would be reduced during construction by implementing the ordinances developed through the County's Green Building Program; ensuring that all new County buildings, and all major renovations and additions, meet adopted green building standards, with a goal of achieving the LEED Silver rating or equivalent; and supporting the use of sustainable alternative fuel vehicles for machinery and fleets.

⁶⁰ California Climate Action Registry. *General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.0*. Los Angeles: California Climate Action Registry, April 2008, pp 95-96. This document is available for review at http://www.climateactionregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf.

⁶¹ California Energy Commission, *Diesel Use in California*, Remarks by Commissioner James D. Boyd, (2002).

Proposed Area Plan Policies and General Plan Goals, Objectives and Policies

The policies listed below are the same for the County's Area Plan and City's General Plan. The County's Area Plan focuses on policies and the City is evaluating General Plan goals, objectives, and policies.

Goal CO 8: Development designed to improve energy efficiency, reduce energy and natural resource consumption, and reduce emissions of greenhouse gases. (Guiding Principle #11)

Objective CO 8.1: Comply with the requirements of State law, including AB 32, SB 375, and implementing regulations, to reach targeted reductions of greenhouse gas (GHG) emissions.

Policy CO 8.1.3: Implement the ordinances developed through the County's Green Building Program.

Objective CO 8.2: Reduce energy and materials consumption and greenhouse gas emissions in public uses and facilities.

Policy CO 8.2.1: Ensure that all new County buildings and all major renovations and additions meet adopted green building standards, with a goal of achieving the LEED (Leadership in Energy and Environmental Design) Silver rating or above, or equivalent, where appropriate.

Policy CO 8.2.7: Support the use of sustainable alternative fuel vehicles for machinery and fleets, where practical, by evaluating fuel sources, manufacturing processes, maintenance costs and vehicle lifetime use.

Effectiveness of Proposed Area Plan Policies

The proposed policies are designed to reduce GHG emissions during construction. Implementation of these policies would reduce potential Area Plan air quality impacts under this criterion to less than significant.

Effectiveness of Proposed General Plan Goals, Objectives and Policies

The proposed goals, objectives, and policies are designed to reduce GHG emissions during construction. Implementation of these goals, objectives, and policies would reduce potential General Plan air quality impacts under this criterion to less than significant.

Operational Impacts

Impact 3.4-2: Operational greenhouse gas emissions from the proposed Area Plan and General Plan would not impede or conflict with the emission reduction targets and strategies prescribed in, or developed to implement, AB 32.

Operational Sources of GHG Emissions

Operational sources of GHG emissions include motor vehicles, natural gas combustion, electrical generation, municipal services (water supply and wastewater treatment). Each of these sources is discussed individually below, and their emissions are estimated.

Motor Vehicles

The proposed project would include residential and recreational land uses, which would result in the day-to-day operation of motor vehicles. Examples of motor vehicles include passenger automobiles, light-duty trucks, and sport utility vehicles. The vast majority of motor vehicles rely on fossil fuels, primarily gasoline, as an energy source. The combustion of fossil fuels in motor vehicles results in GHG emissions of CO₂ and smaller amounts of CH₄ and N₂O. Since specific information regarding the types of vehicles that would be used by the proposed project's future residents and users is not known, fleet-average characteristics based on currently available data for the region typically are used to assess the GHG emissions from motor vehicles.

As noted above, the URBEMIS2007 program calculates CO₂ emissions from motor vehicles. Because GHG emissions from motor vehicles are dependant on model years and the specific types of vehicles that would be used by the proposed project's residents and users are not known, the emissions were calculated assuming a representative motor vehicle fleet mix in 2030. While URBEMIS2007 projects vehicle fleet out to 2040, the proposed Area Plan and General Plan do not identify a buildout year; therefore, 2030 was used as a reasonable estimate. This provides a conservative estimate as motor vehicles are expected to increase in fuel economy in the future, thereby reducing GHG emissions, relative to the 2030 analysis year.

- Motor vehicles: The CO₂ emissions associated with project-generated trips were multiplied by a factor based on the assumption that CO₂ represents 95 percent of the CO₂E emissions associated with passenger vehicles, which account for most of the project-related trips.⁶²

Area Source Emissions: Natural Gas Combustion

The proposed project's residential and recreational land uses would utilize natural gas, primarily for heating needs. Natural gas also may be used for cooking and in hearths. The combustion of natural gas results in GHG emissions of CO₂ and smaller amounts of CH₄ and N₂O. As the combustion of natural gas occurs on-site, the associated GHG emissions are considered to be direct.

Based on the utilities assessment for the proposed project, the Southern California Gas Company (SCGC), a subsidiary of Sempra Energy, would supply natural gas to the project site. Natural gas demand factors for single-family residential land uses were obtained using data from the U.S. Energy Information Administration's (US EIA) 2001 Residential Energy Consumption Survey (RECS)⁶³ and the SCGC.

Electrical Generation

The generation of electricity in California is achieved through the combustion of fossil fuels, primarily natural gas, using steam boilers, internal combustion engines, and combustion turbines. As discussed previously, SB 107 requires investor-owned utilities to increase energy production from renewable source to 20 percent by 2010. A portion of the electricity generated in California and imported from outside the state is derived from the combustion of coal and other non-gaseous fossil fuels.

The combustion of fossil fuels to produce electricity results in GHG emissions of CO₂ and smaller amounts of CH₄ and N₂O. These emissions occur due to the electrical demand of the proposed project's residential and recreational land uses. The electricity generation occurs off-site; therefore, electricity use causes GHG emissions that are considered to be indirect.

Emission factors for GHGs due to electrical generation from the proposed project's residential and recreational land uses were obtained from the *SCE 2006 Power/Utility Protocol (PUP) Report* to the Climate

⁶² United States Environmental Protection Agency, Office of Transportation and Air Quality. *Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle* (EPA420-F-05-004). Washington, DC: US Environmental Protection Agency, February 2005, 4. This document may be viewed at <http://www.epa.gov/oms/climate/420f05004.pdf>.

⁶³ United States Department of Energy, Energy Information Administration (EIA), "Residential Energy Consumption Survey (RECS), 2001 Public Use Data Files," <http://www.eia.doe.gov/emeu/recs/recs2001/publicuse2001.html>. Online Review March 2009.

Change Action Registry (CCAR).⁶⁴ CCAR members, such as SCE, voluntarily measure, verify, and publicly report their GHG emissions. The electrical generation GHG emissions factor from the *SCE 2006 PUP Report* is provided as metric tons of CO₂E per megawatt-hour (MW-hr), which was converted to metric tons per million kilowatt-hours (10⁶ kW-hr). This emission factor takes into account the current mix of energy sources used to generate electricity for SCE and the relative carbon intensities of these sources, and includes natural gas, coal, nuclear, large hydroelectric, and other renewable sources of energy both inside and outside of California's borders.

Municipal Services

The proposed Area Plan and General Plan municipal sources of GHG emissions would include both the supply and treatment of water and wastewater. Municipal vehicles, such as fire engines or garbage trucks, will be present in development; however, emissions from these vehicles are accounted for under Motor Vehicles.

Water Supply

The GHG emission estimates for potable water supply are based on the fossil fuel based energy needed to treat and distribute the water to and throughout the OVOV Planning Area. The energy is used to power treatment equipment and to create water pressure, which can be achieved by gravity or a pump. The combustion of fossil fuels to produce the energy needed to operate the treatment equipment and water pumps results in GHG emissions of CO₂ and smaller amounts of CH₄ and N₂O. As the electricity needed to operate the equipment and water pumps is generated off site, the associated GHG emissions are considered to be indirect.

Supplying potable water results in emissions of GHGs due to the generation of electricity needed to supply, convey, treat, and distribute the water. The analysis of GHG emissions resulting from the OVOV Planning Area's water demand at buildout was estimated using projected water demand from **Section 3.13, Water Service**.

Based on data from a report prepared for the CEC, it has been estimated that it takes 9,727 kW-hr per million gallons to supply and convey potable water in Southern California.⁶⁵ This estimate takes into

⁶⁴ California Climate Action Registry, "Reporting Online Tool, Public Annual Entity Emissions," <http://www.climateregistry.org/CARROT/public/Reports.aspx>, Online Review March 2009.

⁶⁵ Navigant Consulting, Inc. *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (Sacramento: California Energy Commission, December 2006). This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

account system losses of 5 percent for conveyance.⁶⁶ This factor also assumes that the primary sources of water in Southern California are the east and west branches of the State Water Project.⁶⁷ Because the proposed project may have a portion of its water supplied by local sources, such as local groundwater and recycled water, this factor likely over predicts the actual energy required to supply and convey water to the project area.

The CEC also has estimated that 111 kW-hr of electricity is necessary to treat one million gallons of water and 1,272 kW-hr is necessary to distribute that water to the end users in Southern California.⁶⁸ These factors take into account system losses of 5 percent for water treatment and 6 percent for water distribution.⁶⁹ The CEC did not identify any geographic differences in electricity consumption for wastewater treatment or distribution.⁷⁰

Emission factors for GHGs due to electrical demands from the potable water supply needs of the OVOV Planning Area were obtained from the *SCE 2006 Power/Utility/Protocol(PUP) Report* to the CCAR.⁷¹

Wastewater Treatment

Treatment of wastewater produced in the OVOV Planning Area would remove soluble organic matter, suspended solids, pathogenic organisms, and chemical contaminants. Wastewater treatment produces emissions of CH₄, if the organic components in the wastewater are treated anaerobically (i.e., without oxygen).⁷² Wastewater treatment also produces emissions of N₂O during both nitrification and

⁶⁶ Navigant Consulting, Inc. *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (Sacramento: California Energy Commission, December 2006), p. 21. This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

⁶⁷ Navigant Consulting, Inc. *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (Sacramento: California Energy Commission, December 2006), p. 19. This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

⁶⁸ Navigant Consulting, Inc. *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (Sacramento: California Energy Commission, December 2006), p. 22. This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

⁶⁹ Navigant Consulting, Inc. *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (Sacramento: California Energy Commission, December 2006), p. 21. This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

⁷⁰ Navigant Consulting, Inc. *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (Sacramento: California Energy Commission, December 2006), p. 18. This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

⁷¹ California Climate Action Registry, "Reporting Online Tool, Public Annual Entity Emissions," <http://www.climateregistry.org/CARROT/public/Reports.aspx>, Online Review March 2009.

⁷² United States Environmental Protection Agency. "Methane: Sources and Emissions." <http://www.epa.gov/methane/sources.html>. October 19, 2006.

denitrification of the nitrogen present in the wastewater, usually in the form of urea, ammonia, and proteins. During nitrification, the compounds are converted to nitrate (NO₃) in an aerobic (i.e., in the presence of oxygen) process by certain types of bacteria. Denitrification occurs under anaerobic conditions and involves the biological conversion of nitrate into dinitrogen gas (N₂). N₂O can be an intermediate product of both these processes.⁷³ Additional GHG emissions of CO₂, CH₄, and N₂O associated with wastewater treatment are due to the electrical demand that powers the treatment process.

The treatment of wastewater results in emissions of GHGs due to the generation of electricity needed to treat the wastewater. Future wastewater generation is assumed to be 60 percent of water demand. The electrical demand factor for treating wastewater is 1,911 kilowatt-hours per million gallons of wastewater, and is based on data from a report prepared for the CEC.⁷⁴ Electrical demand GHG emissions factors for wastewater treatment were obtained from the *SCE 2006 PUP Report* to the CCAR.⁷⁵

Operational GHG Emissions

Buildout of the proposed Area Plan and General Plan would result in direct operational emissions of GHGs. These emissions, primarily CO₂, CH₄, and N₂O, are the result of fuel combustion from building heating systems and motor vehicles. Building and motor vehicle air conditioning systems may use HFCs (and HCFCs and CFCs to the extent that they have not been completely phased out at later dates); however, they are not quantified as emissions of these GHGs and would only occur through accidental leaks. Water vapor and O₃ are also not quantified as project GHG emissions because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks⁷⁶ rather than emissions from project related activities. Furthermore, O₃ in the troposphere is relatively short-lived and project emissions of ozone precursors would not significantly contribute to climate change.

⁷³ United States Environmental Protection Agency, "Nitrous Oxide: Sources and Emissions," <http://www.epa.gov/nitrousoxide/sources.html>, October 19, 2006.

⁷⁴ Navigant Consulting, Inc. *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (Sacramento: California Energy Commission, December 2006), p. 22. This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

⁷⁵ California Climate Action Registry, "Reporting Online Tool, Public Annual Entity Emissions," <http://www.climateregistry.org/CARROT/public/Reports.aspx>, Online Review March 2009.

⁷⁶ A climate feedback is an indirect, or secondary climatic change that occurs in response to a forcing mechanism. For example, a disturbance that causes global temperatures to increase could cause more water to evaporate from the oceans, leading to larger amounts of water vapor in the atmosphere absorbing more radiation from the earth's surface and emitting more radiation back, thereby enhancing the greenhouse effect and further increasing the air temperature.

The direct operational emissions of CO₂ were estimated using URBEMIS2007 with the following adjustments to convert CO₂ emissions to GHG emissions on a carbon dioxide equivalent (CO₂E) basis:

- Area sources (natural gas combustion): The CO₂ emissions from natural gas consumption for the project were adjusted based on emission factors for CO₂, CH₄, and N₂O for natural gas combustion from URBEMIS2007 and the California Climate Action Registry.⁷⁷
- Motor vehicles: The CO₂ emissions associated with project-generated trips were multiplied by a factor based on the assumption that CO₂ represents 95 percent of the CO₂E emissions associated with passenger vehicles, which account for most of the project-related trips.⁷⁸

The project would also result in indirect GHG emissions from electricity generation, water treatment and delivery, wastewater collection and treatment, solid waste haul trucks, and anaerobic decomposition of organics during the wastewater treatment process (CH₄).

Electricity would not only be used on the project site, but it would also be used in the water and wastewater treatment process, as well as in the conveyance process where in-line pumps would be required. GHG emission factors from electrical demand were obtained from the *SCE 2006 Power/Utility Protocol (PUP) Report* to the California Climate Action Registry.⁷⁹ The estimated annual electrical demand for the project was obtained from factors in the South Coast Air Quality Management District's *CEQA Air Quality Handbook*. The annual electrical demand factor for water treatment and distribution⁸⁰ was obtained from the CEC. GHG emission factors for wastewater treatment⁸¹ and solid waste disposal⁸² were obtained from the US EPA.

⁷⁷ California Climate Action Registry. *General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions*, Version 3.0. Los Angeles: California Climate Action Registry, April 2008. This document is available for review at http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf.

⁷⁸ United States Environmental Protection Agency, Office of Transportation and Air Quality. *Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle* (EPA420-F-05-004). Washington, DC: US Environmental Protection Agency, February 2005. This document may be viewed at <http://www.epa.gov/oms/climate/420f05004.pdf>.

⁷⁹ California Climate Action Registry. "Reporting Online Tool, Public Annual Entity Emissions" [Southern California Edison, PUP Report, 2006.] <http://www.climateregistry.org/CARROT/public/Reports.aspx>. Online Review August 2008. The *SCE 2006 PUP Report* provides a GHG emission factor from electrical generation in units of metric tons of CO₂E per megawatt-hour (MW-hr), which was converted to metric tons per million kilowatt-hours (10⁶ kW-hr). This emission factor takes into account the current mix of energy sources used to generate electricity for SCE and the relative carbon intensities of these sources, and includes natural gas, coal, nuclear, large hydroelectric, and other renewable sources of energy.

⁸⁰ Navigant Consulting, Inc. *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (Sacramento: California Energy Commission, December 2006), p. 22. This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

⁸¹ United States Environmental Protection Agency. *Compilation of Air Pollutant Emission Factors AP 42*, Fifth Edition. Research Triangle Park, NC: US Environmental Protection Agency, Office of Air Quality Planning and

In order to assess the net increase in GHG emissions from the OVOV Planning Area as it builds out, the operational GHG emissions are calculated for the following scenarios:

- Existing Conditions
- Buildout Under Existing General Plan Designations
- Buildout Under Proposed Area Plan and General Plan Designations

Operational GHG emissions for the two buildout scenarios are compared with existing emissions in order to determine the net increase in project GHG emissions as the OVOV Planning Area builds out. Detailed calculations of the operational emissions are found in **Appendix 3.4**.

GHG Emissions from Existing Conditions

The estimated maximum annual GHG emissions under existing conditions are shown in **Table 3.4-5, Estimated Existing Annual GHG Emissions**. Total GHG emissions are approximately 3,954,200 metric tons CO₂E/year.

Table 3.4-5
Estimated Existing Annual GHG Emissions

Existing GHG Emissions Sources	Emissions (Metric Tons CO ₂ E/year)
Motor Vehicles	3,086,900
Area Sources (Natural Gas Consumption)	419,400
Electricity Consumption	313,200
Solid Waste Generation	10,300
Water Supply	105,600
Wastewater Treatment	18,800
Annual Total Existing GHG Emissions	3,954,200

Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix 3.4**.

Motor vehicle and area source emissions are averages for summertime and wintertime emissions. Numbers are rounded to their nearest 100.

Standards, January 1995, Volume I, Chapter 4.3.5. This document is available for review at <http://www.epa.gov/ttn/chief/ap42/index.html>.

- 82 United States Environmental Protection Agency. Office of Solid Waste and Emergency Response, *Greenhouse Gas Emission Factors for Management of Selected Materials in Municipal Solid Waste* [EPA-530-R-98-013]. Washington DC: United States Environmental Protection Agency, April 1998.

GHG Emissions from the Existing Area Plan and General Plan Land Use Designations

As shown in **Table 3.4-6, GHG Emissions from the Existing Area Plan and General Plan Land Use Designations**, the net increase in GHG emissions after buildout of the OVOV Planning Area under existing Area Plan and General Plan designations would be approximately 8,010,100 metric tons CO₂E/year. This represents an approximate increase of 4,055,900 metric tons CO₂E/year over existing conditions.

**Table 3.4-6
GHG Emissions from the Existing Area Plan and General Plan Land Use Designations**

Existing Area Plan and General Plan GHG Emissions Sources	Emissions (Metric Tons CO₂E/year)
Motor Vehicles	6,352,000
Area Sources (Natural Gas Consumption)	750,600
Electricity Consumption	713,400
Solid Waste Generation	22,100
Water Supply	144,800
Wastewater Treatment	27,300
Annual Total GHG Emissions	8,010,200
Existing Annual Total GHG Emissions	3,954,200
Net Total GHG Emissions¹	4,056,000

Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix 3.4**.

¹ Annual Total GHG Emissions minus Existing Annual Total GHG Emissions.

Motor vehicle and area source emissions are averages for summertime and wintertime emissions. Numbers are rounded to their nearest 100.

GHG Emissions from the Proposed Area Plan and General Plan

As shown in **Table 3.4-7, GHG Emissions from the Proposed Area Plan and General Plan**, the net increase in GHG emissions after buildout of the OVOV Planning Area under existing Area Plan and General Plan designations would be approximately 7,917,800 metric tons CO₂E/year. This represents an approximate increase of 3,963,600 metric tons CO₂E/year over existing conditions, and a decrease of approximately 92,300 metric tons CO₂E/year compared to the existing Area Plan and General Plan designations, shown in **Table 3.4-6**.

**Table 3.4-7
GHG Emissions from the Proposed Area Plan and General Plan**

Area Plan & General Plan GHG Emissions Sources	Emissions (Metric Tons CO ₂ E/year)
Motor Vehicles	6,262,200
Area Sources (Natural Gas Consumption)	739,100
Electricity Consumption	722,800
Solid Waste Generation	21,800
Water Supply	144,800
Wastewater Treatment	27,100
Annual Total GHG Emissions	7,917,800
Existing Annual Total GHG Emissions	3,954,200
Net Total GHG Emissions¹	3,963,600

Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix 3.4**.

¹ Annual Total GHG Emissions minus Existing Annual Total GHG Emissions.

Motor vehicle and area source emissions are averages for summertime and wintertime emissions. Numbers are rounded to their nearest 100.

The emissions associated with the proposed General Plan and Area Plan, as described above, represent a conservative assessment of the actual GHG emissions that would result from the plans' implementation. The construction emissions were based on the assumption that equipment would operate continuously throughout an 8-hour workday. In reality, construction equipment tends to operate cyclically for only a portion of the work day. In addition, as noted in CARB's AB 32 *Climate Change Scoping Plan*, reductions in GHG emissions from construction equipment are expected to occur upon implementation of the low carbon fuel standard (Scoping Plan Measure 5) and vehicle hybridization and energy efficiency standards adopted for medium- and heavy-duty vehicles (Scoping Plan Measure 10). These additional reductions were not quantified in this analysis resulting in conservatively estimated construction GHG emissions. Nonetheless, construction equipment would comply with the low carbon fuel standard and vehicle hybridization and energy efficiency standards adopted for medium- and heavy-duty vehicles as required by state and local agencies.

