3.4 GLOBAL WARMING AND 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) emissions under the existing General Plan and Area Plan, and under the proposed General Plan and Area Plan; compares the proposed projects' GHG emissions to existing emissions and emissions under the existing General Plan and Area Plan; and determines if the projects are consistent with state goals, strategies, and measures to reduce GHG emissions.

The global warming and climate change analysis is a regional analysis for the One Valley One Vision (OVOV) Planning Area. The City and County Planning Areas together comprise the OVOV Planning Area. The City's Planning Area consists of its incorporated boundaries and adopted Sphere of Influence (SOI). The County's planning area consists of the remaining unincorporated land within the OVOV Planning Area boundaries. The impact analysis evaluates the proposed General Plan goals, objectives, and policies and proposed Area Plan policies for their effectiveness at controlling GHG emissions. Implementation of the proposed General Plan and Area Plan would increase GHG emissions over existing conditions. While General Plan and Area Plan policies would reduce GHG emissions, potential impacts on climate change from implementation of the proposed General Plan and Area Plan would be potentially significant given the increase in emissions and 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]

[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.

The third item listed above is the focus of climate change legislation. The natural process through which heat is retained in the troposphere[2] is called the "greenhouse effect." The greenhouse effect traps heat in the troposphere through a three-fold process as follows: (1) short-wave radiation in the form of visible light emitted by the Sun is absorbed by the Earth as heat; (2) long-wave radiation is re-emitted by the Earth; and (3) greenhouse gases (GHGs) in the atmosphere absorb or trap the long-wave radiation and re-emit it back towards the Earth and into space.

While water vapor and CO_2 are the most abundant GHG, other trace GHGs have a greater ability to absorb and re-radiate long-wave radiation. 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-emit long-wave radiation over a specific period. The GWP of a gas is determined using CO_2 as the reference gas with a GWP of 1 over 100 years. For example, a gas with a GWP of 10 is 10 times more potent than CO_2 over 100 years. The use of GWP allows GHG emissions to be reported using CO_2 as a baseline. The sum of each GHG multiplied by its associated GWP is referred to as carbon dioxide equivalents (CO_2e). This essentially means that 1 metric ton of a GHG with a GWP of 10 has the same climate change impacts as 10 metric tons of CO_2.

Greenhouse Gases

The compounds described below are GHGs subject to control under state law.[3] As noted above, water vapor is a GHG; however, it's concentration in the atmosphere is a function of temperature and vapor pressure and cannot be controlled by any known means; therefore, water vapor is not subject to control under state law.

- **Water Vapor (H_2O).** Although water vapor has not received the scrutiny of other GHGs, 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.[4] 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.[5] The primary human-related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to

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

3 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.

4 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).

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

contribute a significant amount (less than 1 percent) to atmospheric concentrations of water vapor.[6] 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 (CO_2).** 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.[7] 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.[8]

- **Methane (CH_4).** 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 intensive fermentation.[9] Methane is the 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 (N_2O).** 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).[10] The GWPs of PFCs range from 5,700 to 11,900.

- **Sulfur Hexafluoride (SF_6).** 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

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6 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).

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

8 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.

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

10 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).

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]).[11]

Global Contributions to Greenhouse Gas Emissions

Worldwide anthropogenic (man-made) GHG emissions are tracked for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Man-made GHG emissions for Annex I nations are available through 2007. Man-made GHG emissions for Non-Annex I nations are available through 2005. The sum of these emissions totaled approximately 42,133 million metric tons of carbon dioxide equivalents ($MMTCO_2e$).[12] It should be noted that global emissions inventory data are not all from the same year and may vary depending on the source of the emissions inventory data.[13] Emissions from the top five (5) countries and the European Union accounted for approximately 55 percent of the total global GHG emissions, according to the most recently available data (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 3.4-1**; however, the data is representative of currently available inventory data.

United States Contributions to Greenhouse Gas Emissions

As noted in **Table 3.4-1**, the US was one of the top producers of greenhouse gas emissions. The primary greenhouse gas emitted by human activities in the United States was CO_2, representing approximately 84

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11 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).

12 The CO_2 equivalent emissions commonly are expressed as "million metric tons of carbon dioxide equivalent ($MMTCO_2e$)." The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP, such that $MMTCO_2e$ = (million metric tons of a GHG) x (GWP of the GHG). For example, the GWP for methane is 21. This means that the emission of one million metric tons of methane is equivalent to the emission of 21 million metric tons of CO_2.

13 The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2005 data, the UNFCCC data for the most recent year were used. 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 and "Flexible GHG Data Queries" with selections for total GHG emissions excluding LULUCF/LUCF, all years, and non-Annex I countries, http://unfccc.int/di/FlexibleQueries/Event.do?event= showProjection. n.d.

percent of total greenhouse gas emissions.[14] Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 80 percent of US GHG emissions.[15]

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

Emitting Countries	GHG Emissions ($MMTCO_2e$)
China	7,250
United States	7,217
European Union (EU), 27 Member States	5,402
Russian Federation	2,202
India	1,863
Japan	1,412
Total	**25,346**

Source: World Resources Institute, "Climate Analysis Indicators Tool (CAIT)," http://cait.wri.org/. 2010.
Note: Excludes emissions and removals from land use, land-use change and forestry (LULUCF). Emissions for Annex I nations are based on 2007 data. Emissions for Non-Annex I nations (e.g., China, India) are based on 2005 data).