As shown in **Table 3.4-7**, GHG emissions from motor vehicles represent the majority of the total operational GHG emissions associated with the proposed General Plan and Area Plan. Neither the state nor the federal government regulates tailpipe GHG emissions. However, several regulatory actions have taken place at the federal and state level that would reduce GHG emissions from motor vehicles, and these reductions were not accounted for in the model. In 2007, the President signed the Energy

Independence and Security Act, which set a goal of achieving a Corporate Average Fuel Economy (CAFE) standard of 35 miles per gallon by 2020 for new cars, light trucks, and sport utility vehicles. Additionally, as mentioned above, California will implement its low carbon fuel standard by 2010. Under CARB's *Climate Change Scoping Plan*, fuel-efficient tire standards are being pursued (Scoping Plan Measure 7). Also, as previously discussed, AB 1493 would set GHG emission standards for motor vehicles in California; however, the state has not yet received a waiver from the U.S. EPA to implement the standards. Additionally, to the extent technology continues to improve and CAFE standards become more stringent, this analysis provides a conservative estimate of motor vehicle emissions based on current technology and CAFE standards, which are not accounted for in the air quality models. Nonetheless, motor vehicles would comply with the low-carbon fuel standard and other emission standards that are in effect at the time the vehicles are manufactured and purchased, as required by state and local agencies.

Similarly, the GHG emissions associated with electricity, natural gas, and water consumption represent conservative estimates since the effect of many of the project design features are not included in the emission calculations. The GHG emissions associated with electricity, natural gas, and water consumption were calculated based on current building standards. Future GHG emissions associated with electricity and natural gas consumption rates from new construction would be reduced in accordance with efficiencies gained from compliance with newer California Title 24 building code standards. The California Energy Commission is required to periodically update Title 24 standards. In 2008, the California Energy Commission revised the standards and issued an Impact Analysis report that assessed the energy savings from the 2008 revisions to Title 24, relative to the previous standards.⁸³ Data from these reports indicate that energy consumption would be reduced by approximately 5 to 20 percent, depending on the type of new construction (i.e., non-residential, residential, etc.). In addition to the 2008 revisions to Title 24, it is likely that the California Energy Commission would further revise building code standards and require even more energy efficiency measures in the future. For these reasons, the GHG emissions associated with electricity, natural gas, and water consumption also represent conservative estimates.

Achievement of proposed **Goals LU 2, LU 4, LU 6, LU 7, C 2, C 3, CO 1, CO 3, CO 4, CO 8, and CO 10** would directly and indirectly reduce greenhouse gas emissions through a mix of land uses, a diverse and healthy economy, a beautiful urban environment, environmentally responsible development, a unified and well managed network of streets and highways, by direct energy savings, and indirect energy savings through water conservation, and preservation of open space. These goals would be achieved

⁸³ California Energy Commission, *Impact Analysis: 2008 Update to the California Energy Efficiency Standards*, (2007).

through the proposed objectives and policies, which are listed in their entirety below: **Objective LU 2.3, Policy LU 2.3.6; Objective LU 4.5, Policies LU 4.5.2, LU 4.5.3; Objective LU 6.1, Policy LU 6.1.3; Objective LU 7.1, Policies LU 7.1.2, LU 7.1.3; Objective C 2.2, Policy C 2.2.6; Objective C 3.3, C 3.3.1; Objective CO 1.1, Policy CO 1.1.1; Objective CO 1.2, Policy CO 1.2.1; Objective CO 1.3, Policies 1.3.1, CO 1.3.2, CO 1.3.3; Objective CO 1.5, Policy CO 1.5.7; Objective CO 3.1, Policies CO 3.1.5, CO 3.1.7, CO 3.1.11; Objective CO 3.6, Policy CO 3.6.1; Objective CO 4.1, Policies CO 4.1.1, CO 4.1.2, CO 4.1.3, CO 4.1.4, CO 4.1.5, CO 4.1.6, CO 4.1.7, CO 4.1.8; Objective CO 4.2, Policies CO 4.2.1, CO 4.2.2, CO 4.2.3; Objective CO 4.3, Policy CO 4.3.4; Objective CO 8.1, Policies CO 8.1.1, CO 8.1.2, CO 8.1.3, CO 8.1.4; Objective CO 8.2, Policies CO 8.2.1, CO 8.2.2, CO 8.2.3, CO 8.2.6, CO 8.2.7, CO 8.2.8, CO 8.2.9, CO 8.2.10, CO 8.2.11, CO 8.2.12; Objective CO 8.3, Policies CO 8.3.1, CO 8.3.2, CO 8.3.3, CO 8.3.4, CO 8.3.5, CO 8.3.6, CO 8.3.7, CO 8.3.8, CO 8.3.9, CO 8.3.10, CO 8.3.11; Objective CO 8.4, Policies CO 8.4.1, CO 8.4.2, CO 8.4.4, CO 8.4.5, CO 8.4.8; Objective CO 10.1, Policies CO 10.1.9 and 10.1.17; and Objective CO 10.2 and Policy CO 10.2.1.**

Goals C 2, CO 3, CO 4, and CO 8 and the following proposed objectives and policies (**Objective C 2.2, Policy C 2.2.6; Objective CO 3.1, Policy CO 3.1.11; Objective CO 3.4, Policy CO 3.4.2; Objective CO 8.3; Policy CO 8.3.7**) would promote carbon sequestration through the planning of urban trees, maintaining a healthy mature urban forest, and protecting existing trees through forest management. Terrestrial carbon sequestration reduces global warming by slowing down the buildup of carbon dioxide in the atmosphere. Trees remove (sequester) CO₂ from the atmosphere during photosynthesis to form carbohydrates that are used in plant structure/function and return oxygen back to the atmosphere as a byproduct. Trees, therefore, act as a carbon sink by removing the carbon and storing it as cellulose in their trunk, branches, leaves and roots while releasing oxygen back into the air.

Proposed Area Plan Policies and General Plan Goals, Objectives and Policies

The policies listed below are the same for the County's Area Plan and City's General Plan. The County's Area Plan focuses on policies and the City is evaluating General Plan goals, objectives, and policies.

Goal LU 2: A mix of land uses to accommodate growth, supported by adequate resources and maintaining community assets.

Objective LU 2.3: Promote mixed use development where appropriate to create more livable neighborhoods, walkable business districts, and to reduce vehicle trips, while ensuring land use compatibility, through the following policies:

Policy LU 2.3.6: Encourage provision of parking alternatives in mixed use developments, including subterranean parking and structured parking, to limit the amount of surface area devoted to vehicle storage.

Goal LU 4: A diverse and healthy economy.

Objective LU 4.5: Ensure creation of attractive and technology-friendly business environments to attract tenants and employees.

Policy LU 4.5.2: Encourage the provision of usable open space that is accessible to employees and visitors, and discourage the provision of large areas of water-consuming landscaping that are not usable or accessible.

Policy LU 4.5.3: Promote the inclusion of state-of-the-art technology within business complexes for telecommunications, heating and cooling, water and energy conservation, and other similar design features.

Goal LU 6: A scenic and beautiful urban environment that builds on the community's history and natural setting.

Objective LU 6.1: Maintain the natural beauty of the Santa Clarita Valley's hillsides, significant ridgelines, canyons, oak woodlands, rivers and streams.

Policy LU 6.1.3: Ensure that new development in hillside areas is designed to protect the scenic backdrop of foothills and canyons enjoyed by Santa Clarita Valley communities, through requiring compatible hillside management techniques that may include but are not limited to clustering of development; contouring and landform grading; revegetation with native plants; limited site disturbance; avoidance of tall retaining and build-up walls; use of stepped pads; and other techniques as deemed appropriate.

Goal LU 7: Environmentally responsible development through site planning, building design, waste reduction, and responsible stewardship of resources.

Objective LU 7.1: Achieve greater energy efficiency in building and site design.

Policy LU 7.1.2: Promote the use of solar panels and renewable energy sources in all projects.

Policy LU 7.1.3: Encourage development of energy-efficient buildings, and discourage construction of new buildings for which energy efficiency cannot be demonstrated.

Goal C 2: A unified and well-maintained network of streets and highways which provides safe and efficient movement of people and goods between neighborhoods, districts, and regional centers, while maintaining community character.

Objective C 2.2: Adopt and apply consistent standards throughout the Santa Clarita Valley for street design and service levels, which promote safety, convenience, and efficiency of travel.

Policy C 2.2.6: Within residential neighborhoods, promote the design of “healthy streets” which may include reduced pavement width, shorter block length, provision of on-street parking, traffic-calming devices, bike routes and pedestrian connectivity, landscaped parkways, and canopy street trees.

Goal C 3: Reduction of vehicle trips and emissions through effective management of travel demand, transportation systems, and parking.

Objective C 3.3: Make more efficient use of parking and maximize economic use of land, while decreasing impervious surfaces in urban areas, through parking management strategies.

Policy C 3.3.1: Evaluate parking standards and reduce requirements where appropriate, based on data showing that requirements are in excess of demand.

Goal CO.1: A balance between the social and economic needs of Santa Clarita Valley residents and protection of the natural environment, so that these needs can be met in the present and in the future.

Objective CO 1.1: Protect the capacity of the natural “green” infrastructure to absorb and break down pollutants, cleanse air and water, and prevent flood and storm damage.

Policy CO 1.1.1: In making land use decisions, consider the complex, dynamic, and interrelated ways that natural and human systems interact, such as the interactions between energy demand, water demand, air and water quality, and waste management.

Objective CO 1.2: Promote more sustainable utilization of renewable resource systems.

Policy CO 1.2.1: Improve the community’s understanding of renewable resource systems that occur naturally in the Santa Clarita Valley, including systems related to hydrology, energy, ecosystems, and habitats, and the interrelationships between these systems, through the following measures:

- c. Provide information to decision-makers about the interrelationship between traffic and air quality, ecosystems and water quality, land use patterns and public health, and other similar interrelationships between renewable resource systems in order to ensure that decisions are based on an understanding of these concepts.

Objective CO 1.3: Conserve and make more efficient use of non-renewable resource systems, such as fossil fuels, minerals, and materials.

Policy CO 1.3.1: Explore, evaluate, and implement methods to shift from using non-renewable resources to use of renewable resources in all aspects of land use planning and development.

Policy CO 1.3.2: Promote reducing, reusing, and recycling in all Land Use designations and cycles of development.

Policy CO 1.3.3: Provide informational material to the public about programs to conserve non-renewable resources and recover materials from the waste stream.

Objective CO 1.5: Manage urban development and human-built systems to minimize harm to ecosystems, watersheds, and other natural systems, such as urban runoff treatment trains that infiltrate, treat and remove direct connections to impervious areas.

Policy CO 1.5.7: Consider the principles of environmental sustainability, trip reduction, walkability, stormwater management, and energy conservation at the site, neighborhood, district, city, and regional level, in land use decisions.

Goal CO 3: Conservation of biological resources and ecosystems, including sensitive habitats and species.

Objective CO 3.1: In review of development plans and projects, encourage conservation of existing natural areas and restoration of damaged natural vegetation to provide for habitat and biodiversity.

Policy CO 3.1.5: Promote the use of site-appropriate native or adapted plant materials, and prohibit use of invasive or noxious plant species in landscape designs.

Policy CO 3.1.7: Limit the use of turf-grass on development sites and promote the use of native or adapted plantings to promote biodiversity and natural habitat.

Policy CO 3.1.11: Promote use of pervious materials or porous concrete on sidewalks to allow for planted area infiltration, allow oxygen to reach tree roots (preventing sidewalk lift-up from roots seeking oxygen), and mitigate tree-sidewalk conflicts, in order to maintain a healthy mature urban forest.

Objective CO 3.4: Ensure that development in the Santa Clarita Valley does not adversely impact habitat within the adjacent National Forest lands.

Policy CO 3.4.2: Consider principles of forest management in land use decisions for projects adjacent to the National Forest, including limiting the use of invasive species, discouraging off-road vehicle use,

maintaining fuel modification zones and fire access roads, and other measures as appropriate, in accordance with the goals set forth in the Angeles National Forest Land Management Plan.

Objective CO 3.6: Minimize impacts of human activity and the built environment on natural plant and wildlife communities.

Policy CO 3.6.1: Minimize light trespass, sky-glow, glare, and other adverse impacts on the nocturnal ecosystem by limiting exterior lighting to the level needed for safety and comfort; reduce unnecessary lighting for landscaping and architectural purposes, and encourage reduction of lighting levels during non-business nighttime hours.

Goal CO 4: An adequate supply of clean water to meet the needs of present and future residents and businesses, balanced with the needs of natural ecosystems.

Objective CO 4.1: Promote water conservation as a critical component of ensuring adequate water supply for Santa Clarita Valley residents and businesses.

Policy CO 4.1.1: In coordination with applicable water suppliers, adopt and implement a water conservation strategy for public and private development.

Policy CO 4.1.2: Provide examples of water conservation in landscaping through use of low water use landscaping in public spaces such as parks, landscaped medians and parkways, plazas, and around public buildings.

Policy CO 4.1.3: Promote low water use landscaping in new residential subdivisions and other private development projects, including a reduction in the amount of turf-grass.

Policy CO 4.1.4: Provide informational materials to applicants and contractors on the Castaic Lake Water Agency's Landscape Education Program, and/or other information on xeriscape, native California plants,

and water-conserving irrigation techniques as materials become available.

Policy CO 4.1.5: Promote low-flow and/or waterless plumbing fixtures and appliances in all new non-residential development and residential development of five or more dwelling units.

Policy CO 4.1.6: Support amendments to the County Building Code that would promote upgrades to water and energy efficiency when issuing permits for renovations or additions to existing buildings.

Policy CO 4.1.7: Apply water conservation policies to all pending development projects, including approved tentative subdivision maps, to the extent permitted by law; where precluded from adding requirements by vested entitlements, encourage water conservation in construction and landscape design.

Policy CO 4.1.8: Upon the availability of non-potable water services, discourage and consider restrictions on the use of potable water for washing outdoor surfaces.

Objective CO 4.2: Work with water providers and other agencies to identify and implement programs to increase water supplies to meet the needs of future growth.

Policy CO 4.2.1: In cooperation with the Sanitation District and other affected agencies, seek to expand opportunities for use of recycled water for the purposes of landscape maintenance, construction, water recharge, and other uses as appropriate.

Policy CO 4.2.2: Require new development to provide the infrastructure needed for delivery of recycled water to the property for use in irrigation, even if the recycled water main delivery lines have not yet reached the site, where deemed appropriate by the reviewing authority.

Policy CO 4.2.3: Promote the installation of rainwater capture and gray water systems in new buildings for irrigation, where feasible and practicable.

Objective CO 4.3: Limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, and managing stormwater runoff at the source.

Policy CO 4.3.4: Encourage and promote the use of new materials and technology for improved stormwater management, such as pervious paving, green roofs, rain gardens, and vegetated swales.

Policy CO 8.1.1: Support the County's efforts to create and adopt a Climate Action Plan that meets State requirements and includes the following components:

- a. Plans and programs to reduce GHG emissions to State-mandated targets, including enforceable reduction measures
- b. Mechanisms to ensure regular review of progress towards the emission reduction targets established by the Climate Action Plan
- c. Procedures for reporting on progress to officials and the public
- d. Procedures for revising the plan as needed to meet GHG emissions reduction targets
- e. Allocation of funding and staffing for Plan implementation

Policy CO 8.1.2: Participate in the preparation of a regional Sustainable Communities Strategy (SCS) to meet regional targets for greenhouse gas emission reductions as required by SB 375.

Policy CO 8.1.4: Provide information and education to the public about energy conservation and local strategies to address climate change.

Policy CO 8.2.2: Ensure energy efficiency of existing public buildings through energy audits and repairs, and retrofit buildings with energy

efficient heating and air conditioning systems and lighting fixtures.

Policy CO 8.2.3: Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for County buildings and operations and other methods as deemed appropriate and feasible, in concert with significant energy conservation efforts.

Policy CO 8.2.6: Promote use of solar lighting in parks and along paseos and trails, where practical.

Policy CO 8.2.8: Promote the purchase of energy-efficient and recycled products, and vendors and contractors who use energy-efficient vehicles and products, consistent with adopted purchasing policies.

Policy CO 8.2.9: Reduce heat islands through installation of trees to shade parking lots and hardscapes, and use of light-colored reflective paving and roofing surfaces.

Policy CO 8.2.10: Support installation of energy-efficient traffic control devices, street lights, and parking lot lights.

Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events.

Policy CO 8.2.12: Provide ongoing training to appropriate County employees on sustainable planning, building, and engineering practices.

Objective CO 8.3: Encourage green building and sustainable development practices on private development projects, to the extent reasonable and feasible.

Policy CO 8.3.1: Evaluate development proposals for consistency with the ordinances developed through the County's Green Building Program.

- Policy CO 8.3.2:** Promote construction of energy efficient buildings through the certification requirements of the ordinances developed through the County's Green Building Program.
- Policy CO 8.3.3:** Promote energy efficiency and water conservation upgrades to existing non-residential buildings at the time of major remodel or additions.
- Policy CO 8.3.4:** Encourage new residential development to include on-site solar photovoltaic systems, or pre-wiring, in at least 50% of the residential units, in concert with other significant energy conservation efforts.
- Policy CO 8.3.5:** Encourage on-site solar generation of electricity in new retail and office commercial buildings and associated parking lots, carports, and garages, in concert with significant energy conservation efforts.
- Policy CO 8.3.6:** Encourage new development to use passive solar heating and cooling techniques in building design and construction, which may include but are not be limited to building orientation, clerestory windows, skylights, placement and type of windows, overhangs to shade doors and windows, and use of light colored roofs and paving materials.
- Policy CO 8.3.7:** Encourage the use of trees and landscaping to reduce heating and cooling energy loads, through shading of buildings and parking lots.
- Policy CO 8.3.8:** Encourage energy-conserving heating and cooling systems and appliances, and energy-efficiency in windows and insulation, in all new construction.
- Policy CO 8.3.9:** Limit excessive lighting levels, and encourage a reduction of lighting when businesses are closed to a level required for security.

Policy CO 8.3.10: Provide incentives and technical assistance for installation of energy-efficient improvements in existing and new buildings.

Policy CO 8.3.11: Consider allowing carbon off-sets for large development projects, if appropriate, which may include funding off-site projects or purchase of credits for other forms of mitigation, provided that any such mitigation shall be measurable and enforceable.

Objective CO 8.4: Reduce energy consumption for processing raw materials by promoting recycling and materials recovery by all residents and businesses throughout the community.

Policy CO 8.4.1: Encourage and promote the location of enclosed materials recovery facilities (MRF) within the Santa Clarita Valley.

Policy CO 8.4.2: Adopt mandatory residential recycling programs for all residential units, including single-family and multi-family dwellings.

Policy CO 8.4.4: Promote commercial and industrial recycling, including recycling of construction and demolition debris.

Policy CO 8.4.5: Develop and implement standards for refuse and recycling receptacles and enclosures to accommodate recycling in all development.

Policy CO 8.4.8: Take an active role in promoting, incubating, and encouraging businesses that would qualify under the Recycling Market Development Zone program or equivalent, including those that manufacture products made from recycled products, salvage, and resource recovery business parks.

Goal CO 10: Preservation of open space to meet the community's multiple objectives for resource preservation.

Objective CO 10.1: Identify areas throughout the Santa Clarita Valley which should be preserved as open space in order to conserve significant resources for long-term community benefit.

Policy CO 10.1.9: Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas, and other open space that provides nature carbon sequestration benefits.

Policy CO 10.1.17: Allow alternative energy projects in areas designated for open space, where consistent with other uses and values.

Objective CO 10.2: Ensure the inclusion of adequate open space within development projects.

Policy CO 10.2.1: Encourage provision of vegetated open space on a development project's site, which may include shallow wetlands and ponds, drought tolerant landscaping, and pedestrian hardscape that includes vegetated areas.

Consistency with AB 32 Climate Change Scoping Plan

The proposed Area Plan and General Plan's consistency with the implementing programs and regulations to achieve the statewide GHG emission reduction goals established under AB 32 is evaluated below in **Table 3.4-8, Consistency of Sustainable Strategies with AB 32 Scoping Plan Measures**. The sustainable policies, project design features, and mitigation measures included in the proposed Area Plan and General Plan are evaluated relative to the key measures included in CARB's *Climate Change Scoping Plan*. As shown in the table below, the proposed Area Plan and General Plan would comply with the applicable Scoping Plan measures.

**Table 3.4-8
Consistency of Sustainable Strategies with AB 32 Scoping Plan Measures**

Scoping Plan Measure	OVOV Policy/Project Feature
SPM-1: California Cap-and-Trade Program linked to Western Climate Initiative	Not applicable.
SPM-2: California Light-Duty Vehicle GHG Standards	<p>Project is Consistent:</p> <p>The proposed project would comply with this measure to the extent that motor vehicles used by the project and its occupants would meet the standards that are in effect at the time of purchase.</p>
SPM-3: Energy Efficiency	<p>Project is Consistent:</p> <p>Policy CO 8.1.3: Implement the ordinances developed through the County's Green Building Program.</p> <p>Policy CO 8.2.1: Ensure that all new County buildings and all major renovations and additions meet adopted green building standards, with a goal of achieving the LEED (Leadership in Energy and Environmental Design) Silver rating or above, or equivalent, where appropriate.</p> <p>Policy CO 8.2.2: Ensure energy efficiency of existing public buildings through energy audits and repairs, and retrofit buildings with energy efficient heating and air conditioning systems and lighting fixtures.</p> <p>Policy CO 8.2.3: Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for County buildings and operations and other methods as deemed appropriate and feasible, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.2.4: Establish maximum lighting levels for public facilities, and encourage reduction of lighting levels to the level needed for security purposes after business hours, in addition to use of downward-directed lighting and use of low-reflective paving surfaces.</p> <p>Policy CO 8.2.5: Support installation of photovoltaic and other renewable energy equipment on public facilities, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.2.6: Promote use of solar lighting in parks and along paseos and trails, where practical.</p> <p>Policy CO 8.2.8: Promote the purchase of energy-efficient and recycled products, and vendors and contractors who use energy-efficient vehicles and products, consistent with adopted purchasing policies.</p> <p>Policy CO 8.2.9: Reduce heat islands through installation of trees to shade parking lots and hardscapes, and use of light-colored reflective paving and roofing surfaces.</p> <p>Policy CO 8.2.10: Support installation of energy-efficient traffic control devices, street lights, and parking lot lights.</p> <p>Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events.</p>

Scoping Plan Measure	OVOV Policy/Project Feature
	<p>Policy CO 8.2.12: Provide ongoing training to appropriate County employees on sustainable planning, building, and engineering practices.</p> <p>Policy CO 8.3.1: Evaluate development proposals for consistency with the ordinances developed through the County’s Green Building Program.</p> <p>Policy CO 8.3.2: Promote construction of energy efficient buildings through the certification requirements of the ordinances developed through the County’s Green Building Program.</p> <p>Policy CO 8.3.3: Promote energy efficiency and water conservation upgrades to existing non-residential buildings at the time of major remodel or additions.</p> <p>Policy CO 8.3.4: Encourage new residential development to include on-site solar photovoltaic systems, or pre-wiring, in at least 50% of the residential units, in concert with other significant energy conservation efforts.</p> <p>Policy CO 8.3.5: Encourage on-site solar generation of electricity in new retail and office commercial buildings and associated parking lots, carports, and garages, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.3.6: Encourage new development to use passive solar heating and cooling techniques in building design and construction, which may include but are not be limited to building orientation, clerestory windows, skylights, placement and type of windows, overhangs to shade doors and windows, and use of light colored roofs and paving materials.</p> <p>Policy CO 8.3.7: Encourage the use of trees and landscaping to reduce heating and cooling energy loads, through shading of buildings and parking lots.</p> <p>Policy CO 8.3.8: Encourage energy-conserving heating and cooling systems and appliances, and energy-efficiency in windows and insulation, in all new construction.</p> <p>Policy CO 8.3.9: Limit excessive lighting levels, and encourage a reduction of lighting when businesses are closed to a level required for security.</p> <p>Policy CO 8.3.10: Provide incentives and technical assistance for installation of energy-efficient improvements in existing and new buildings.</p> <p>Policy CO 8.3.11: Consider allowing carbon off-sets for large development projects, if appropriate, which may include funding off-site projects or purchase of credits for other forms of mitigation, provided that any such mitigation shall be measurable and enforceable.</p> <p>Policy LU 7.1.2: Promote the use of solar panels and renewable energy sources in all projects.</p> <p>Policy LU 7.1.3: Encourage development of energy-efficient buildings, and discourage construction of new buildings for which energy efficiency cannot be demonstrated.</p>
SPM-4: Renewables Portfolio Standard	Not applicable.
SPM-5: Low Carbon Fuel Standard	<p>Project is Consistent:</p> <p>The proposed project would comply with this measure to the extent that fuels used by the proposed project and its occupants would comply with the standard.</p>
SPM-6: Regional Transportation-Related	<p>Project is Consistent:</p> <p>Policy LU 2.1.2: On the Land Use Map, integrate land use designations in a manner</p>

Scoping Plan Measure	OVOV Policy/Project Feature
Greenhouse Gas Targets	<p>that promotes healthy, walkable communities, by providing an appropriate mix of residential and service uses in proximity to one another.</p> <p>Policy LU 2.3.1: In a mixed use development, residential densities at the higher end of the allowed range should be allowed only if the development incorporates a robust mix of non-residential uses.</p> <p>Policy LU 2.3.2: Either vertical or horizontal integration of uses should be allowed in a mixed use development, with an emphasis on tying together the uses with appropriate pedestrian linkages.</p> <p>Policy LU 2.3.4: Adequate public spaces and amenities should be provided in a mixed use development to support both commercial and residential uses, including but not limited to plazas, landscaped walkways, village greens, and greenbelts.</p> <p>Policy LU 2.3.5: Mixed use developments should be designed to create a pedestrian-scale environment through appropriate street and sidewalk widths, block lengths, relationship of buildings to streets, and use of public spaces.</p> <p>Policy LU 2.3.6: Encourage provision of parking alternatives in mixed use developments, including subterranean parking and structured parking, to limit the amount of surface area devoted to vehicle storage.</p> <p>Policy LU 3.1.1: On the Land Use Map, designate adequate land for residential use at various densities to provide a mix of housing opportunities for all segments of the population, including attached, detached, senior, and mixed use housing types, which are consistent with community character and meet the region's housing goals.</p> <p>Policy LU 3.1.3: Promote opportunities for live-work units to accommodate residents with home-based businesses.</p> <p>Policy LU 3.1.4: Promote development of workforce housing to meet the needs of those employed in the Santa Clarita Valley.</p> <p>Policy LU 3.1.7: Promote development of housing for students attending local colleges, in consideration of access to campuses to the extent practicable.</p> <p>Policy LU 3.2.1: Require provision of adequate walkways in urban residential neighborhoods that provide safe and accessible connections to destinations such as schools, parks, and neighborhood commercial centers.</p> <p>Policy LU 3.2.2: In planning residential neighborhoods, include pedestrian linkages, landscaped parkways with sidewalks, and separated trails for pedestrians and bicycles, where appropriate and feasible.</p> <p>Policy LU 4.2.3: Encourage businesses to locate in all appropriate areas of the community to encourage job creation in closer proximity to workforce housing.</p> <p>Policy LU 5.1.1: Require safe, secure, clearly-delineated, adequately-illuminated walkways and bicycle facilities in all commercial and business centers.</p> <p>Policy LU 5.1.2: Require connectivity between walkways and bikeways serving neighborhoods and nearby commercial areas, schools, parks, and other supporting services and facilities.</p> <p>Policy LU 5.1.3: Ensure that adequate bus turnouts, served by walkways and comfortable, safe, and convenient waiting facilities, are provided for transit users within residential, shopping, and business developments.</p> <p>Policy LU 5.2.1: Designate higher-density residential uses in areas served by public</p>

Scoping Plan Measure	OVOV Policy/Project Feature
	<p>transit and a full range of support services.</p> <p>Policy LU 5.2.2: Provide for location of neighborhood commercial uses in proximity to the neighborhoods they serve, to encourage cycling and walking to local stores.</p> <p>Policy LU 5.2.3: Promote location of non-polluting businesses providing employment opportunities in proximity to neighborhoods, to encourage walking to work.</p> <p>Policy LU 5.2.4: Encourage transit-oriented development (TOD) through designation of land uses that allow compact, mixed-use development in proximity to rail stations and multi-modal transit facilities, in conformance with applicable policies.</p> <p>Policy LU 5.2.5: Encourage the mix of compatible uses in areas where, though not served by rail or transit, mixed uses will achieve more walkable neighborhoods and trip reduction, in conformance with applicable policies.</p> <p>Policy C 1.1.1: Reduce dependence on the automobile, particularly single-occupancy vehicle use, by providing safe and convenient access to transit, bikeways, and walkways.</p> <p>Policy C 1.1.2: Promote expansion of alternative transportation options to increase accessibility to all demographic and economic groups throughout the community, including mobility-impaired persons, senior citizens, low-income persons, and youth.</p> <p>Policy C 1.1.3: Work with local and regional agencies and employers to promote an integrated, seamless transportation system that meets access needs, including local and regional bus service, dial-a-ride, taxis, rail, van pools, car pools, bus pools, bicycling, walking, and automobiles.</p> <p>Policy C 1.1.6: Encourage multi-modal travel through provision of adequate facilities, including but not limited to bicycle parking and storage, expansion of park-and-ride lots, and provision of adequate station and transfer facilities in appropriate locations.</p> <p>Policy C 1.1.12: Encourage the City of Santa Clarita to implement recommendations of its Non-Motorized Transportation Plan to expand opportunities for alternative travel modes.</p> <p>Policy C 1.1.13: Design new activity centers and improve existing activity centers to prioritize walking, bicycling and circulator transit for internal circulation of person-travel.</p> <p>Policy C 1.2.1: Develop coordinated plans for land use, circulation, and transit to promote transit-oriented development that concentrates higher density housing, employment, and commercial areas in proximity to transit corridors.</p> <p>Policy C 1.2.2: Create walkable communities, with paseos and walkways connecting residential neighborhoods to multi-modal transportation services such as bus stops and rail stations.</p> <p>Policy C 1.2.3: Require that new commercial and industrial development provide walkway connections to public sidewalks and transit stops, where available.</p> <p>Policy C 1.2.4: Consider location, availability, and accessibility of transit in evaluating new development plans.</p> <p>Policy C 1.2.5: Encourage compact development and mixed uses to locate</p>

Scoping Plan Measure	OVOV Policy/Project Feature
	<p>housing, workplaces, and services within walking or bicycling distance of each other.</p> <p>Policy C 1.2.6: Provide flexible standards for parking and roadway design in transit-oriented development areas to promote transit use, where appropriate.</p> <p>Policy C 1.2.7: In pedestrian-oriented areas, provide a highly connected circulation grid with relatively small blocks to encourage walking.</p> <p>Policy C 1.2.8: Provide safe pedestrian connections across barriers, which may include but are not limited to major traffic corridors, drainage and flood control facilities, utility easements, grade separations, and walls.</p> <p>Policy C 1.2.9: Emphasize providing right-of-way for non-vehicular transportation modes so that walking and bicycling are the easiest, most convenient modes of transportation available for short trips.</p> <p>Policy C 1.2.11: Reduce vehicle miles traveled (VMT) through the use of smart growth concepts.</p> <p>Policy C 2.1.1: Protect mobility on arterial highways by limiting excessive cross traffic, access points, and turning movements; traffic signals on arterial highways should be spaced at least ½-mile apart, and the minimum allowable separation should be at least ¼-mile.</p> <p>Policy C 2.1.2: Enhance connectivity of the roadway network to the extent feasible given the constraints of topography, existing development patterns, and environmental resources, by constructing grade separations and bridges; connecting discontinuous streets; extending secondary access into areas where needed; prohibiting gates on public streets; and other improvements as deemed appropriate based on traffic analysis.</p> <p>Policy C 2.2.6: Within residential neighborhoods, promote the design of “healthy streets” which may include reduced pavement width, shorter block length, provision of on-street parking, traffic-calming devices, bike routes and pedestrian connectivity, landscaped parkways, and canopy street trees.</p> <p>Policy C 2.2.7: Where practical, encourage the use of grid or modified grid street systems to increase connectivity and walkability; where cul-de-sacs are provided, promote the use of walkways connecting cul-de-sac bulbs to adjacent streets and/or facilities to facilitate pedestrian access; where street connectivity is limited and pedestrian routes are spaced over 500 feet apart, promote the use of intermediate pedestrian connections through or between blocks.</p> <p>Policy C 2.2.14: Streets should be designed in context with the terrain and the natural and built features of the area, but excessively circuitous streets should be avoided to minimize unnecessary vehicle, bicycle and pedestrian mileage.</p>
SPM-7: Vehicle Efficiency Measures	<p>Project is Consistent: See measures discussed above in SPM-2.</p>
SPM-8: Goods Movement	Not applicable.
SPM-9: Million Solar Roofs Program	<p>Project is Consistent:</p> <p>Policy LU 7.1.2: Promote the use of solar panels and renewable energy sources in all projects.</p> <p>Policy CO 8.2.3: Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for County buildings and operations and other methods as deemed appropriate and</p>

Scoping Plan Measure	OVOV Policy/Project Feature
	<p>feasible, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.2.6: Promote use of solar lighting in parks and along paseos and trails, where practical.</p> <p>Policy CO 8.3.4: Encourage new residential development to include on-site solar photovoltaic systems, or pre-wiring, in at least 50% of the residential units, in concert with other significant energy conservation efforts.</p>
SPM-10: Heavy/Medium-Duty Vehicles	<p>Project is Consistent:</p> <p>The proposed project would comply with this measure to the extent that medium- and heavy-duty vehicles used by the project during construction and operation would comply with the standards.</p>
SPM-11: Industrial Emissions	Not applicable.
SPM-12: High Speed Rail	Not applicable.
SPM-13: Green Building Strategy	<p>Project is Consistent:</p> <p>Policy CO 8.3.1: Evaluate development proposals for consistency with the ordinances developed through the County's Green Building Program.</p> <p>Policy CO 8.3.2: Promote construction of energy efficient buildings through the certification requirements of the ordinances developed through the County's Green Building Program.</p> <p>Policy CO 8.3.3: Promote energy efficiency and water conservation upgrades to existing non-residential buildings at the time of major remodel or additions.</p> <p>Policy CO 8.3.4: Encourage new residential development to include on-site solar photovoltaic systems, or pre-wiring, in at least 50% of the residential units, in concert with other significant energy conservation efforts.</p> <p>Policy CO 8.3.5: Encourage on-site solar generation of electricity in new retail and office commercial buildings and associated parking lots, carports, and garages, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.3.6: Encourage new development to use passive solar heating and cooling techniques in building design and construction, which may include but are not be limited to building orientation, clerestory windows, skylights, placement and type of windows, overhangs to shade doors and windows, and use of light colored roofs and paving materials.</p> <p>Policy CO 8.3.7: Encourage the use of trees and landscaping to reduce heating and cooling energy loads, through shading of buildings and parking lots.</p>
SPM-14: High Global Warming Potential Gases	Not applicable.
SPM-15: Recycling and Waste	<p>Project is Consistent:</p> <p>Policy CO 1.3.1: Explore, evaluate, and implement methods to shift from using non-renewable resources to use of renewable resources in all aspects of land use planning and development.</p> <p>Policy CO 1.3.2: Promote reducing, reusing, and recycling in all Land Use designations and cycles of development.</p> <p>Policy CO 1.3.3: Provide informational material to the public about programs to conserve non-renewable resources and recover materials from the waste stream.</p>

Scoping Plan Measure	OVOV Policy/Project Feature
	<p>Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events.</p> <p>Policy CO 8.4.1: Encourage and promote the location of enclosed materials recovery facilities (MRF) within the Santa Clarita Valley.</p> <p>Policy CO 8.4.2: Adopt mandatory residential recycling programs for all residential units, including single-family and multi-family dwellings.</p> <p>Policy CO 8.4.3: Allow and encourage composting of greenwaste, where appropriate.</p> <p>Policy CO 8.4.5: Develop and implement standards for refuse and recycling receptacles and enclosures to accommodate recycling in all development.</p> <p>Policy CO 8.4.6: Introduce and assist with the placement of receptacles for recyclable products in public places, including at special events.</p> <p>Policy CO 8.4.7: Provide information to the public on recycling opportunities and facilities, and support various locations and events to promote public participation in recycling.</p> <p>Policy CO 8.4.8: Take an active role in promoting, incubating, and encouraging businesses that would qualify under the Recycling Market Development Zone program or equivalent, including those that manufacture products made from recycled products, salvage, and resource recovery business parks.</p> <p>Policy LU 7.5.1: Ensure that all new development provides adequate space for recycling receptacles and bins on site.</p>
<p>SPM-16: Sustainable Forests</p>	<p>Project is Consistent:</p> <p>Policy CO 3.4.2: Consider principles of forest management in land use decisions for projects adjacent to the National Forest, including limiting the use of invasive species, discouraging off-road vehicle use, maintaining fuel modification zones and fire access roads, and other measures as appropriate, in accordance with the goals set forth in the Angeles National Forest Land Management Plan.</p> <p>Policy CO 10.1.9: Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas, and other open space that provides nature carbon sequestration benefits.</p>
<p>SPM-17: Water</p>	<p>Project is Consistent:</p> <p>Policy CO 4.1.1: In coordination with applicable water suppliers, adopt and implement a water conservation strategy for public and private development.</p> <p>Policy CO 4.1.2: Provide examples of water conservation in landscaping through use of low water use landscaping in public spaces such as parks, landscaped medians and parkways, plazas, and around public buildings.</p> <p>Policy CO 4.1.3: Promote low water use landscaping in new residential subdivisions and other private development projects, including a reduction in the amount of turf-grass.</p> <p>Policy CO 4.1.4: Provide informational materials to applicants and contractors on the Castaic Lake Water Agency’s Landscape Education Program, and/or other information on xeriscape, native California plants, and water-conserving irrigation techniques as materials become available.</p> <p>Policy CO 4.1.5: Promote low-flow and/or waterless plumbing fixtures and appliances in all new non-residential development and residential development of five or more dwelling units.</p>

Scoping Plan Measure	OVOV Policy/Project Feature
	<p>Policy CO 4.1.6: Support amendments to the County Building Code that would promote upgrades to water and energy efficiency when issuing permits for renovations or additions to existing buildings.</p> <p>Policy CO 4.1.7: Apply water conservation policies to all pending development projects, including approved tentative subdivision maps, to the extent permitted by law; where precluded from adding requirements by vested entitlements, encourage water conservation in construction and landscape design.</p> <p>Policy CO 4.1.8: Upon the availability of non-potable water services, discourage and consider restrictions on the use of potable water for washing outdoor surfaces.</p> <p>Policy CO 4.2.1: In cooperation with the Sanitation District and other affected agencies, seek to expand opportunities for use of recycled water for the purposes of landscape maintenance, construction, water recharge, and other uses as appropriate.</p> <p>Policy CO 4.2.2: Require new development to provide the infrastructure needed for delivery of recycled water to the property for use in irrigation, even if the recycled water main delivery lines have not yet reached the site, where deemed appropriate by the reviewing authority.</p> <p>Policy CO 4.2.3: Promote the installation of rainwater capture and gray water systems in new buildings for irrigation, where feasible and practicable.</p> <p>Policy CO 4.2.4: Identify and protect areas with substantial potential for groundwater recharge, and promote recharge of groundwater basins throughout the watershed (excluding the river bed).</p> <p>Policy CO 4.2.5: Participate and cooperate with other agencies to complete, adopt, and implement an Integrated Regional Water Management Plan to build a diversified portfolio of water supply, water quality, and resource stewardship priorities for the Santa Clarita Valley.</p> <p>Policy LU 4.5.2: Encourage the provision of usable open space that is accessible to employees and visitors, and discourage the provision of large areas of water-consuming landscaping that are not usable or accessible.</p>
SPM-18: Agriculture	Not applicable.

Source: Impact Sciences, Inc., (2009).

In addition, as CARB and the SCAQMD develop additional control measures and regulations for direct and indirect GHG emissions (e.g., indirect source rule), by occupants within the OVOV Planning Area may be required to comply with any newly adopted measures and regulations.

As previously discussed, CARB's AB 32 *Climate Change Scoping Plan* outlines the state's strategies for achieving 1990-level GHG emissions by 2020. CARB has estimated the state's 1990 emissions at approximately 427 MMTCO₂E. Using 2002-2004 data, CARB projected the state's 2020 "business as usual" emissions at approximately 596 MMTCO₂E. The 2020 business as usual projected emissions were based on current technology with assumptions for growth factors based on each economic sector. For example,

it was assumed that all growth in electricity demand by 2020 would be met by in-state natural gas-fired power plants. Similarly, transportation-related GHG emissions in 2020 were based on current fuel sales data and growth in vehicle miles traveled derived from EMFAC2007 with no change in vehicle fleet mix over time. Based on CARB's GHG emissions inventory, the *Climate Change Scoping Plan* identifies measures that will achieve the necessary reductions from business as usual conditions. **Table 3.4-9, Climate Change Scoping Plan GHG Emission Reductions**, lists the Scoping Plan measures and the estimated reductions from business as usual conditions. Because different sectors will achieve different levels of emission reductions, **Table 3.4-10** lists the emission reductions by sector as well as the percent reduction from business as usual conditions in 2020 for each sector. For example, Scoping Plan Measure 2, California Light-Duty Vehicle Standards, would account for a reduction of 31.7 MMTCO₂E, which is equal to a 14.1 percent reduction of the total transportation sector emissions projected under 2020 business as usual conditions.