California Contributions to Greenhouse Gas Emissions

CARB compiles GHG inventories for the State of California. Based upon the 2008 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2008 greenhouse gas emissions inventory, California emitted 474 $MMTCO_2e$ ***including*** emissions resulting from imported electrical power in 2008.[16] Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute, California's total statewide GHG emissions rank second in the United States (Texas is number one) with emissions of 417 $MMTCO_2e$ ***excluding*** emissions related to imported power.[17]

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

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

16 California Air Resources Board, "California Greenhouse Gas 2000-2008 Inventory by Scoping Plan Category - Summary," http://www.arb.ca.gov/cc/inventory/data/data.htm. 2010.

17 Ibid.

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. The bulk of the emissions from these sources are due to fossil fuel combustion. **Table 3.4-2, GHG Emissions in California**, provides a summary of GHG emissions reported in California in 1990 and 2008 separated by categories defined by the United Nations Intergovernmental Panel on Climate Change (IPCC).

Between 1990 and 2008, the population of California grew by approximately 7.3 million (from 29.8 to 37.9 million).[18] This represents an increase of approximately 27.2 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from $788 billon in 1990 to $1.8 trillion in 2008 representing an increase of approximately 128 percent (over twice the 1990 gross state product).[19] Despite the population and economic growth, California's net GHG emissions only grew by approximately 11 percent. The CEC attributes the slow rate of growth to the success of California's renewable energy programs and its commitment to clean air and clean energy.[20]

Table 3.4-2
GHG Emissions in California

Source Category	1990 ($MMTCO_2e$)	Percent of Total	2008 ($MMTCO_2e$)	Percent of Total
ENERGY	**386.41**	**89.2%**	**413.80**	**86.6%**
Energy Industries	157.33	36.3%	171.23	35.8%
Manufacturing Industries & Construction	24.24	5.6%	16.67	3.5%
Transport	150.02	34.6%	173.94	36.4%
Other (Residential/Commercial/Institutional)	48.19	11.1%	46.59	9.8%
Non-Specified	1.38	0.3%	0.00	0.0%
Fugitive Emissions from Oil & Natural Gas	2.94	0.7%	3.28	0.7%
Fugitive Emissions from Other Energy Production	2.31	0.5%	2.09	0.4%

18 U.S. Census Bureau, "Data Finders," http://www.census.gov/. 2009; California Department of Finance, "E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-1008, with 2000 Benchmark," http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2009/. 2010.

19 California Department of Finance, "Financial & Economic Data: Gross Domestic Product, California," http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/FS_Misc.htm. 2010. Amounts are based on current dollars as of the data of the report (June 2, 2009).

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

Source Category	1990 ($MMTCO_2e$)	Percent of Total	2008 ($MMTCO_2e$)	Percent of Total
INDUSTRIAL PROCESSES & PRODUCT USE	**18.34**	**4.2%**	**30.11**	**6.3%**
Mineral Industry	4.85	1.1%	5.35	1.1%
Chemical Industry	2.34	0.5%	0.06	0.0%
Non-Energy Products from Fuels & Solvent Use	2.29	0.5%	1.97	0.4%
Electronics Industry	0.59	0.1%	0.80	0.2%
Substitutes for Ozone Depleting Substances	0.04	0.0%	13.89	2.9%
Other Product Manufacture and Use	3.18	0.7%	1.66	0.3%
Other	5.05	1.2%	6.39	1.3%
AGRICULTURE, FORESTRY, & OTHER LAND USE	**19.11**	**4.4%**	**24.42**	**5.1%**
Livestock	11.67	2.7%	16.28	3.4%
Land	0.19	0.0%	0.19	0.0%
Aggregate Sources & Non-CO_2 Sources on Land	7.26	1.7%	7.95	1.7%
WASTE	**9.42**	**2.2%**	**9.41**	**2.0%**
Solid Waste Disposal	6.26	1.4%	6.71	1.4%
Wastewater Treatment & Discharge	3.17	0.7%	2.70	0.6%
EMISSIONS SUMMARY				
Gross California Emissions	433.29		477.74	
Sinks from Forests and Rangelands	-6.69		-3.98	
Net California Emissions	426.60		473.76	

Sources:

[1] *California Air Resources Board, "California Greenhouse Gas 1990-2004 Inventory by IPCC Category - Summary," http://www.arb.ca.gov/cc/inventory/archive/archive.htm. 2010.*

[2] *California Air Resources Board, "California Greenhouse Gas 2000-2008 Inventory by IPCC Category - Summary," http://www.arb.ca.gov/cc/inventory/data/data.htm. 2010.*

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.[21] 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

21 Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report, Summary for Policymakers*. (November 12–17, 2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

and snowpack in both hemispheres, and in polar ice and ice sheets in both the Arctic and Antarctic regions.[22]

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-industrial period range.[23] 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 Concentrations[1]