The reductions outlined in the table above would primarily be implemented through a variety of regulatory actions at the state level and partnerships with local governments. In addition, local air quality management districts and air pollution control districts may impose permitting requirements for industrial and other stationary sources of GHG emissions. As shown previously in **Table 3.4-8**, the goals, objectives, and policies of the proposed Area Plan and General Plan would be consistent with the measures and strategies recommended by CARB. In addition to demonstrating consistency with these measures and strategies, the proposed Area Plan and General Plan would achieve real and quantifiable reductions in GHG emissions from business as usual conditions so that it would not impede or conflict with the state's goal outlined in AB 32—that is, achieving 1990 levels of GHG emissions by 2020. Sources of GHG emissions within the OVOV Planning Area would comply with regulatory-driven requirements at the State level as well as with permitting requirements from local agencies. It is generally assumed that the proposed Area Plan and General Plan would be consistent with the reduction levels listed in **Table 3.4-9** from regulatory- or permit-driven requirements. Reductions from measures and strategies applicable to the proposed Area Plan and General Plan and achieved via local government partnerships include Scoping Plan Measures 3 (Energy Efficiency – Commercial/Residential), 6 (Regional Transportation), and 9 (Million Solar Roofs Initiative).

**Table 3.4-9
Climate Change Scoping Plan GHG Emission Reductions**

Sector	ID No.	Scoping Plan Measure	Reductions (MMTCO₂E)	Percent Reductions from BAU (by Sector)
Capped Sectors (Subject to SPM-1, California Cap and Trade Program)				
Transportation	SPM-2	California Light-Duty Vehicle Standards*	31.7	14.1%
Transportation	SPM-5	Low Carbon Fuel Standard*	15.0	6.7%
Transportation	SPM-6	Regional Transportation	5.0	2.2%
Transportation	SPM-7	Vehicle Efficiency*	4.5	2.0%
Transportation	SPM-8	Goods Movement*	3.7	1.6%
Transportation	SPM-10	Medium/Heavy Duty Vehicles*	1.4	0.6%
Transportation	SPM-12	High Speed Rail*	1.0	0.4%
Electricity	SPM-3	Energy Efficiency – Utilities*	21.9	15.7%
Electricity	SPM-4	Renewable Portfolio Standard*	21.3	15.3%
Electricity	SPM-9	Million Solar Roofs Initiative	2.1	1.5%
Commercial/Residential	SPM-3	Energy Efficiency – Commercial/Residential	4.4	9.4%
Industry (capped)	SPM-11	Industrial Emissions*	0.3	0.3%
Additional Reductions Necessary (all sectors)**			34.4	5.8%
Uncapped Sectors (Not subject to SPM-1, California Cap and Trade Program)				
Industry (uncapped)	SPM-11	Industrial Emissions*	1.1	1.1%
High GWP	SPM-14	High GWP Gases*	20.2	43.1%
Recycling and Waste	SPM-15	Recycling/Waste (Landfill Methane Control)*	1.0	13.0%

Source: California Air Resources Board, Climate Change Scoping Plan, (2008).

* Reductions from these measures would primarily result from regulatory efforts at the State level or permitting requirements from local agencies.

** The Climate Change Scoping Plan requires additional reductions from capped sectors to meet AB 32. The methods and strategies to achieve these additional reductions are not yet specified. CARB estimates that the additional reductions could be achieved via the cap and trade program as well as through additional regulations, such as more stringent light-duty vehicle emission standards.

Note: Scoping Plan Measures 13, 15, and 17 are not included in the emission reduction projections due to the potential for double counting. Scoping Plan Measure 16 is expected to continue to achieve a 5 MMTCO₂E reduction in GHG emissions due to carbon sequestration; however, it is not included in the emission reduction projections as a conservative assumption. Scoping Plan Measure 18 is not included in the emission reduction projections because compliance is voluntary.

Reductions associated with the commercial/residential component of Scoping Plan Measure 3 are anticipated to result in approximately 9.4 percent of the 2020 business as usual emissions for the electricity sector. As previously discussed, buildings associated with future development in the OVOV Planning Area would be constructed using Title 24 building code standards in effect at the time of construction. The 2008 revisions to Title 24 would reduce emissions associated with residential electricity

consumption by 19.7 percent and non-residential electricity consumption by 4.9 percent.⁸⁴ Emission reductions due to the 2008 revisions to Title 24 were not included in the emission estimates provided in **Table 3.4-7**. Future revisions to the Title 24 building code standards would result in even greater reductions. Based on the mix of residential and commercial land uses associated with the proposed Area Plan and General Plan, the average reduction in emissions would be 11.8 percent, under Title 24 (2008).⁸⁵ This value exceeds the sector-specific projected reduction of 9.4 percent listed in **Table 3.4-9**.

Reductions associated with Scoping Plan Measure 6 (Regional Transportation) are anticipated to equal approximately 5 MMTCO₂E. The Southern California Association of Governments (SCAG) is in the process of developing a methodology for the implementation of SB 375 in the region. As discussed earlier in this section, SB 375 requires regional governing bodies in each of the state's major metropolitan areas to adopt, as part of their regional transportation plan, a "sustainable community strategy" that will meet the region's target for reducing GHG emissions. While CARB has not yet established regional targets, SCAG is estimating that it will be required to achieve reductions of approximately 2.5 MMTCO₂E based on the fact that SCAG represents approximately half of the state in terms of population and emissions.⁸⁶ Subregional population data collected from the City of Santa Clarita for the Santa Clarita Valley and Antelope Valley states that the subregion represents approximately 3.5 percent of the SCAG population. This translates to a GHG reduction target of approximately 0.88 MMTCO₂E. As shown in **Table 3.4-8**, the proposed Area Plan and General Plan would result in a reduction of approximately 0.90 MMTCO₂E compared to the existing Area Plan and General Plan. Therefore, the subregion would reduce its "fair share" of emissions consistent with SCAG preliminary estimates.

Consistency with 2006 Climate Action Team Report

The 2006 Climate Action Team report contains recommendations and strategies to reduce emissions of GHGs and associated impacts. As previously discussed, some strategies are currently being developed and/or implemented by state agencies such as the Cal/EPA and the Resources Agency. As listed below in **Table 3.4-10, Consistency with the 2006 Climate Action Team Report**, the proposed Area Plan and General Plan would be consistent with the recommended measures.

⁸⁴ California Energy Commission, *Impact Analysis: 2008 Update to the California Energy Efficiency Standards*, (2007).

⁸⁵ Residential land uses account for approximately 46.6 percent of the total electricity demand. Non-residential land uses account for approximately 53.4 percent of the total electricity demand.

⁸⁶ Southern California Association of Governments, *SB 375 Approach and Process Description, Working Draft*, (2009) 2.

**Table 3.4-10
Consistency with the 2006 Climate Action Team Report**

ID	Strategy	OVOV Policy/Project Feature
Implementing Agency: Cal/EPA or California Air Resources Board		
CAT-1	<p>Vehicle Climate Change Standards: With the passage of AB 1493, Pavley, Chapter 200, Statutes of 2002, California moved to the forefront of reducing vehicle climate change emissions. This bill required 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.</p>	<p>Project is Consistent: The on-road vehicles that travel to and from the proposed project site would be in compliance with applicable CARB and/or US EPA emission standards that are in effect at the time of purchase.</p>
CAT-2	<p>Diesel Anti-Idling: In July 2004 the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.</p>	<p>Project is Consistent: The proposed project would be in compliance with current State law, which restricts diesel truck idling to five minutes or less.</p>
CAT-3	<p>Other New Light Duty Vehicle Technology Improvements: New standards would be adopted to phase in beginning in the 2017 model year (following up on the existing mid-term standards that reach maximum stringency in 2016).</p>	<p>Project is Consistent: The on-road vehicles that travel to and from the proposed project site would be in compliance with applicable CARB and/or US EPA emission standards that are in effect at the time of purchase.</p>
CAT-4	<p>HFC Reduction Strategies: CARB staff has identified five possible measures to reduce HFC emissions from vehicular and commercial refrigeration systems.</p> <ol style="list-style-type: none"> 1. Ban the retail sale of hydrofluorocarbon (HFC) in small (mostly 12-oz.) cans. 2. Require that only low-GWP refrigerants be used in new vehicular systems. 3. Adopt specifications for new commercial refrigeration. 4. Add refrigerant leak-tightness to the "pass" criteria for vehicular Inspection and Maintenance programs (all vehicles) and adopt an "inspect and repair" measure for commercial systems. 5. Enforce the federal ban on releasing HFCs. 	<p>Project is Consistent: This strategy applies to vehicular and commercial refrigeration systems. The systems used by the proposed project and its occupants would be in compliance with the applicable measures that are in effect at the time of manufacture.</p>

ID	Strategy	OVOV Policy/Project Feature
CAT-5	Transport Refrigeration Units Electrification, Off-road Electrification, Port Electrification (ship to shore).	Project is Consistent: Transportation refrigerator units and off-road engines used by the proposed project and its occupants would be in compliance with the applicable measures that are in effect.
CAT-6	Manure Management.	Not applicable.
CAT-7	Semi Conductor Industry Targets (PFC Emissions).	Not applicable.
CAT-8	Alternative Fuels: Biodiesel Blends. CARB would develop regulations to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel.	Project is Consistent: Diesel-fueled engines used by the OVOV proposed project and its occupants would be in compliance with the applicable measures that are in effect.
CAT-9	Alternative Fuels: Ethanol. Increase use of E-85 fuel.	Project is Consistent: Flex-fuel capable vehicles used by the project and its occupants would be purchased to the extent required under this strategy.
CAT-10	Heavy-Duty Vehicle Emission Reduction Measures: Climate change emissions can be reduced with improved aerodynamics, climate engine-based improved efficiency, vehicle weight reduction, and rolling and inertia resistance improvements.	Project is Consistent: The medium- and heavy-duty vehicles used during construction and operation of the proposed project would comply with applicable standards.
CAT-11	Reduced Venting and Leaks in Oil and Gas Systems: A model rule would be developed to be considered for adoption by the Air Pollution Control Districts.	Project is Consistent: The on-road vehicles that travel to and from the proposed project site would be in compliance with applicable standards that are in effect at the time of purchase.
CAT-12	Hydrogen Highway: The California Hydrogen Highway Network (CA H2 Net) is a State initiative to promote the use of hydrogen as a means of diversifying the sources of transportation energy in order achieve a secure energy future, address environmental, public health, and economic challenges, and work in partnership with other State programs to advance energy efficiency and renewable energy. The CA H2 Net mission is to assure that hydrogen infrastructure is in place as fuel cells and other hydrogen technologies reach commercial readiness.	Project is Consistent: Hydrogen fuel-cell vehicles used by the project and its occupants would be purchased and used to the extent required under this strategy.

ID	Strategy	OVOV Policy/Project Feature
Implementing Agency: Cal/EPA or Integrated Waste Management Board		
CAT-13	<p>Achieve 50% Statewide Recycling Goal:</p> <p>Achieving the State’s 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills.</p>	<p>Project is Consistent:</p> <p>The project would be in compliance with the Statewide 50% recycling goal.</p> <p>Policy CO 1.3.1: Explore, evaluate, and implement methods to shift from using non-renewable resources to use of renewable resources in all aspects of land use planning and development.</p> <p>Policy CO 1.3.2: Promote reducing, reusing, and recycling in all Land Use designations and cycles of development.</p> <p>Policy CO 1.3.3: Provide informational material to the public about programs to conserve non-renewable resources and recover materials from the waste stream.</p> <p>Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events.</p> <p>Policy CO 8.4.1: Encourage and promote the location of enclosed materials recovery facilities (MRF) within the Santa Clarita Valley.</p> <p>Policy CO 8.4.2: Adopt mandatory residential recycling programs for all residential units, including single-family and multi-family dwellings.</p> <p>Policy CO 8.4.3: Allow and encourage composting of greenwaste, where appropriate.</p> <p>Policy CO 8.4.4: Promote commercial and industrial recycling, including recycling of construction and demolition debris.</p> <p>Policy CO 8.4.5: Develop and implement standards for refuse and recycling receptacles and enclosures to accommodate recycling in all development.</p> <p>Policy CO 8.4.6: Introduce and assist with the placement of receptacles for recyclable products in public places, including at special events.</p> <p>Policy CO 8.4.7: Provide information to the public on recycling opportunities and facilities, and support various locations and events to promote public participation in recycling.</p> <p>Policy CO 8.4.8: Take an active role in promoting, incubating, and encouraging businesses that would qualify under the Recycling Market Development Zone program or equivalent, including those that manufacture products made from recycled products, salvage, and resource recovery business parks.</p>

ID	Strategy	OVOV Policy/Project Feature
		<p>Policy LU 7.5.1: Ensure that all new development provides adequate space for recycling receptacles and bins on site.</p> <p>Policy LU 7.5.2: Promote the use of recycled building materials.</p>
CAT-14	<p>Landfill Methane Capture: Landfills can install direct gas use projects or electricity projects with backup flare systems to capture and use methane.</p>	Not applicable.
CAT-15	<p>Zero Waste –High Recycling: Additional recovery of recyclable materials from landfills will reduce the climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. Transforming organics/biomass and plastic waste into marketable products will also reduce the amount of material going to landfill, and therefore will further reduce climate change emissions.</p>	<p>Project is Consistent: See measure discussed above in CAT-13.</p>
Implementing Agency: Resources Agency or Department of Forestry		
CAT-16	<p>Forest Management: Strategies for storing more carbon through forest management activities can involve a range of management activities such as increasing either the growth of individual trees, the overall age of trees prior to harvest, or dedicating land to older aged trees.</p>	Not applicable.
CAT-17	<p>Forest Conservation: Conservation projects are designed to minimize/prevent the climate change emissions that are associated with the conversion of forestland to non-forest uses by adding incentives to maintain an undeveloped forest landscape.</p>	<p>Project is Consistent Policy CO 3.4.2: Consider principles of forest management in land use decisions for projects adjacent to the National Forest, including limiting the use of invasive species, discouraging off-road vehicle use, maintaining fuel modification zones and fire access roads, and other measures as appropriate, in accordance with the goals set forth in the Angeles National Forest Land Management Plan.</p>
CAT-18	<p>Fuels Management/Biomass: Fire management and biomass development projects could be accelerated by establishing a new state goal of thinning, removing, and treating public and privately owned forestland.</p>	Not applicable.

ID	Strategy	OVOV Policy/Project Feature
CAT-19	<p>Urban Forestry:</p> <p>This strategy would expand the State Urban Forestry Program. A new state-wide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.</p>	<p>Project is Consistent:</p> <p>Policy CO 10.1.9: Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas, and other open space that provides nature carbon sequestration benefits.</p> <p>Policy CO 10.2.1: Encourage provision of vegetated open space on a development project’s site, which may include shallow wetlands and ponds, drought tolerant landscaping, and pedestrian hardscape that includes vegetated areas.</p> <p>Policy CO 10.2.4: Seek opportunities to incorporate site features into the open space of a project design, which may include significant trees, vegetation, terrain, or water features, to provide thermal, acoustic, and aesthetic benefits.</p>
CAT-20	<p>Afforestation/Reforestation:</p> <p>Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.</p>	<p>Not applicable.</p>
<p>Implementing Agency: Resources Agency or Department of Water Resources</p>		
CAT-21	<p>Water Use Efficiency:</p> <p>Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Saving water saves energy. Saving water that gets treated as wastewater saves more energy. Saving water that gets heated or additionally pressurized saves still more.</p>	<p>Project is Consistent:</p> <p>Policy CO 4.1.1: In coordination with applicable water suppliers, adopt and implement a water conservation strategy for public and private development.</p> <p>Policy CO 4.1.2: Provide examples of water conservation in landscaping through use of low water use landscaping in public spaces such as parks, landscaped medians and parkways, plazas, and around public buildings.</p> <p>Policy CO 4.1.3: Promote low water use landscaping in new residential subdivisions and other private development projects, including a reduction in the amount of turf-grass.</p> <p>Policy CO 4.1.4: Provide informational materials to applicants and contractors on the Castaic Lake Water Agency’s Landscape Education Program, and/or other information on xeriscape, native California plants, and water-conserving irrigation techniques as materials become available.</p> <p>Policy CO 4.1.5: Promote low-flow and/or waterless plumbing fixtures and appliances in all new non-residential development and residential development of five or more dwelling units.</p>

ID	Strategy	OVOV Policy/Project Feature
		<p>Policy CO 4.1.6: Support amendments to the County Building Code that would promote upgrades to water and energy efficiency when issuing permits for renovations or additions to existing buildings.</p> <p>Policy CO 4.1.7: Apply water conservation policies to all pending development projects, including approved tentative subdivision maps, to the extent permitted by law; where precluded from adding requirements by vested entitlements, encourage water conservation in construction and landscape design.</p> <p>Policy CO 4.1.8: Upon the availability of non-potable water services, discourage and consider restrictions on the use of potable water for washing outdoor surfaces.</p> <p>Policy CO 4.2.1: In cooperation with the Sanitation District and other affected agencies, seek to expand opportunities for use of recycled water for the purposes of landscape maintenance, construction, water recharge, and other uses as appropriate.</p> <p>Policy CO 4.2.2: Require new development to provide the infrastructure needed for delivery of recycled water to the property for use in irrigation, even if the recycled water main delivery lines have not yet reached the site, where deemed appropriate by the reviewing authority.</p> <p>Policy CO 4.2.3: Promote the installation of rainwater capture and gray water systems in new buildings for irrigation, where feasible and practicable.</p> <p>Policy CO 4.2.4: Identify and protect areas with substantial potential for groundwater recharge, and promote recharge of groundwater basins throughout the watershed (excluding the river bed).</p> <p>Policy CO 4.2.5: Participate and cooperate with other agencies to complete, adopt, and implement an Integrated Regional Water Management Plan to build a diversified portfolio of water supply, water quality, and resource stewardship priorities for the Santa Clarita Valley.</p> <p>Policy LU 4.5.2: Encourage the provision of usable open space that is accessible to employees and visitors, and discourage the provision of large areas of water-consuming landscaping that are not usable or accessible.</p>

ID	Strategy	OVOV Policy/Project Feature
Implementing Agency: Resources Agency or Energy Commission		
CAT-22	<p>Building Energy Efficiency Standards in Place and in Progress:</p> <p>The Energy Action Plan and the Integrated Energy Policy Report both call for ongoing updating of the standards, including meeting energy efficiency goals, addressing demand response and promoting the combination of solar photovoltaics and high-energy efficiency buildings.</p> <p>As part of the process of updating the Building Energy Efficiency Standards, the Energy Commission evaluates new and emerging technology for possible inclusion in the standards.</p>	<p>Project is Consistent:</p> <p>Policy CO 8.1.3: Implement the ordinances developed through the County’s Green Building Program.</p> <p>Policy CO 8.2.1: Ensure that all new County buildings and all major renovations and additions meet adopted green building standards, with a goal of achieving the LEED (Leadership in Energy and Environmental Design) Silver rating or above, or equivalent, where appropriate.</p> <p>Policy CO 8.2.2: Ensure energy efficiency of existing public buildings through energy audits and repairs, and retrofit buildings with energy efficient heating and air conditioning systems and lighting fixtures.</p> <p>Policy CO 8.2.3: Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for County buildings and operations and other methods as deemed appropriate and feasible, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.2.5: Support installation of photovoltaic and other renewable energy equipment on public facilities, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.2.8: Promote the purchase of energy-efficient and recycled products, and vendors and contractors who use energy-efficient vehicles and products, consistent with adopted purchasing policies.</p> <p>Policy CO 8.2.9: Reduce heat islands through installation of trees to shade parking lots and hardscapes, and use of light-colored reflective paving and roofing surfaces.</p> <p>Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events.</p> <p>Policy CO 8.3.1: Evaluate development proposals for consistency with the ordinances developed through the County’s Green Building Program.</p> <p>Policy CO 8.3.2: Promote construction of energy efficient buildings through the certification requirements of the ordinances developed through the County’s Green Building Program.</p> <p>Policy CO 8.3.3: Promote energy efficiency and water conservation upgrades to existing non-residential buildings at the time of major remodel or additions.</p> <p>Policy CO 8.3.4: Encourage new residential development to include on-site solar photovoltaic</p>

ID	Strategy	OVOV Policy/Project Feature
		<p>systems, or pre-wiring, in at least 50% of the residential units, in concert with other significant energy conservation efforts.</p> <p>Policy CO 8.3.5: Encourage on-site solar generation of electricity in new retail and office commercial buildings and associated parking lots, carports, and garages, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.3.6: Encourage new development to use passive solar heating and cooling techniques in building design and construction, which may include but are not be limited to building orientation, clerestory windows, skylights, placement and type of windows, overhangs to shade doors and windows, and use of light colored roofs and paving materials.</p> <p>Policy CO 8.3.7: Encourage the use of trees and landscaping to reduce heating and cooling energy loads, through shading of buildings and parking lots.</p> <p>Policy CO 8.3.8: Encourage energy-conserving heating and cooling systems and appliances, and energy-efficiency in windows and insulation, in all new construction.</p> <p>Policy CO 8.3.10: Provide incentives and technical assistance for installation of energy-efficient improvements in existing and new buildings.</p> <p>Policy CO 8.3.11: Consider allowing carbon off-sets for large development projects, if appropriate, which may include funding off-site projects or purchase of credits for other forms of mitigation, provided that any such mitigation shall be measurable and enforceable.</p> <p>Policy LU 7.1.2: Promote the use of solar panels and renewable energy sources in all projects.</p> <p>Policy LU 7.1.3: Encourage development of energy-efficient buildings, and discourage construction of new buildings for which energy efficiency cannot be demonstrated.</p>
CAT-23	<p>Appliance Energy Efficiency Standards in Place and in Progress:</p> <p>The Energy Commission adopts new standards for a variety of appliances.</p> <p>As part of the process of updating the Appliance Energy Efficiency Standards, the CEC evaluates new and emerging technology for increasing the energy efficiency of appliances and equipment for possible inclusion in the standards.</p>	<p>Project is Consistent:</p> <p>See measures discussed above in CAT-22.</p>

ID	Strategy	OVOV Policy/Project Feature
CAT-24	<p>Fuel-Efficient Replacement Tires & Inflation Programs:</p> <p>State legislation established a statewide program to encourage the production and use of more efficient tires.</p>	<p>Project is Consistent:</p> <p>The vehicles that travel to and from the proposed project site would be in compliance with applicable tire standards that are in effect.</p>
CAT-25	<p>Cement Manufacturing:</p> <p>This strategy involves cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry.</p>	Not applicable.
CAT-26	<p>Municipal Utility Energy Efficiency Programs/ Demand Response:</p> <p>The Energy Commission and the California PUC are collaborating on additional energy efficiency programs beyond those programs already adopted.</p>	Not applicable.
CAT-27	<p>Municipal Utility Renewable Portfolio Standard:</p> <p>Achieve the 20 percent goal by 2010 and 33 percent goal by 2020.</p>	Not applicable.
CAT-28	<p>Municipal Utility Combined Heat and Power:</p> <p>This strategy constitutes cost-effective reductions from fossil fuel consumption in the commercial and industrial sector through application of on-site power production to meet both heat and electricity loads.</p>	Not applicable.
CAT-29	<p>Municipal Utility Electricity Sector Carbon Policy:</p> <p>The Energy Commission and the CPUC are collaborating on additional programs to address ways to transition investor-owned utilities away from carbon-intensive electricity sources.</p>	Not applicable.
CAT-30	<p>Alternative Fuels: Non-Petroleum Fuels:</p> <p>This strategy involves increasing the use of non-petroleum fuels in California's transportation sector.</p>	<p>Project is Consistent:</p> <p>The project and its occupants would utilize non-petroleum fuels for transportation to the extent required under this strategy.</p>

ID	Strategy	OVOV Policy/Project Feature
Implementing Agency: Business, Transportation, and Housing Agency		
CAT-33	<p>Measures to Improve Transportation Energy Efficiency:</p> <p>This strategy 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.</p>	<p>Project is Consistent:</p> <p>Policy LU 2.1.2: On the Land Use Map, integrate land use designations in a manner that promotes healthy, walkable communities, by providing an appropriate mix of residential and service uses in proximity to one another.</p> <p>Policy LU 2.3.2: Either vertical or horizontal integration of uses should be allowed in a mixed use development, with an emphasis on tying together the uses with appropriate pedestrian linkages.</p> <p>Policy LU 2.3.4: Adequate public spaces and amenities should be provided in a mixed use development to support both commercial and residential uses, including but not limited to plazas, landscaped walkways, village greens, and greenbelts.</p> <p>Policy LU 2.3.5: Mixed use developments should be designed to create a pedestrian-scale environment through appropriate street and sidewalk widths, block lengths, relationship of buildings to streets, and use of public spaces.</p> <p>Policy LU 2.3.6: Encourage provision of parking alternatives in mixed use developments, including subterranean parking and structured parking, to limit the amount of surface area devoted to vehicle storage.</p> <p>Policy LU 3.1.3: Promote opportunities for live-work units to accommodate residents with home-based businesses.</p> <p>Policy LU 3.1.4: Promote development of workforce housing to meet the needs of those employed in the Santa Clarita Valley.</p> <p>Policy LU 3.1.7: Promote development of housing for students attending local colleges, in consideration of access to campuses to the extent practicable.</p> <p>Policy LU 3.2.1: Require provision of adequate walkways in urban residential neighborhoods that provide safe and accessible connections to destinations such as schools, parks, and neighborhood commercial centers.</p> <p>Policy LU 3.2.2: In planning residential neighborhoods, include pedestrian linkages, landscaped parkways with sidewalks, and separated trails for pedestrians and bicycles, where appropriate and feasible.</p> <p>Policy LU 4.2.3: Encourage businesses to locate in all appropriate areas of the community to encourage job creation in closer proximity to workforce housing.</p>

ID	Strategy	OVOV Policy/Project Feature
		<p>Policy LU 5.1.1: Require safe, secure, clearly-delineated, adequately-illuminated walkways and bicycle facilities in all commercial and business centers.</p> <p>Policy LU 5.1.2: Require connectivity between walkways and bikeways serving neighborhoods and nearby commercial areas, schools, parks, and other supporting services and facilities.</p> <p>Policy LU 5.1.3: Ensure that adequate bus turnouts, served by walkways and comfortable, safe, and convenient waiting facilities, are provided for transit users within residential, shopping, and business developments.</p> <p>Policy LU 5.2.1: Designate higher-density residential uses in areas served by public transit and a full range of support services.</p> <p>Policy LU 5.2.2: Provide for location of neighborhood commercial uses in proximity to the neighborhoods they serve, to encourage cycling and walking to local stores.</p> <p>Policy LU 5.2.3: Promote location of non-polluting businesses providing employment opportunities in proximity to neighborhoods, to encourage walking to work.</p> <p>Policy LU 5.2.4: Encourage transit-oriented development (TOD) through designation of land uses that allow compact, mixed-use development in proximity to rail stations and multi-modal transit facilities, in conformance with applicable policies.</p> <p>Policy LU 5.2.5: Encourage the mix of compatible uses in areas where, though not served by rail or transit, mixed uses will achieve more walkable neighborhoods and trip reduction, in conformance with applicable policies.</p> <p>Policy C 1.1.1: Reduce dependence on the automobile, particularly single-occupancy vehicle use, by providing safe and convenient access to transit, bikeways, and walkways.</p> <p>Policy C 1.1.2: Promote expansion of alternative transportation options to increase accessibility to all demographic and economic groups throughout the community, including mobility-impaired persons, senior citizens, low-income persons, and youth.</p> <p>Policy C 1.1.3: Work with local and regional agencies and employers to promote an integrated, seamless transportation system that meets access needs, including local and regional bus service, dial-a-ride, taxis, rail, van pools, car pools, bus pools, bicycling, walking, and automobiles.</p>

ID	Strategy	OVOV Policy/Project Feature
		<p>Policy C 1.1.6: Encourage multi-modal travel through provision of adequate facilities, including but not limited to bicycle parking and storage, expansion of park-and-ride lots, and provision of adequate station and transfer facilities in appropriate locations.</p> <p>Policy C 1.1.12: Encourage the City of Santa Clarita to implement recommendations of its Non-Motorized Transportation Plan to expand opportunities for alternative travel modes.</p> <p>Policy C 1.1.13: Design new activity centers and improve existing activity centers to prioritize walking, bicycling and circulator transit for internal circulation of person-travel.</p> <p>Policy C 1.2.1: Develop coordinated plans for land use, circulation, and transit to promote transit-oriented development that concentrates higher density housing, employment, and commercial areas in proximity to transit corridors.</p> <p>Policy C 1.2.2: Create walkable communities, with paseos and walkways connecting residential neighborhoods to multi-modal transportation services such as bus stops and rail stations.</p> <p>Policy C 1.2.3: Require that new commercial and industrial development provide walkway connections to public sidewalks and transit stops, where available.</p> <p>Policy C 1.2.4: Consider location, availability, and accessibility of transit in evaluating new development plans.</p> <p>Policy C 1.2.5: Encourage compact development and mixed uses to locate housing, workplaces, and services within walking or bicycling distance of each other.</p> <p>Policy C 1.2.6: Provide flexible standards for parking and roadway design in transit-oriented development areas to promote transit use, where appropriate.</p> <p>Policy C 1.2.7: In pedestrian-oriented areas, provide a highly connected circulation grid with relatively small blocks to encourage walking.</p> <p>Policy C 1.2.8: Provide safe pedestrian connections across barriers, which may include but are not limited to major traffic corridors, drainage and flood control facilities, utility easements, grade separations, and walls.</p> <p>Policy C 1.2.9: Emphasize providing right-of-way for non-vehicular transportation modes so that walking and bicycling are the easiest, most convenient modes of transportation available for short trips.</p>

ID	Strategy	OVOV Policy/Project Feature
		<p>Policy C 1.2.11: Reduce vehicle miles traveled (VMT) through the use of smart growth concepts.</p> <p>Policy C 2.1.1: Protect mobility on arterial highways by limiting excessive cross traffic, access points, and turning movements; traffic signals on arterial highways should be spaced at least ½-mile apart, and the minimum allowable separation should be at least ¼-mile.</p> <p>Policy C 2.1.2: Enhance connectivity of the roadway network to the extent feasible given the constraints of topography, existing development patterns, and environmental resources, by constructing grade separations and bridges; connecting discontinuous streets; extending secondary access into areas where needed; prohibiting gates on public streets; and other improvements as deemed appropriate based on traffic analysis.</p> <p>Policy C 2.2.6: Within residential neighborhoods, promote the design of “healthy streets” which may include reduced pavement width, shorter block length, provision of on-street parking, traffic-calming devices, bike routes and pedestrian connectivity, landscaped parkways, and canopy street trees.</p> <p>Policy C 2.2.7: Where practical, encourage the use of grid or modified grid street systems to increase connectivity and walkability; where cul-de-sacs are provided, promote the use of walkways connecting cul-de-sac bulbs to adjacent streets and/or facilities to facilitate pedestrian access; where street connectivity is limited and pedestrian routes are spaced over 500 feet apart, promote the use of intermediate pedestrian connections through or between blocks.</p> <p>Policy C 2.2.14: Streets should be designed in context with the terrain and the natural and built features of the area, but excessively circuitous streets should be avoided to minimize unnecessary vehicle, bicycle and pedestrian mileage.</p>

ID	Strategy	OVOV Policy/Project Feature
CAT-34	<p>Smart Land Use and Intelligent Transportation:</p> <p>Strategies include: Promoting jobs and housing proximity and transit-oriented development; Encouraging high density residential/commercial development along transit/rail corridor; Valuing and congestion pricing; Implementing intelligent transportation systems, traveler information/ traffic control, incident management; Accelerating the development of broadband infrastructure; and Comprehensive, integrated, multimodal/intermodal transportation planning.</p>	<p>Project is Consistent:</p> <p>The proposed project would promote mixed use development where appropriate to create more livable neighborhoods, walkable business districts, and to reduce vehicle trips, while ensuring land use compatibility. The project would also promote the design of “healthy streets” which may include traffic-calming devices, bike routes and pedestrian connectivity, landscaped parkways, and canopy street trees.</p> <p>See measures discussed above in CAT-33.</p>
Implementing Agency: Department of Food and Agriculture		
CAT-35	<p>Conservation tillage/cover crops:</p> <p>Conservation tillage and cover crops practices are increasingly being used by California farmers for a variety of reasons, including improved soil tilth, improved water use efficiency, reduced tillage requirements, saving labor and fuel, and reduced fertilizer inputs.</p>	Not applicable.
CAT-36	<p>Enteric Fermentation:</p> <p>To reduce climate change emissions resulting from enteric fermentation, feed adjustments may be made that improve milk and meat productivity.</p>	Not applicable.
Implementing Agency: State and Consumer Services Agency		
CAT-37	<p>Green Buildings Initiative:</p> <p>Executive Order, S-20-04, sets an ambitious goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels.</p>	<p>Project is Consistent:</p> <p>See measures discussed above in CAT-22.</p>
Implementing Agency: Public Utilities Commission		
CAT-38	<p>Accelerated Renewable Portfolio Std to 33 percent by 2020 (includes load-serving entities).</p>	Not applicable.
CAT-39	<p>California Solar Initiative:</p> <p>The solar initiative includes installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses.</p>	<p>Project is Consistent:</p> <p>Solar thermal and photovoltaic systems will be installed where economically feasible.</p> <p>See measures discussed above in CAT-22.</p>

ID	Strategy	OVOV Policy/Project Feature
CAT-40	Investor Owned Utility Energy Efficiency Programs: In September 2004, the PUC adopted aggressive savings targets for the investor-owned utility energy efficiency programs through 2013.	Not applicable.
CAT-41	Investor-Owned Utility (IOU) Additional Energy Efficiency Programs/Demand Response: In September 2004, the PUC adopted aggressive savings targets for the IOUs' energy efficiency programs through 2013.	Not applicable.
CAT-42	IOU Combined Heat and Power Initiative: This strategy encourages the installation of on-site power production to meet both heat and electricity loads, known as combined heat and power projects (CHP).	Not applicable.
CAT-43	IOU Electricity Sector Carbon Policy: The PUC is currently investigating various strategies and incentives to encourage the IOUs to make cost-effective procurement decisions that are based in part on reducing climate change emissions.	Not applicable.

Source: California Environmental Protection Agency, Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature, (2006).

Consistency with OPR Guidance

The OPR climate change technical advisory recommended that the lead agency determine significance of the impacts and impose mitigation measures that are necessary to reduce GHG emissions to a less than significant level. Similar to the Attorney General's list of measures, the technical advisory provides a recommended list of measures Lead Agencies may incorporate in projects to reduce GHG emissions. As listed below in **Table 3.4-11, Consistency with Office of Planning and Research Suggested Measures**, the proposed Area Plan and General Plan would be consistent with OPR's recommended measures.

**Table 3.4-11
Consistency with Office of Planning and Research Suggested Measures**

ID	Measures	OVOV Policy/Project Feature
Land Use and Transportation		
OPR-1	Implement land use strategies to encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density development along transit corridors. Encourage compact, mixed-use projects, forming urban villages designed to maximize affordable housing and encourage walking, bicycling and the use of public transit systems.	<p>Project is Consistent:</p> <p>Policy LU 2.1.2: On the Land Use Map, integrate land use designations in a manner that promotes healthy, walkable communities, by providing an appropriate mix of residential and service uses in proximity to one another.</p> <p>Policy LU 2.3.2: Either vertical or horizontal integration of uses should be allowed in a mixed use development, with an emphasis on tying together the uses with appropriate pedestrian linkages.</p> <p>Policy LU 2.3.4: Adequate public spaces and amenities should be provided in a mixed use development to support both commercial and residential uses, including but not limited to plazas, landscaped walkways, village greens, and greenbelts.</p> <p>Policy LU 2.3.5: Mixed use developments should be designed to create a pedestrian-scale environment through appropriate street and sidewalk widths, block lengths, relationship of buildings to streets, and use of public spaces.</p> <p>Policy LU 2.3.6: Encourage provision of parking alternatives in mixed use developments, including subterranean parking and structured parking, to limit the amount of surface area devoted to vehicle storage.</p> <p>Policy LU 3.1.3: Promote opportunities for live-work units to accommodate residents with home-based businesses.</p> <p>Policy LU 3.1.4: Promote development of workforce housing to meet the needs of those employed in the Santa Clarita Valley.</p> <p>Policy LU 3.1.7: Promote development of housing for students attending local colleges, in consideration of access to campuses to the extent practicable.</p> <p>Policy LU 3.2.1: Require provision of adequate walkways in urban residential neighborhoods that provide safe and accessible connections to destinations such as schools, parks, and neighborhood commercial centers.</p> <p>Policy LU 3.2.2: In planning residential neighborhoods, include pedestrian linkages, landscaped parkways with sidewalks, and separated trails for pedestrians</p>

ID	Measures	OVOV Policy/Project Feature
		<p>and bicycles, where appropriate and feasible.</p> <p>Policy LU 4.2.3: Encourage businesses to locate in all appropriate areas of the community to encourage job creation in closer proximity to workforce housing.</p> <p>Policy LU 5.1.1: Require safe, secure, clearly-delineated, adequately-illuminated walkways and bicycle facilities in all commercial and business centers.</p> <p>Policy LU 5.1.2: Require connectivity between walkways and bikeways serving neighborhoods and nearby commercial areas, schools, parks, and other supporting services and facilities.</p> <p>Policy LU 5.1.3: Ensure that adequate bus turnouts, served by walkways and comfortable, safe, and convenient waiting facilities, are provided for transit users within residential, shopping, and business developments.</p> <p>Policy LU 5.2.1: Designate higher-density residential uses in areas served by public transit and a full range of support services.</p> <p>Policy LU 5.2.2: Provide for location of neighborhood commercial uses in proximity to the neighborhoods they serve, to encourage cycling and walking to local stores.</p> <p>Policy LU 5.2.3: Promote location of non-polluting businesses providing employment opportunities in proximity to neighborhoods, to encourage walking to work.</p> <p>Policy LU 5.2.4: Encourage transit-oriented development (TOD) through designation of land uses that allow compact, mixed-use development in proximity to rail stations and multi-modal transit facilities, in conformance with applicable policies.</p> <p>Policy LU 5.2.5: Encourage the mix of compatible uses in areas where, though not served by rail or transit, mixed uses will achieve more walkable neighborhoods and trip reduction, in conformance with applicable policies.</p> <p>Policy C 1.1.1: Reduce dependence on the automobile, particularly single-occupancy vehicle use, by providing safe and convenient access to transit, bikeways, and walkways.</p> <p>Policy C 1.1.2: Promote expansion of alternative transportation options to increase accessibility to all demographic and economic groups throughout the community, including mobility-impaired persons, senior citizens, low-income persons, and youth.</p>

ID	Measures	OVOV Policy/Project Feature
		<p>Policy C 1.1.3: Work with local and regional agencies and employers to promote an integrated, seamless transportation system that meets access needs, including local and regional bus service, dial-a-ride, taxis, rail, van pools, car pools, bus pools, bicycling, walking, and automobiles.</p> <p>Policy C 1.1.6: Encourage multi-modal travel through provision of adequate facilities, including but not limited to bicycle parking and storage, expansion of park-and-ride lots, and provision of adequate station and transfer facilities in appropriate locations.</p> <p>Policy C 1.1.12: Encourage the City of Santa Clarita to implement recommendations of its Non-Motorized Transportation Plan to expand opportunities for alternative travel modes.</p> <p>Policy C 1.1.13: Design new activity centers and improve existing activity centers to prioritize walking, bicycling and circulator transit for internal circulation of person-travel.</p> <p>Policy C 1.2.1: Develop coordinated plans for land use, circulation, and transit to promote transit-oriented development that concentrates higher density housing, employment, and commercial areas in proximity to transit corridors.</p> <p>Policy C 1.2.2: Create walkable communities, with paseos and walkways connecting residential neighborhoods to multi-modal transportation services such as bus stops and rail stations.</p> <p>Policy C 1.2.3: Require that new commercial and industrial development provide walkway connections to public sidewalks and transit stops, where available.</p> <p>Policy C 1.2.4: Consider location, availability, and accessibility of transit in evaluating new development plans.</p> <p>Policy C 1.2.5: Encourage compact development and mixed uses to locate housing, workplaces, and services within walking or bicycling distance of each other.</p> <p>Policy C 1.2.6: Provide flexible standards for parking and roadway design in transit-oriented development areas to promote transit use, where appropriate.</p> <p>Policy C 1.2.7: In pedestrian-oriented areas, provide a highly connected circulation grid with relatively small blocks to encourage walking.</p> <p>Policy C 1.2.8: Provide safe pedestrian connections across barriers, which may include but are not</p>

ID	Measures	OVOV Policy/Project Feature
		<p>limited to major traffic corridors, drainage and flood control facilities, utility easements, grade separations, and walls.</p> <p>Policy C 1.2.9: Emphasize providing right-of-way for non-vehicular transportation modes so that walking and bicycling are the easiest, most convenient modes of transportation available for short trips.</p> <p>Policy C 1.2.11: Reduce vehicle miles traveled (VMT) through the use of smart growth concepts.</p>
OPR-2	Encourage infill, redevelopment, and higher density development, whether in incorporated or unincorporated settings.	<p>Project is Consistent:</p> <p>Policy LU 1.1.5: Promote infill development and re-use of underutilized sites within and adjacent to developed urban areas to achieve maximum benefit from existing infrastructure and minimize loss of open space, through redesignation of vacant sites for higher density or mixed uses where appropriate.</p>
OPR-3	Encourage new developments to integrate housing, civic and retail amenities (jobs, schools, parks, shopping opportunities) to help reduce VMT resulting from discretionary automobile trips.	<p>Project is Consistent:</p> <p>See measures discussed above in OPR-1.</p>
OPR-4	Apply advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services.	<p>Project is Consistent:</p> <p>Policy C 2.1.1: Protect mobility on arterial highways by limiting excessive cross traffic, access points, and turning movements; traffic signals on arterial highways should be spaced at least ½-mile apart, and the minimum allowable separation should be at least ¼-mile.</p> <p>Policy C 2.1.2: Enhance connectivity of the roadway network to the extent feasible given the constraints of topography, existing development patterns, and environmental resources, by constructing grade separations and bridges; connecting discontinuous streets; extending secondary access into areas where needed; prohibiting gates on public streets; and other improvements as deemed appropriate based on traffic analysis.</p> <p>Policy C 2.1.3: Protect and enhance the capacity of the roadway system by upgrading intersections to meet level of service standards, widening and/or restriping for additional lanes, synchronizing traffic signals, and other means as appropriate.</p> <p>Policy C 2.1.4: Ensure that future dedication and acquisition of right-of-way is based on the adopted Circulation Plan, proposed land uses, and projected demand.</p>

ID	Measures	OVOV Policy/Project Feature
		<p>Policy C 2.1.5: Periodically monitor levels of service, traffic accident patterns, and physical conditions of the existing street system, and upgrade roadways as needed through the Capital Improvement Program.</p> <p>Policy C 2.2.3: Coordinate circulation plans of new development projects with each other and the surrounding street network, within both City and County areas.</p> <p>Policy C 2.2.4: Strive to maintain a Level of Service (LOS) D or better on most roadway segments and intersections to the extent practical; in some locations, a LOS E may be acceptable, or a LOS F may be necessary, for limited durations during peak traffic periods.</p> <p>Policy C 2.2.5: Adopt common standards for pavement width in consideration of capacity needs to serve projected travel demand, provided that a reduction in pavement width may be allowed in order to reduce traffic speeds, protect resources, enhance pedestrian mobility, or as otherwise deemed appropriate by the reviewing authority.</p> <p>Policy C 2.2.6: Within residential neighborhoods, promote the design of “healthy streets” which may include reduced pavement width, shorter block length, provision of on-street parking, traffic-calming devices, bike routes and pedestrian connectivity, landscaped parkways, and canopy street trees.</p> <p>Policy C 2.2.7: Where practical, encourage the use of grid or modified grid street systems to increase connectivity and walkability; where cul-de-sacs are provided, promote the use of walkways connecting cul-de-sac bulbs to adjacent streets and/or facilities to facilitate pedestrian access; where street connectivity is limited and pedestrian routes are spaced over 500 feet apart, promote the use of intermediate pedestrian connections through or between blocks.</p> <p>Policy C 2.2.8: Design local street patterns to create logical and understandable travel paths for users and to provide access between neighborhoods for local residents while discouraging cut-through traffic; cul-de-sac length should not exceed 600 feet, and “dog-leg” cul-de-sacs with one or more turns between the bulb and the outlet should be avoided where possible.</p> <p>Policy C 2.2.9: Medians constructed in arterial streets should be provided with paved crossover points for emergency vehicles, where deemed necessary by the Fire Department.</p>

ID	Measures	OVOV Policy/Project Feature
		<p>Policy C 2.2.10: The street system design, including block length, width, horizontal and vertical alignments, curves, and other design characteristics, should function safely and effectively without the subsequent need for excessive traffic control devices to slow or deflect traffic.</p> <p>Policy C 2.2.11: For intersections of collector or larger streets, four-way intersections are preferred over offset intersections.</p> <p>Policy C 2.2.12: Private streets, other than driveways and alleyways typically associated with multi-family development, should be constructed to standards for public rights-of-way, except as otherwise approved by the reviewing agency.</p> <p>Policy C 2.2.13: Protect the community character of rural areas by requiring use of rural street standards, which may include reduced pavement width, reduced street lighting to protect night skies, rolled curbs or no curbs, and no sidewalks.</p> <p>Policy C 2.2.14: Streets should be designed in context with the terrain and the natural and built features of the area, but excessively circuitous streets should be avoided to minimize unnecessary vehicle, bicycle and pedestrian mileage.</p> <p>Policy C 2.4.1: Require design of pavement sections on major and secondary highways to account for truck traffic, to prevent excessive pavement deterioration from truck use.</p> <p>Policy C 2.4.2: Establish adequate setbacks from major and secondary highways for sensitive receptors and sensitive uses, so as to minimize impacts on these individuals and uses from noise and air pollution caused by truck traffic.</p> <p>Policy C 2.4.4: Adopt regulations for truck parking on public streets, to avoid impacts to residential neighborhoods.</p>

ID	Measures	OVOV Policy/Project Feature
OPR-5	<p>Incorporate features into project design that would accommodate the supply of frequent, reliable and convenient public transit.</p>	<p>Project is Consistent:</p> <p>Policy C 1.3.1: Continue coordinating with the Metropolitan Transportation Authority (MTA or Metro) to implement the County’s Congestion Management Program (CMP) for designated CMP roadways.</p> <p>Policy C 1.3.3: Coordinate circulation planning with the Regional Transportation Plan prepared by the Southern California Association of Governments (SCAG), to ensure consistency of planned improvements with regional needs.</p> <p>Policy C 1.3.4: Continue coordination with Caltrans on circulation and land use decisions that may affect Interstate 5, State Route 14, and State Route 126, and support programs to increase capacity and improve operations on these highways.</p> <p>Policy C 4.1.1: Develop permanent Metrolink facilities with an expanded bus transfer station and additional park-and-ride spaces at the Via Princessa station, or other alternative location as deemed appropriate to meet the travel needs of residents on the Valley’s east side.</p> <p>Policy C 4.1.2: Coordinate with other agencies to facilitate extension of a passenger rail line from the Santa Clarita Station to Ventura County, which may be used for Metrolink service.</p> <p>Policy C 4.1.3: Continue to expand and improve commuter services, including park-and-ride lots, bicycle parking and storage, and waiting facilities, at all Metrolink stations.</p> <p>Policy C 4.1.4: Encourage the preservation of abandoned railroad right-of-way for future transportation facilities, where appropriate.</p> <p>Policy C 4.1.5: Work with other agencies to increase rail efficiency and public safety through street and track improvements and grade separations, where needs are identified.</p> <p>Policy C 4.1.6: Provide incentives to promote transit-oriented development near rail stations.</p> <p>Policy C 4.1.7: Facilitate coordination of planning for any future high speed regional rail systems in the Valley with Metrolink services.</p> <p>Policy C 4.1.8: Minimize impacts to passenger rail service and the community from any proposed increase to freight rail service through the Valley.</p>

ID	Measures	OVOV Policy/Project Feature
		<p>Policy C 4.2.1: Continue to work with the Orange Line Development Authority (OLDA) to plan for development of an environmentally sensitive high speed transportation system with a route through the Santa Clarita Valley, including a regional transit hub with associated infrastructure that would provide connections to the Los Angeles Basin, Palmdale Regional Airport, and other</p> <p>Policy C 4.2.2: Coordinate with other agencies as needed to facilitate planning for other high-speed rail alternatives in the Santa Clarita Valley.</p> <p>Policy C 5.1.1: Require that new subdivisions provide for two means of access into and out of the development, in order to provide for transit access, where feasible.</p> <p>Policy C 5.1.2: For private gated communities, require the developer to accommodate bus access through the entry gate, or provide bus waiting facilities at the project entry with pedestrian connections to residential streets, where appropriate.</p> <p>Policy C 5.1.3: Consider the operational characteristics of buses when determining acceptable street designs, including grades and turning radii.</p> <p>Policy C 5.1.4: Provide for location of bus stops within ¼-mile of residential neighborhoods, and include paved bus waiting areas in street improvement plans wherever appropriate and feasible.</p> <p>Policy C 5.1.5: Locate and design bus turnouts to limit traffic obstruction and to provide sufficient merging length for the bus to re-enter the traffic flow.</p> <p>Policy C 5.1.6: Evaluate the feasibility of giving buses priority at signalized intersections to maintain transit service level standards, where appropriate.</p> <p>Policy C 5.2.1: Require paved waiting areas, accessible by paved walkways and reasonably direct pedestrian routes, for bus stops in new development; and provide for retrofitting of existing bus stops, where feasible and practicable.</p> <p>Policy C 5.2.4: Enhance way-finding signage along walkways and paseos to direct pedestrians to transit stops.</p> <p>Policy C 5.2.5: Complementary transportation modes should be interconnected at intermodal transit centers, including provisions for bicycles on buses, bicycle parking at transit centers, and park-and-ride at transit stops.</p>

ID	Measures	OVOV Policy/Project Feature
		<p>Policy C 5.3.1: Continue to provide fixed route service to significant activity areas and neighborhoods with moderate to high density, and serve low-density and rural areas with dial-a-ride, flexible fixed routes, or other transit services as deemed appropriate.</p> <p>Policy C 5.3.2: Promote concentrated development patterns in coordination with transit planning to maximize service efficiency and ridership.</p>
OPR-6	Implement street improvements that are designed to relieve pressure on a region's most congested roadways and intersections.	<p>Project is Consistent: See measures described above in OPR-4 and -5.</p>
OPR-7	Limit idling time for commercial vehicles, including delivery and construction vehicles.	<p>Project is Consistent: The project would be in compliance with current State law, which restricts diesel truck idling to five minutes or less.</p>
Urban Forestry		
OPR-8	Plant trees and vegetation near structures to shade buildings and reduce energy requirements for heating/cooling.	<p>Project is Consistent: Policy CO 8.2.9: Reduce heat islands through installation of trees to shade parking lots and hardscapes, and use of light-colored reflective paving and roofing surfaces.</p> <p>Policy CO 8.3.7: Encourage the use of trees and landscaping to reduce heating and cooling energy loads, through shading of buildings and parking lots.</p>
OPR-9	Preserve or replace on-site trees (that are removed due to development) as a means of providing carbon storage.	<p>Project is Consistent: Policy CO 3.4.2: Consider principles of forest management in land use decisions for projects adjacent to the National Forest, including limiting the use of invasive species, discouraging off-road vehicle use, maintaining fuel modification zones and fire access roads, and other measures as appropriate, in accordance with the goals set forth in the Angeles National Forest Land Management Plan.</p> <p>Policy CO 10.1.9: Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas, and other open space that provides nature carbon sequestration benefits.</p> <p>Policy CO 10.2.1: Encourage provision of vegetated open space on a development project's site, which may include shallow wetlands and ponds, drought tolerant landscaping, and pedestrian hardscape that includes vegetated areas.</p>

ID	Measures	OVOV Policy/Project Feature
		<p>Policy CO 10.2.4: Seek opportunities to incorporate site features into the open space of a project design, which may include significant trees, vegetation, terrain, or water features, to provide thermal, acoustic, and aesthetic benefits.</p>
Green Buildings		
OPR-10	Encourage public and private construction of LEED (Leadership in Energy and Environmental Design) certified (or equivalent) buildings.	<p>Project is Consistent:</p> <p>Policy CO 8.2.1: Ensure that all new County buildings and all major renovations and additions meet adopted green building standards, with a goal of achieving the LEED (Leadership in Energy and Environmental Design) Silver rating or above, or equivalent, where appropriate.</p> <p>Policy CO 8.3.1: Evaluate development proposals for consistency with the ordinances developed through the County’s Green Building Program.</p> <p>Policy CO 8.3.2: Promote construction of energy efficient buildings through the certification requirements of the ordinances developed through the County’s Green Building Program.</p>
Energy Conservation Policies and Actions		
OPR-11	Recognize and promote energy saving measures beyond Title 24 requirements for residential and commercial projects.	<p>Project is Consistent:</p> <p>Policy CO 8.1.1: Support the County’s efforts to create and adopt a Climate Action Plan that meets State requirements and includes the following components:</p> <ol style="list-style-type: none"> a. Plans and programs to reduce GHG emissions to State-mandated targets, including enforceable reduction measures b. Mechanisms to ensure regular review of progress towards the emission reduction targets established by the Climate Action Plan c. Procedures for reporting on progress to officials and the public d. Procedures for revising the plan as needed to meet GHG emissions reduction targets e. Allocation of funding and staffing for Plan implementation <p>Policy CO 8.1.3: Implement the ordinances developed through the County’s Green Building Program.</p> <p>Policy CO 8.1.4: Provide information and education to the public about energy conservation and local strategies to address climate change.</p> <p>Policy CO 8.1.5: Coordinate various activities within the community and County agencies related to GHG emissions reduction activities.</p> <p>Policy CO 8.2.1: Ensure that all new County buildings and all major renovations and additions meet</p>

ID	Measures	OVOV Policy/Project Feature
		<p>adopted green building standards, with a goal of achieving the LEED (Leadership in Energy and Environmental Design) Silver rating or above, or equivalent, where appropriate.</p> <p>Policy CO 8.2.2: Ensure energy efficiency of existing public buildings through energy audits and repairs, and retrofit buildings with energy efficient heating and air conditioning systems and lighting fixtures.</p> <p>Policy CO 8.2.3: Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for County buildings and operations and other methods as deemed appropriate and feasible, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.2.4: Establish maximum lighting levels for public facilities, and encourage reduction of lighting levels to the level needed for security purposes after business hours, in addition to use of downward-directed lighting and use of low-reflective paving surfaces.</p> <p>Policy CO 8.2.5: Support installation of photovoltaic and other renewable energy equipment on public facilities, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.2.6: Promote use of solar lighting in parks and along paseos and trails, where practical.</p> <p>Policy CO 8.2.8: Promote the purchase of energy-efficient and recycled products, and vendors and contractors who use energy-efficient vehicles and products, consistent with adopted purchasing policies.</p> <p>Policy CO 8.2.9: Reduce heat islands through installation of trees to shade parking lots and hardscapes, and use of light-colored reflective paving and roofing surfaces.</p> <p>Policy CO 8.2.10: Support installation of energy-efficient traffic control devices, street lights, and parking lot lights.</p> <p>Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events.</p> <p>Policy CO 8.2.12: Provide ongoing training to appropriate County employees on sustainable planning, building, and engineering practices.</p> <p>Policy CO 8.3.3: Promote energy efficiency and water conservation upgrades to existing non-residential buildings at the time of major remodel or additions.</p> <p>Policy CO 8.3.4: Encourage new residential development to include on-site solar photovoltaic</p>

ID	Measures	OVOV Policy/Project Feature
		<p>systems, or pre-wiring, in at least 50% of the residential units, in concert with other significant energy conservation efforts.</p> <p>Policy CO 8.3.5: Encourage on-site solar generation of electricity in new retail and office commercial buildings and associated parking lots, carports, and garages, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.3.6: Encourage new development to use passive solar heating and cooling techniques in building design and construction, which may include but are not be limited to building orientation, clerestory windows, skylights, placement and type of windows, overhangs to shade doors and windows, and use of light colored roofs and paving materials.</p> <p>Policy CO 8.3.7: Encourage the use of trees and landscaping to reduce heating and cooling energy loads, through shading of buildings and parking lots.</p> <p>Policy CO 8.3.8: Encourage energy-conserving heating and cooling systems and appliances, and energy-efficiency in windows and insulation, in all new construction.</p> <p>Policy CO 8.3.9: Limit excessive lighting levels, and encourage a reduction of lighting when businesses are closed to a level required for security.</p> <p>Policy CO 8.3.10: Provide incentives and technical assistance for installation of energy-efficient improvements in existing and new buildings.</p> <p>Policy CO 8.3.11: Consider allowing carbon off-sets for large development projects, if appropriate, which may include funding off-site projects or purchase of credits for other forms of mitigation, provided that any such mitigation shall be measurable and enforceable.</p> <p>Policy LU 7.1.2: Promote the use of solar panels and renewable energy sources in all projects.</p> <p>Policy LU 7.1.3: Encourage development of energy-efficient buildings, and discourage construction of new buildings for which energy efficiency cannot be demonstrated.</p>
OPR-12	Where feasible, include in new buildings facilities to support the use of low/zero carbon-fueled vehicles, such as the charging of electric vehicles from green electricity sources.	<p>Project is Consistent: See measures discussed above in OPR-1, -4, and -5.</p>

ID	Measures	OVOV Policy/Project Feature
OPR-13	Educate the public, schools, other jurisdictions, professional associations, business and industry about reducing GHG emissions.	<p>Project is Consistent:</p> <p>Policy CO 8.1.4: Provide information and education to the public about energy conservation and local strategies to address climate change.</p> <p>Policy CO 8.1.5: Coordinate various activities within the community and County agencies related to GHG emissions reduction activities.</p>
OPR-14	Replace traffic lights, streetlights, and other electrical uses to energy efficient bulbs and appliances.	<p>Project is Consistent:</p> <p>See measures discussed above in OPR-11.</p>
OPR-15	Purchase Energy Star equipment and appliances for public agency use.	<p>Project is Consistent:</p> <p>See measures discussed above in OPR-11.</p>
OPR-16	Incorporate on-site renewable energy production, including installation of photovoltaic cells or other solar options.	<p>Project is Consistent:</p> <p>Policy CO 8.3.4: Encourage new residential development to include on-site solar photovoltaic systems, or pre-wiring, in at least 50% of the residential units, in concert with other significant energy conservation efforts.</p> <p>Policy CO 8.3.5: Encourage on-site solar generation of electricity in new retail and office commercial buildings and associated parking lots, carports, and garages, in concert with significant energy conservation efforts.</p>
OPR-17	Execute an Energy Savings Performance Contract with a private entity to retrofit public buildings. This type of contract allows the private entity to fund all energy improvements in exchange for a share of the energy savings over a period of time.	<p>Project is Consistent:</p> <p>See measures discussed above in OPR-11.</p>
OPR-18	Design, build, and operate schools that meet the Collaborative for High Performance Schools (CHPS) best practices.	Not applicable.
OPR-19	Retrofit municipal water and wastewater systems with energy efficient motors, pumps and other equipment, and recover wastewater treatment methane for energy production.	<p>Project is Consistent:</p> <p>See measures discussed above in OPR-11.</p>
OPR-20	Convert landfill gas into energy sources for use in fueling vehicles, operating equipment, and heating buildings.	Not applicable.

ID	Measures	OVOV Policy/Project Feature
OPR-21	Purchase government vehicles and buses that use alternative fuels or technology, such as electric hybrids, biodiesel, and ethanol. Where feasible, require fleet vehicles to be low emission vehicles. Promote the use of these vehicles in the general community.	Project is Consistent: The on-road vehicles that travel to and from the proposed project site would be in compliance with applicable CARB and/or US EPA emission standards that in effect at the time of purchase.
OPR-22	Offer government incentives to private businesses for developing buildings with energy and water efficient features and recycled materials. The incentives can include expedited plan checks and reduced permit fees.	Not applicable.
OPR-23	Offer rebates and low-interest loans to residents that make energy-saving improvements on their homes.	Not applicable.
OPR-24	Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.	Project is Consistent: See measures described above in OPR-1.
Programs to Reduce Vehicle Miles Traveled		
OPR-25	Offer government employees financial incentives to carpool, use public transportation, or use other modes of travel for daily commutes.	Project is Consistent: See measures discussed above in OPR-4 and -5.
OPR-26	Encourage large businesses to develop commute trip reduction plans that encourage employees who commute alone to consider alternative transportation modes.	Project is Consistent: See measures discussed above in OPR-1, -4 and -5.
OPR-27	Develop shuttle systems around business district parking garages to reduce congestion and create shorter commutes.	Project is Consistent: See measures discussed above in OPR-4.
OPR-28	Create an online ridesharing program that matches potential carpoolers immediately through email.	Not applicable.
OPR-29	Develop a Safe Routes to School program that allows and promotes bicycling and walking to school.	Project is Consistent: See measures discussed above in OPR-1.

ID	Measures	OVOV Policy/Project Feature
Programs to Reduce Solid Waste		
OPR-30	Create incentives to increase recycling and reduce generation of solid waste by residential users.	<p>Project is Consistent:</p> <p>Policy CO 1.3.1: Explore, evaluate, and implement methods to shift from using non-renewable resources to use of renewable resources in all aspects of land use planning and development.</p> <p>Policy CO 1.3.2: Promote reducing, reusing, and recycling in all Land Use designations and cycles of development.</p> <p>Policy CO 1.3.3: Provide informational material to the public about programs to conserve non-renewable resources and recover materials from the waste stream.</p> <p>Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events.</p> <p>Policy LU 7.5.1: Ensure that all new development provides adequate space for recycling receptacles and bins on site.</p> <p>Policy LU 7.5.2: Promote the use of recycled building materials.</p>
OPR-31	Implement a Construction and Demolition Waste Recycling Ordinance to reduce the solid waste created by new development.	<p>Project is Consistent:</p> <p>The demolition and construction process would include efforts to separate debris and recycle a minimum of 50 percent of the basic building materials, pursuant to AB 939.</p>
OPR-32	Add residential/commercial food waste collection to existing greenwaste collection programs.	<p>Project is Consistent:</p> <p>See measures discussed above in OPR-30.</p>

Source: Office of Planning and Research, "CEQA and Climate Change: Addressing Climate Change Through CEQA Review," <http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>. 2008.

Consistency with the Attorney General's Recommended General Plan Measures

As previously discussed, the Attorney General has published a list of GHG reduction measures that can be included as general plan design features, required changes to the general plan, or mitigation measures. The measures are intended to provide recommendations to lead agencies that may be helpful in carrying out their duties under CEQA with respect to greenhouse gases and climate change impacts. As listed below in **Table 3.4-12, Attorney General's Recommended General Plan Mitigation Measures**, the proposed Area Plan and General Plan would be consistent with the Attorney General's recommended measures.

**Table 3.4-12
Attorney General's Recommended General Plan Mitigation Measures**

ID	Suggested Mitigation Measures	OVOV Policy
Conservation Element		
AG-1	Climate Action Plan or Policy: Include a comprehensive climate change action plan that requires a baseline inventory of greenhouse gas emissions from all sources by a date certain; greenhouse gas emissions reduction targets and deadlines; and enforceable greenhouse gas emissions reduction measures.	<p>Project is Consistent:</p> <p>Policy CO 8.1.1: Support the County's efforts to create and adopt a Climate Action Plan that meets State requirements and includes the following components:</p> <ol style="list-style-type: none"> Plans and programs to reduce GHG emissions to State-mandated targets, including enforceable reduction measures Mechanisms to ensure regular review of progress towards the emission reduction targets established by the Climate Action Plan Procedures for reporting on progress to officials and the public Procedures for revising the plan as needed to meet GHG emissions reduction targets Allocation of funding and staffing for Plan implementation
AG-2	Climate Action Plan Implementation Program: Include mechanisms to ensure regular review of progress toward the emission reduction targets established by the Climate Action Plan, report progress to the public and responsible officials, and revise the plan as appropriate, using principles of adaptive management. Allocate funding to implement the plan. Fund staff to oversee implementation of the plan.	<p>Project is Consistent:</p> <p>See measures described above in AG-1.</p>
AG-3	Strengthen local building codes for new construction and renovation to require a higher level of energy efficiency.	<p>Project is Consistent:</p> <p>Policy CO 8.1.3: Implement the ordinances developed through the County's Green Building Program.</p> <p>Policy CO 8.2.2: Ensure energy efficiency of existing public buildings through energy audits and repairs, and retrofit buildings with energy efficient heating and air conditioning systems and lighting fixtures.</p> <p>Policy CO 8.2.3: Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for County buildings and operations and other methods as deemed appropriate and feasible, in concert with significant energy conservation efforts.</p>

ID	Suggested Mitigation Measures	OVOV Policy
		<p>Policy CO 8.2.5: Support installation of photovoltaic and other renewable energy equipment on public facilities, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.2.8: Promote the purchase of energy-efficient and recycled products, and vendors and contractors who use energy-efficient vehicles and products, consistent with adopted purchasing policies.</p> <p>Policy CO 8.2.9: Reduce heat islands through installation of trees to shade parking lots and hardscapes, and use of light-colored reflective paving and roofing surfaces.</p> <p>Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events.</p> <p>Policy CO 8.3.1: Evaluate development proposals for consistency with the ordinances developed through the County’s Green Building Program.</p> <p>Policy CO 8.3.2: Promote construction of energy efficient buildings through the certification requirements of the ordinances developed through the County’s Green Building Program.</p> <p>Policy CO 8.3.3: Promote energy efficiency and water conservation upgrades to existing non-residential buildings at the time of major remodel or additions.</p> <p>Policy CO 8.3.4: Encourage new residential development to include on-site solar photovoltaic systems, or pre-wiring, in at least 50% of the residential units, in concert with other significant energy conservation efforts.</p> <p>Policy CO 8.3.5: Encourage on-site solar generation of electricity in new retail and office commercial buildings and associated parking lots, carports, and garages, in concert with significant energy conservation efforts.</p> <p>Policy CO 8.3.6: Encourage new development to use passive solar heating and cooling techniques in building design and construction, which may include but are not be limited to building orientation, clerestory windows, skylights, placement and type of windows, overhangs to shade doors and windows, and use of light colored roofs and paving materials.</p> <p>Policy CO 8.3.7: Encourage the use of trees and landscaping to reduce heating and cooling energy loads, through shading of buildings and parking lots.</p>

ID	Suggested Mitigation Measures	OVOV Policy
		<p>Policy CO 8.3.8: Encourage energy-conserving heating and cooling systems and appliances, and energy-efficiency in windows and insulation, in all new construction.</p> <p>Policy CO 8.3.10: Provide incentives and technical assistance for installation of energy-efficient improvements in existing and new buildings.</p> <p>Policy CO 8.3.11: Consider allowing carbon off-sets for large development projects, if appropriate, which may include funding off-site projects or purchase of credits for other forms of mitigation, provided that any such mitigation shall be measurable and enforceable.</p> <p>Policy LU 7.1.2: Promote the use of solar panels and renewable energy sources in all projects.</p> <p>Policy LU 7.1.3: Encourage development of energy-efficient buildings, and discourage construction of new buildings for which energy efficiency cannot be demonstrated.</p>
AG-4	Require that all new government buildings, and all major renovations and additions, meet identified green building standards.	Policy CO 8.2.1: Ensure that all new County buildings and all major renovations and additions meet adopted green building standards, with a goal of achieving the LEED (Leadership in Energy and Environmental Design) Silver rating or above, or equivalent, where appropriate.
AG-5	Adopt a “Green Building Program” to require or encourage green building practices and materials. The program could be implemented through, e.g., a set of green building ordinances.	Project is Consistent: See measures described above in AG-3 and -4.
AG-6	Require orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, and promote effective use of daylight. Orientation should optimize opportunities for on-site solar generation.	Project is Consistent: See measures described above in AG-3.
AG-7	Provide permitting-related and other incentives for energy efficient building projects, e.g., by giving green projects priority in plan review, processing and field inspection services.	Project is Consistent: See measures described above in AG-3.
AG-8	Conduct energy efficiency audits of existing buildings by checking, repairing, and readjusting heating, ventilation, air conditioning, lighting, water heating equipment, insulation, and weatherization. Offer financial incentives for adoption of identified efficiency measures.	Project is Consistent: See measures described above in AG-3.

ID	Suggested Mitigation Measures	OVOV Policy
AG-9	Partner with community services agencies to fund energy efficiency project, including heating, ventilation, air conditioning, lighting, water heating equipment, insulation, and weatherization, for low-income residents.	<p>Project is Consistent:</p> <p>Policy CO 8.1.5: Coordinate various activities within the community and County agencies related to GHG emissions reduction activities.</p>
AG-10	Target local funds, including redevelopment and Community Development Block Grant resources, to assist affordable housing developers in incorporating energy efficient designs and features.	<p>Project is Consistent:</p> <p>See measures described above in AG-3.</p>
AG-11	Provide innovative, low-interest financing for energy efficiency and alternative energy projects. For example, allow property owners to pay for energy efficiency improvements and solar system installation through long-term assessments on individual property tax bills.	<p>Project is Consistent:</p> <p>See measures described above in AG-3.</p>
AG-12	Fund incentives to encourage the use of energy efficient vehicles, equipment and lighting. Provide financial incentives for adoption of identified efficiency measures.	<p>Project is Consistent:</p> <p>Policy C 4.1.6: Provide incentives to promote transit-oriented development near rail stations.</p> <p>Policy CO 8.3.10: Provide incentives and technical assistance for installation of energy-efficient improvements in existing and new buildings.</p> <p>Policy CO 8.2.4: Establish maximum lighting levels for public facilities, and encourage reduction of lighting levels to the level needed for security purposes after business hours, in addition to use of downward-directed lighting and use of low-reflective paving surfaces.</p> <p>Policy CO 8.2.6: Promote use of solar lighting in parks and along paseos and trails, where practical.</p> <p>Policy CO 8.2.10: Support installation of energy-efficient traffic control devices, street lights, and parking lot lights.</p> <p>Policy CO 8.2.12: Provide ongoing training to appropriate County employees on sustainable planning, building, and engineering practices.</p> <p>Policy CO 8.3.9: Limit excessive lighting levels, and encourage a reduction of lighting when businesses are closed to a level required for security.</p>
AG-13	Require environmentally responsible government purchasing. Require or give preference to products that reduce or eliminate indirect greenhouse gas emissions, e.g., by giving preference to recycled products over those made from virgin materials.	<p>Project is Consistent:</p> <p>Policy CO 8.2.8: Promote the purchase of energy-efficient and recycled products, and vendors and contractors who use energy-efficient vehicles and products, consistent with adopted purchasing policies.</p>

ID	Suggested Mitigation Measures	OVOV Policy
AG-14	Require that government contractors take action to minimize greenhouse gas emissions, e.g., by using low or zero-emission vehicles and equipment.	<p>Project is Consistent:</p> <p>Policy CO 4.1.4: Provide informational materials to applicants and contractors on the Castaic Lake Water Agency’s Landscape Education Program, and/or other information on xeriscape, native California plants, and water-conserving irrigation techniques as materials become available.</p> <p>See additional measures described above in AG-13.</p>
AG-15	Adopt a “heat island” mitigation plan that requires cool roofs, cool pavements, and strategically placed shade trees. (Darker colored roofs, pavement, and lack of trees may cause temperatures in urban environments to increase by as much as 6–8 degrees Fahrenheit as compared to surrounding areas. Adopt a program of building permit enforcement for re-roofing to ensure compliance with existing state building requirements for cool roofs on non-residential buildings.	<p>Project is Consistent:</p> <p>Policy CO 4.3.3: Provide flexibility for design standards for street width, sidewalk width, parking, and other impervious surfaces when it can be shown that such reductions will not have negative impacts and will provide the benefits of stormwater retention, groundwater infiltration, reduction of heat islands, enhancement of habitat and biodiversity, saving of significant trees or planting of new trees, or other environmental benefit.</p> <p>Policy CO 4.3.4: Encourage and promote the use of new materials and technology for improved stormwater management, such as pervious paving, green roofs, rain gardens, and vegetated swales.</p> <p>Policy CO 8.2.9: Reduce heat islands through installation of trees to shade parking lots and hardscapes, and use of light-colored reflective paving and roofing surfaces.</p> <p>Policy CO 8.3.6: Encourage new development to use passive solar heating and cooling techniques in building design and construction, which may include but are not be limited to building orientation, clerestory windows, skylights, placement and type of windows, overhangs to shade doors and windows, and use of light colored roofs and paving materials.</p> <p>Policy CO 10.2.1: Encourage provision of vegetated open space on a development project’s site, which may include shallow wetlands and ponds, drought tolerant landscaping, and pedestrian hardscape that includes vegetated areas.</p> <p>See additional measures described above in AG-3 and 4.</p>

ID	Suggested Mitigation Measures	OVOV Policy
AG-16	<p>Adopt a comprehensive water conservation strategy. The strategy may include, but not be limited to, imposing restrictions on the time of watering, requiring water-efficient irrigation equipment, and requiring new construction to offset demand so that there is no net increase in water use.</p>	<p>Project is Consistent:</p> <p>Policy CO 4.1.1: In coordination with applicable water suppliers, adopt and implement a water conservation strategy for public and private development.</p> <p>Policy CO 4.1.2: Provide examples of water conservation in landscaping through use of low water use landscaping in public spaces such as parks, landscaped medians and parkways, plazas, and around public buildings.</p> <p>Policy CO 4.1.3: Promote low water use landscaping in new residential subdivisions and other private development projects, including a reduction in the amount of turf-grass.</p> <p>Policy CO 4.1.4: Provide informational materials to applicants and contractors on the Castaic Lake Water Agency’s Landscape Education Program, and/or other information on xeriscape, native California plants, and water-conserving irrigation techniques as materials become available.</p> <p>Policy CO 4.1.5: Promote low-flow and/or waterless plumbing fixtures and appliances in all new non-residential development and residential development of five or more dwelling units.</p> <p>Policy CO 4.1.6: Support amendments to the County Building Code that would promote upgrades to water and energy efficiency when issuing permits for renovations or additions to existing buildings.</p> <p>Policy CO 4.1.7: Apply water conservation policies to all pending development projects, including approved tentative subdivision maps, to the extent permitted by law; where precluded from adding requirements by vested entitlements, encourage water conservation in construction and landscape design.</p> <p>Policy CO 4.1.8: Upon the availability of non-potable water services, discourage and consider restrictions on the use of potable water for washing outdoor surfaces.</p> <p>Policy CO 4.2.1: In cooperation with the Sanitation District and other affected agencies, seek to expand opportunities for use of recycled water for the purposes of landscape maintenance, construction, water recharge, and other uses as appropriate.</p>

ID	Suggested Mitigation Measures	OVOV Policy
		<p>Policy CO 4.2.2: Require new development to provide the infrastructure needed for delivery of recycled water to the property for use in irrigation, even if the recycled water main delivery lines have not yet reached the site, where deemed appropriate by the reviewing authority.</p> <p>Policy CO 4.2.3: Promote the installation of rainwater capture and gray water systems in new buildings for irrigation, where feasible and practicable.</p> <p>Policy CO 4.2.4: Identify and protect areas with substantial potential for groundwater recharge, and promote recharge of groundwater basins throughout the watershed (excluding the river bed).</p> <p>Policy CO 4.2.5: Participate and cooperate with other agencies to complete, adopt, and implement an Integrated Regional Water Management Plan to build a diversified portfolio of water supply, water quality, and resource stewardship priorities for the Santa Clarita Valley.</p> <p>Policy LU 4.5.2: Encourage the provision of usable open space that is accessible to employees and visitors, and discourage the provision of large areas of water-consuming landscaping that are not usable or accessible.</p>
AG-17	Adopt water conservation pricing, e.g., tiered rate structures, to encourage efficient water use.	<p>Project is Consistent: The project would be consistent to the extent that the municipal water district servicing the area would implement water conservation pricing.</p>
AG-18	Adopt water-efficient landscape ordinances.	<p>Project is Consistent: See measures described above in AG-16.</p>
AG-19	Strengthen local building codes for new construction and implement a program to renovate existing buildings to require a higher level of water efficiency.	<p>Project is Consistent: See measures described above in AG-16.</p>
AG-20	Adopt energy and water efficiency retrofit ordinances that require upgrades as a condition of issuing permits for renovations or additions, and on the sale of residences and buildings.	<p>Project is Consistent: See measures described above in AG-16.</p>
AG-21	Provide individualized water audits to identify conservation opportunities. Provide financial incentives for adopting identified efficiency measures.	<p>Project is Consistent: See measures described above in AG-16.</p>
AG-22	Provide water audits for large landscape accounts. Provide financial incentives for	<p>Project is Consistent:</p>

ID	Suggested Mitigation Measures	OVOV Policy
	efficient irrigation controls and other efficiency measures.	See measures described above in AG-16.
AG-23	Require water efficiency training and certification for irrigation designers and installers, and property managers.	Project is Consistent: See measures described above in AG-16.
AG-24	Implement or expand city or countywide recycling and composting programs for residents and businesses. Require commercial and industrial recycling.	<p>Project is Consistent:</p> <p>Policy CO 1.3.1: Explore, evaluate, and implement methods to shift from using non-renewable resources to use of renewable resources in all aspects of land use planning and development.</p> <p>Policy CO 1.3.2: Promote reducing, reusing, and recycling in all Land Use designations and cycles of development.</p> <p>Policy CO 1.3.3: Provide informational material to the public about programs to conserve non-renewable resources and recover materials from the waste stream.</p> <p>Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events.</p> <p>Policy CO 8.4.1: Encourage and promote the location of enclosed materials recovery facilities (MRF) within the Santa Clarita Valley.</p> <p>Policy CO 8.4.2: Adopt mandatory residential recycling programs for all residential units, including single-family and multi-family dwellings.</p> <p>Policy CO 8.4.3: Allow and encourage composting of greenwaste, where appropriate.</p> <p>Policy CO 8.4.4: Promote commercial and industrial recycling, including recycling of construction and demolition debris.</p> <p>Policy CO 8.4.5: Develop and implement standards for refuse and recycling receptacles and enclosures to accommodate recycling in all development.</p> <p>Policy CO 8.4.6: Introduce and assist with the placement of receptacles for recyclable products in public places, including at special events.</p> <p>Policy CO 8.4.7: Provide information to the public on recycling opportunities and facilities, and support various locations and events to promote public participation in recycling.</p> <p>Policy CO 8.4.8: Take an active role in promoting, incubating, and encouraging businesses that would qualify under the Recycling Market Development Zone program or equivalent,</p>

ID	Suggested Mitigation Measures	OVOV Policy
		<p>including those that manufacture products made from recycled products, salvage, and resource recovery business parks.</p> <p>Policy LU 7.5.1: Ensure that all new development provides adequate space for recycling receptacles and bins on site.</p> <p>Policy LU 7.5.2: Promote the use of recycled building materials.</p>
AG-25	Extend the types of recycling services offered (e.g., to include food and green waste recycling).	<p>Project is Consistent: See measures described above in AG-24.</p>
AG-26	Establish methane recovery in local landfills and wastewater treatment plants to generate electricity.	<p>Project is Consistent: The project would be consistent to the extent that the local landfills and wastewater treatment plants in the area would implement methane recovery to generate electricity.</p>
AG-27	Implement Community Choice Aggregation (CCA) for renewable electricity generation. (CCA allows cities and counties, or groups of them, to aggregate the electric loads of customers within their jurisdictions for purposes of procuring electrical services. CCA allows the community to choose what resources will serve their loads and can significantly increase renewable energy.)	<p>Not applicable (this is beyond the scope of the General Plan and Area Plan).</p>
AG-28	Preserve existing conservation areas (e.g., forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, and groundwater recharge areas) that provide carbon sequestration benefits.	<p>Project is Consistent</p> <p>Policy CO 3.4.2: Consider principles of forest management in land use decisions for projects adjacent to the National Forest, including limiting the use of invasive species, discouraging off-road vehicle use, maintaining fuel modification zones and fire access roads, and other measures as appropriate, in accordance with the goals set forth in the Angeles National Forest Land Management Plan.</p> <p>Policy CO 10.1.9: Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas, and other open space that provides nature carbon sequestration benefits.</p> <p>Policy CO 10.2.1: Encourage provision of vegetated open space on a development project's site, which may include shallow wetlands and ponds, drought tolerant landscaping, and pedestrian hardscape that includes vegetated areas.</p> <p>Policy CO 10.2.4: Seek opportunities to incorporate site features into the open space of a project</p>

ID	Suggested Mitigation Measures	OVOV Policy
		<p>design, which may include significant trees, vegetation, terrain, or water features, to provide thermal, acoustic, and aesthetic benefits.</p> <p>Policy CO 10.2.5: Where appropriate, allow density transfers and clustering to encourage retention of open space, provided all residential lots meet the applicable minimum lot size requirements of the Land Use Element and the Zoning Ordinance, including Community Standards Districts.</p>
AG-29	<p>Establish a mitigation program for development of conservation areas. Impose mitigation fees on development of such lands and use funds generated to protect existing, or create replacement, conservation areas.</p>	<p>Project is Consistent: See measures described above in AG-28.</p>
AG-30	<p>Provide public education and information about options for reducing greenhouse gas emissions through responsible purchasing, conservation, and recycling.</p>	<p>Project is Consistent:</p> <p>Policy CO 8.1.4: Provide information and education to the public about energy conservation and local strategies to address climate change.</p> <p>Policy CO 8.1.5: Coordinate various activities within the community and County agencies related to GHG emissions reduction activities.</p>
Land Use Element		
AG-31	<p>Adopt land use designations to carry out policies designed to reduce greenhouse gas emissions, e.g., policies to minimize or reduce vehicle miles traveled, encourage development near existing public transportation corridors, encourage alternative modes of transportation, and promote infill, mixed use, and higher density development.</p>	<p>Project is Consistent:</p> <p>Policy C 1.1.1: Reduce dependence on the automobile, particularly single-occupancy vehicle use, by providing safe and convenient access to transit, bikeways, and walkways.</p> <p>Policy C 1.1.2: Promote expansion of alternative transportation options to increase accessibility to all demographic and economic groups throughout the community, including mobility-impaired persons, senior citizens, low-income persons, and youth.</p> <p>Policy C 1.1.3: Work with local and regional agencies and employers to promote an integrated, seamless transportation system that meets access needs, including local and regional bus service, dial-a-ride, taxis, rail, van pools, car pools, bus pools, bicycling, walking, and automobiles.</p> <p>Policy C 1.1.6: Encourage multi-modal travel through provision of adequate facilities, including but not limited to bicycle parking and storage, expansion of park-and-ride lots, and provision of adequate station and transfer</p>

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		<p>facilities in appropriate locations.</p> <p>Policy C 1.1.12: Encourage the City of Santa Clarita to implement recommendations of its Non-Motorized Transportation Plan to expand opportunities for alternative travel modes.</p> <p>Policy C 1.1.13: Design new activity centers and improve existing activity centers to prioritize walking, bicycling and circulator transit for internal circulation of person-travel.</p> <p>Policy C 1.2.1: Develop coordinated plans for land use, circulation, and transit to promote transit-oriented development that concentrates higher density housing, employment, and commercial areas in proximity to transit corridors.</p> <p>Policy C 1.2.2: Create walkable communities, with paseos and walkways connecting residential neighborhoods to multi-modal transportation services such as bus stops and rail stations.</p> <p>Policy C 1.2.3: Require that new commercial and industrial development provide walkway connections to public sidewalks and transit stops, where available.</p> <p>Policy C 1.2.4: Consider location, availability, and accessibility of transit in evaluating new development plans.</p> <p>Policy C 1.2.5: Encourage compact development and mixed uses to locate housing, workplaces, and services within walking or bicycling distance of each other.</p> <p>Policy C 1.2.6: Provide flexible standards for parking and roadway design in transit-oriented development areas to promote transit use, where appropriate.</p> <p>Policy C 1.2.7: In pedestrian-oriented areas, provide a highly connected circulation grid with relatively small blocks to encourage walking.</p> <p>Policy C 1.2.8: Provide safe pedestrian connections across barriers, which may include but are not limited to major traffic corridors, drainage and flood control facilities, utility easements, grade separations, and walls.</p> <p>Policy C 1.2.9: Emphasize providing right-of-way for non-vehicular transportation modes so that walking and bicycling are the easiest, most convenient modes of transportation available for short trips.</p>

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		<p>Policy C 1.2.11: Reduce vehicle miles traveled (VMT) through the use of smart growth concepts.</p> <p>Policy C 1.3.1: Continue coordinating with the Metropolitan Transportation Authority (MTA or Metro) to implement the County’s Congestion Management Program (CMP) for designated CMP roadways.</p> <p>Policy C 1.3.3: Coordinate circulation planning with the Regional Transportation Plan prepared by the Southern California Association of Governments (SCAG), to ensure consistency of planned improvements with regional needs.</p> <p>Policy C 1.3.4: Continue coordination with Caltrans on circulation and land use decisions that may affect Interstate 5, State Route 14, and State Route 126, and support programs to increase capacity and improve operations on these highways.</p> <p>Policy C 2.1.1: Protect mobility on arterial highways by limiting excessive cross traffic, access points, and turning movements; traffic signals on arterial highways should be spaced at least ½-mile apart, and the minimum allowable separation should be at least ¼-mile.</p> <p>Policy C 2.2.6: Within residential neighborhoods, promote the design of “healthy streets” which may include reduced pavement width, shorter block length, provision of on-street parking, traffic-calming devices, bike routes and pedestrian connectivity, landscaped parkways, and canopy street trees.</p> <p>Policy C 2.2.7: Where practical, encourage the use of grid or modified grid street systems to increase connectivity and walkability; where cul-de-sacs are provided, promote the use of walkways connecting cul-de-sac bulbs to adjacent streets and/or facilities to facilitate pedestrian access; where street connectivity is limited and pedestrian routes are spaced over 500 feet apart, promote the use of intermediate pedestrian connections through or between blocks.</p> <p>Policy C 2.2.14: Streets should be designed in context with the terrain and the natural and built features of the area, but excessively circuitous streets should be avoided to minimize unnecessary vehicle, bicycle and pedestrian mileage.</p>

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		<p>Policy C 4.1.1: Develop permanent Metrolink facilities with an expanded bus transfer station and additional park-and-ride spaces at the Via Princessa station, or other alternative location as deemed appropriate to meet the travel needs of residents on the Valley’s east side.</p> <p>Policy C 4.1.2: Coordinate with other agencies to facilitate extension of a passenger rail line from the Santa Clarita Station to Ventura County, which may be used for Metrolink service.</p> <p>Policy C 4.1.3: Continue to expand and improve commuter services, including park-and-ride lots, bicycle parking and storage, and waiting facilities, at all Metrolink stations.</p> <p>Policy C 4.1.4: Encourage the preservation of abandoned railroad right-of-way for future transportation facilities, where appropriate.</p> <p>Policy C 4.1.5: Work with other agencies to increase rail efficiency and public safety through street and track improvements and grade separations, where needs are identified.</p> <p>Policy C 4.1.6: Provide incentives to promote transit-oriented development near rail stations.</p> <p>Policy C 4.1.7: Facilitate coordination of planning for any future high speed regional rail systems in the Valley with Metrolink services.</p> <p>Policy C 4.1.8: Minimize impacts to passenger rail service and the community from any proposed increase to freight rail service through the Valley.</p> <p>Policy C 4.2.1: Continue to work with the Orange Line Development Authority (OLDA) to plan for development of an environmentally sensitive high speed transportation system with a route through the Santa Clarita Valley, including a regional transit hub with associated infrastructure that would provide connections to the Los Angeles Basin, Palmdale Regional Airport, and other</p> <p>Policy C 4.2.2: Coordinate with other agencies as needed to facilitate planning for other high-speed rail alternatives in the Santa Clarita Valley.</p> <p>Policy C 5.1.1: Require that new subdivisions provide for two means of access into and out of the development, in order to provide for transit access, where feasible.</p>

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		<p>Policy C 5.1.2: For private gated communities, require the developer to accommodate bus access through the entry gate, or provide bus waiting facilities at the project entry with pedestrian connections to residential streets, where appropriate.</p> <p>Policy C 5.1.3: Consider the operational characteristics of buses when determining acceptable street designs, including grades and turning radii.</p> <p>Policy C 5.1.4: Provide for location of bus stops within ¼-mile of residential neighborhoods, and include paved bus waiting areas in street improvement plans wherever appropriate and feasible.</p> <p>Policy C 5.1.5: Locate and design bus turnouts to limit traffic obstruction and to provide sufficient merging length for the bus to re-enter the traffic flow.</p> <p>Policy C 5.1.6: Evaluate the feasibility of giving buses priority at signalized intersections to maintain transit service level standards, where appropriate.</p> <p>Policy C 5.2.1: Require paved waiting areas, accessible by paved walkways and reasonably direct pedestrian routes, for bus stops in new development; and provide for retrofitting of existing bus stops, where feasible and practicable.</p> <p>Policy C 5.2.4: Enhance way-finding signage along walkways and paseos to direct pedestrians to transit stops.</p> <p>Policy C 5.2.5: Complementary transportation modes should be interconnected at intermodal transit centers, including provisions for bicycles on buses, bicycle parking at transit centers, and park-and-ride at transit stops.</p> <p>Policy C 5.3.1: Continue to provide fixed route service to significant activity areas and neighborhoods with moderate to high density, and serve low-density and rural areas with dial-a-ride, flexible fixed routes, or other transit services as deemed appropriate.</p> <p>Policy C 5.3.2: Promote concentrated development patterns in coordination with transit planning to maximize service efficiency and ridership.</p>

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		<p>Policy CO 1.3.1: Explore, evaluate, and implement methods to shift from using non-renewable resources to use of renewable resources in all aspects of land use planning and development.</p> <p>Policy LU 2.1.2: On the Land Use Map, integrate land use designations in a manner that promotes healthy, walkable communities, by providing an appropriate mix of residential and service uses in proximity to one another.</p> <p>Policy LU 2.3.2: Either vertical or horizontal integration of uses should be allowed in a mixed use development, with an emphasis on tying together the uses with appropriate pedestrian linkages.</p> <p>Policy LU 2.3.4: Adequate public spaces and amenities should be provided in a mixed use development to support both commercial and residential uses, including but not limited to plazas, landscaped walkways, village greens, and greenbelts.</p> <p>Policy LU 2.3.5: Mixed use developments should be designed to create a pedestrian-scale environment through appropriate street and sidewalk widths, block lengths, relationship of buildings to streets, and use of public spaces.</p> <p>Policy LU 2.3.6: Encourage provision of parking alternatives in mixed use developments, including subterranean parking and structured parking, to limit the amount of surface area devoted to vehicle storage.</p> <p>Policy LU 3.1.3: Promote opportunities for live-work units to accommodate residents with home-based businesses.</p> <p>Policy LU 3.1.4: Promote development of workforce housing to meet the needs of those employed in the Santa Clarita Valley.</p> <p>Policy LU 3.1.7: Promote development of housing for students attending local colleges, in consideration of access to campuses to the extent practicable.</p> <p>Policy LU 3.2.1: Require provision of adequate walkways in urban residential neighborhoods that provide safe and accessible connections to destinations such as schools, parks, and neighborhood commercial centers.</p> <p>Policy LU 3.2.2: In planning residential neighborhoods, include pedestrian linkages, landscaped parkways with sidewalks, and</p>

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		<p>separated trails for pedestrians and bicycles, where appropriate and feasible.</p> <p>Policy LU 4.2.3: Encourage businesses to locate in all appropriate areas of the community to encourage job creation in closer proximity to workforce housing.</p> <p>Policy LU 5.1.1: Require safe, secure, clearly-delineated, adequately-illuminated walkways and bicycle facilities in all commercial and business centers.</p> <p>Policy LU 5.1.2: Require connectivity between walkways and bikeways serving neighborhoods and nearby commercial areas, schools, parks, and other supporting services and facilities.</p> <p>Policy LU 5.1.3: Ensure that adequate bus turnouts, served by walkways and comfortable, safe, and convenient waiting facilities, are provided for transit users within residential, shopping, and business developments.</p> <p>Policy LU 5.2.1: Designate higher-density residential uses in areas served by public transit and a full range of support services.</p> <p>Policy LU 5.2.2: Provide for location of neighborhood commercial uses in proximity to the neighborhoods they serve, to encourage cycling and walking to local stores.</p> <p>Policy LU 5.2.3: Promote location of non-polluting businesses providing employment opportunities in proximity to neighborhoods, to encourage walking to work.</p> <p>Policy LU 5.2.4: Encourage transit-oriented development (TOD) through designation of land uses that allow compact, mixed-use development in proximity to rail stations and multi-modal transit facilities, in conformance with applicable policies.</p> <p>Policy LU 5.2.5: Encourage the mix of compatible uses in areas where, though not served by rail or transit, mixed uses will achieve more walkable neighborhoods and trip reduction, in conformance with applicable policies.</p>
AG-32	Identify and facilitate the development of land uses not already present in local districts—such as supermarkets, parks and recreation fields, and schools in neighborhoods; or residential uses in business districts—to reduce vehicle miles traveled and allow bicycling and walking to these destinations.	<p>Project is Consistent: See measures described above in AG-31.</p>

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AG-33	Create neighborhood commercial districts.	Project is Consistent: See measures described above in AG-31.
AG-34	Require bike lanes and bicycle/pedestrian paths.	Project is Consistent: See measures described above in AG-31.
AG-35	Prohibit projects that impede bicycle and walking access, e.g., large parking areas that cannot be crossed by non-motorized vehicles, and new residential communities that block through access on existing or potential bicycle and pedestrian routes.	Project is Consistent: See measures described above in AG-31.
AG-36	Site schools to increase the potential for students to walk and bike to school.	Project is Consistent: See measures described above in AG-31.
AG-37	Enact policies to limit or discourage low-density development that segregates employment, services, and residential areas.	Project is Consistent: See measures described above in AG-31.
AG-38	Where there are growth boundaries, adopt policies providing certainty for infill development.	Project is Consistent: See measures described above in AG-31.
AG-39	Require best management practices in agriculture and animal operations to reduce emissions, conserve energy and water, and utilize alternative energy sources, including biogas, wind, and solar.	Not applicable.
Circulation Element		
AG-40	In conjunction with measures that encourage public transit, ride sharing, bicycling and walking, implement circulation improvements that reduce vehicle idling. For example, coordinate controlled intersections so that traffic passes more efficiently through congested areas.	Project is Consistent: See measures described above in AG-31.
AG-41	Create an interconnected transportation system that allows a shift in travel from private passenger vehicles to alternative modes, including public transit, ride sharing, car sharing, bicycling and walking. Before funding transportation improvements that increase vehicle miles traveled, consider alternatives such as increasing public transit or improving bicycle or pedestrian travel routes.	Project is Consistent: See measures described above in AG-31.
AG-42	Give funding preference to investment in public transit over investment in infrastructure for private automobile traffic.	Project is Consistent: See measures described above in AG-31.

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AG-43	Include safe and convenient bicycle and pedestrian access in all transportation improvement projects. Ensure that non-motorized transportation systems are connected and not interrupted by impassable barriers, such as freeways and include amenities such as secure bicycle parking.	Project is Consistent: See measures described above in AG-31.
AG-44	Provide adequate and affordable public transportation choices including expanded bus routes and service and other transit choices such as shuttles, light rail, and rail where feasible.	Project is Consistent: See measures described above in AG-31.
AG-45	Assess transportation impact fees on new development in order to maintain and increase public transit service.	Project is Consistent: See measures described above in AG-31.
AG-46	Provide public transit incentives, including free and reduced fare areas.	Project is Consistent: See measures described above in AG-31.
AG-47	Adopt a comprehensive parking policy that discourages private vehicle use and encourages the use of alternative transportation. For example, reduce parking for private vehicles while increasing options for alternative transportation; eliminate minimum parking requirements for new buildings; “unbundle” parking (require that parking is paid for separately and is not included in rent for residential or commercial space); and set appropriate pricing for parking.	Project is Consistent: See measures described above in AG-31.
AG-48	Develop school transit plans to substantially reduce automobile trips to, and congestion surrounding, schools. (According to some estimates, parents driving their children to school account for 20–25% of the morning commute.) Plans may address, e.g., necessary infrastructure improvements and potential funding sources; replacing older diesel buses with low or zero-emission vehicles; mitigation fees to expand school bus service; and Safe Routes to School programs and other formal efforts to increase walking and biking by students.	Project is Consistent: See measures described above in AG-31.
AG-49	Create financing programs for the purchase or lease of vehicles used in employer ride sharing programs.	Project is Consistent: See measures described above in AG-31.
AG-50	Enter into partnerships to create and expand polluting vehicle buy-back programs to include vehicles with high greenhouse gas emissions.	Project is Consistent: See measures described above in AG-31.

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AG-51	Provide public education and information about options for reducing motor vehicle-related greenhouse gas emissions. Include information on trip reduction; trip linking; public transit; biking and walking; vehicle performance and efficiency (e.g., keeping tires inflated); low or zero-emission vehicles; and car and ride sharing.	Project is Consistent: See measures described above in AG-31.
Housing Element		
AG-52	Improve the jobs-housing balance and promote a range of affordable housing choices near jobs, services and transit.	Project is Consistent: See measures described above in AG-31.
AG-53	Concentrate mixed use, and medium to higher density residential development in areas near jobs, transit routes, schools, shopping areas and recreation.	Project is Consistent: See measures described above in AG-31.
AG-54	Increase density in single-family residential areas located near transit routes or commercial areas. For example, promote duplexes in residential areas and increased height limits of multi-unit buildings on main arterial streets, under specified conditions.	Project is Consistent: See measures described above in AG-31.
AG-55	Encourage transit-oriented developments.	Project is Consistent: See measures described above in AG-31.
AG-56	Impose minimum residential densities in areas designated for transit-oriented, mixed-use development to ensure higher density in these areas.	Project is Consistent: See measures described above in AG-31.
AG-57	Designate mixed-use areas where housing is one of the required uses.	Project is Consistent: See measures described above in AG-31.
AG-58	In areas designated for mixed use, adopt incentives for the concurrent development of different land uses (e.g., retail with residential).	Project is Consistent: See measures described above in AG-31.
AG-59	Promote infill, mixed use, and higher density development by, for example, reducing developer fees; providing fast-track permit processing; reducing processing fees; funding infrastructure loans; and giving preference for infrastructure improvements in these areas.	Project is Consistent: See measures described above in AG-31.

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Open Space Element		
AG-60	Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas and other open space that provide carbon sequestration benefits.	<p>Project is Consistent</p> <p>Policy CO 3.4.2: Consider principles of forest management in land use decisions for projects adjacent to the National Forest, including limiting the use of invasive species, discouraging off-road vehicle use, maintaining fuel modification zones and fire access roads, and other measures as appropriate, in accordance with the goals set forth in the Angeles National Forest Land Management Plan.</p> <p>Policy CO 10.1.9: Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas, and other open space that provides nature carbon sequestration benefits.</p> <p>Policy CO 10.2.1: Encourage provision of vegetated open space on a development project’s site, which may include shallow wetlands and ponds, drought tolerant landscaping, and pedestrian hardscape that includes vegetated areas.</p> <p>Policy CO 10.2.4: Seek opportunities to incorporate site features into the open space of a project design, which may include significant trees, vegetation, terrain, or water features, to provide thermal, acoustic, and aesthetic benefits.</p> <p>Policy CO 10.2.5: Where appropriate, allow density transfers and clustering to encourage retention of open space, provided all residential lots meet the applicable minimum lot size requirements of the Land Use Element and the Zoning Ordinance, including Community Standards Districts.</p>
AG-61	Establish a mitigation program for development of those types of open space that provide carbon sequestration benefits. Require like-kind replacement for, or impose mitigation fees on development of such lands. Use funds generated to protect existing, or create replacement, open space.	<p>Project is Consistent:</p> <p>See measures described above in AG-60.</p>
AG-62	Allow alternative energy projects in areas zoned for open space where consistent with other uses and values.	<p>Project is Consistent:</p> <p>See measures described above in AG-60.</p>

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AG-63	Protect existing trees and encourage the planting of new trees. Adopt a tree protection and replacement ordinance, e.g., requiring that trees larger than a specified diameter that are removed to accommodate development must be replaced at a set ratio.	Project is Consistent: See measures described above in AG-60.
AG-64	Connect parks and publicly accessible open space through shared pedestrian/bike paths and trails to encourage walking and bicycling.	Project is Consistent: See measures described above in AG-60.
Safety Element		
AG-65	Address expected effects of climate change that may impact public safety, including increased risk of wildfires, flooding and sea level rise, salt-water intrusion; and health effects of increased heat and ozone, through appropriate policies and programs.	Project is Consistent: Policy CO 10.1.6: Delineate open space uses within hazardous areas to protect public health and safety, which may include areas subject to seismic rupture, flooding, wildfires, or unsafe levels of noise or air pollution. Policy LU 3.3.2: In areas subject to wildland fire danger, ensure that land uses have adequate setbacks, fuel modification areas, and emergency access routes. Policy LU 3.3.4: Evaluate service levels for law enforcement and fire protection as needed to ensure that adequate response times are maintained as new residential development is occupied.
AG-66	Adopt programs for the purchase, transfer or extinguishment of development rights in high-risk areas.	No applicable policies.
AG-67	Monitor the impacts of climate change. Use adaptive management to develop new strategies, and modify existing strategies, to respond to the impacts of climate change.	No applicable policies.

Source: Department of Justice, "The California Environmental Quality Act – Addressing Global Warming Impacts at the Local Agency Level," http://aq.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf. 2008.

Effectiveness of Proposed Area Plan Policies

The proposed policies are designed to directly and indirectly reduce greenhouse gas emissions, and to sequester carbon dioxide. Implementation of these policies would reduce potential Area Plan air quality impacts under this criterion to less than significant.

Effectiveness of Proposed General Plan Goals, Objectives and Policies

The proposed goals, objectives and policies are designed to directly and indirectly reduce greenhouse gas emissions, and to sequester carbon dioxide. Implementation of these goals, objectives, and policies would reduce potential General Plan air quality impacts under this criterion to less than significant.

MITIGATION FRAMEWORK

No additional mitigation measures are required.

SIGNIFICANCE OF IMPACT WITH MITIGATION FRAMEWORK

Based on the above quantitative analysis, the proposed Area Plan and General Plan would not impede or conflict with the state's goal of meeting AB 32. As demonstrated by the above analysis, both the proposed Area Plan and General Plan would be consistent with project design features and mitigation measures recommended by CARB, OPR, the California Climate Action Team, and the Office of the Attorney General, and would achieve reductions in GHG emissions from business-as-usual conditions so as to not impede the state's ability to meet AB 32. As a result, the project would result in a less than significant impact on global climate change.