Greenhouse Gas	Early Industrial Period Concentrations (ppm)	Natural Range for Last 650,000 Years (ppm)	2005 Concentrations (ppm)
Carbon Dioxide	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° Celsius per decade, determined from meteorological measurements worldwide between 1990 and 2005.[24] 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

22 Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report, Summary for Policymakers*. (November 12–17, 2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

23 Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers.* (November 12–17, 2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

24 Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. (November 12–17, 2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

current century.[25] Changes to the global climate system and ecosystems and to California would include, but would not be limited to

- 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;[26]

- rising average global sea levels, primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets;[27]

- 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;[28]

- declining Sierra snowpack levels, which account for approximately half of the surface water storage in California;[29]

- 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 (including the San Joaquin Valley area) by the end of the 21st century;[30]

- increasing potential for erosion of California's coastlines and seawater intrusion into the Delta and associated levee systems due to the rise in sea level.[31]

- increasing pest infestation making California more susceptible to forest fires;[32] and

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25 Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. (November 12–17, 2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

26 Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. (November 12–17, 2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

27 Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. (November 12–17, 2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

28 Intergovernmental Panel on Climate Change. *Climate Change 2007: Synthesis Report, Summary for Policymakers*. (November 12–17, 2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

29 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.

30 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.

31 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.

32 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.

- increasing the demand for electricity by 1 to 3 percent by 2020 due to rising temperatures resulting in hundreds of millions of dollars in extra expenditures.[33]

California Climate Adaptation Strategy

In 2009, the California Natural Resources Agency (CNRA) published the *California Climate Adaptation Strategy*[34] as a response to the Governor's Executive Order S-13-2008. The CNRA report lists specific recommendations for state and local agencies to best adapt to the anticipated risks posed by a changing climate. The Executive Summary contains a list of 12 key preliminary recommendations for adapting to a changing climate. The 12 recommendations are drawn from multiple strategies described within the sector specific and cross-sector adaptation strategy chapters of the CNRA report. Each Executive Summary recommendation lists the sector and recommendation number using the following acronyms to identify the sector: Public Health (PH), Biodiversity and Habitat (BH), Ocean and Coastal Resources (OCR), Water Management (W), Agriculture (A), Forestry (F), Transportation and Energy Infrastructure (TEI), and Cross-Sector (CS). The key preliminary recommendations from the report are as follows:

1. A Climate Adaptation Advisory Panel (CAAP) will be appointed to assess the greatest risks to California from climate change and recommend strategies to reduce those risks building on California's Climate Adaptation Strategy. This panel will be convened by the California Natural Resources Agency, in coordination with the Governor's Climate Action Team, to complete a report by December 2010. The state will partner with the Pacific Council on International Policy to assemble this panel. A list of panel members can be found on the California adaptation Web site. (CS-1).

2. California must change its water management and uses because climate change will likely create greater competition for limited water supplies needed by the environment, agriculture, and cities. As directed by the recently signed water legislation (Senate Bill X71), state agencies must implement strategies to achieve a statewide 20 percent reduction in per capita water use by 2020, expand surface and groundwater storage, implement efforts to fix Delta water supply, quality, and ecosystem conditions, support agricultural water use efficiency, improve state-wide water quality, and improve Delta ecosystem conditions and stabilize water supplies as developed in the Bay Delta Conservation Plan. (BH-2, W-3, 6, and 7; A-1; TEI-3).

3. Consider project alternatives that avoid significant new development in areas that cannot be adequately protected (planning, permitting, development, and building) from flooding, wildfire and erosion due to climate change. The most risk-averse approach for minimizing the adverse effects of sea level rise and storm activities is to carefully consider new development within areas vulnerable to inundation and erosion. State agencies should generally not plan, develop, or build any new significant structure in a place where that structure will require significant protection from sea level

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33 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.

34 California Natural Resources Agency, Climate Action Team, *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008*, (2009).

rise, storm surges, or coastal erosion during the expected life of the structure. However, vulnerable shoreline areas containing existing development that have regionally significant economic, cultural, or social value may have to be protected, and in-fill development in these areas may be accommodated. State agencies should incorporate this policy into their decisions and other levels of government are also encouraged to do so. (CS-2; OCR-1 and 2; W-4 and 9; TEI -2 and 7).

4. All state agencies responsible for the management and regulation of public health, infrastructure or habitat subject to significant climate change should prepare as appropriate agency-specific adaptation plans, guidance, or criteria by September 2010. (PH-3 and 5; BH-1, 2, and 6; OCR-3; F-1 and 2; TEI-2 and 5).

5. To the extent required by CEQA Guidelines Section 15126.2, all significant state projects, including infrastructure projects, must consider the potential impacts of locating such projects in areas susceptible to hazards resulting from climate change. Section 15126.2 is currently being proposed for revision by CNRA to direct lead agencies to evaluate the impacts of locating development in areas susceptible to hazardous conditions, including hazards potentially exacerbated by climate change. Locating state projects in such areas may require additional guidance that in part depends on planning tools that the CAS recommendations call for (see key recommendations 3, 6, 8, 9, and 10; BH-3; OCR-1; TEI-2).

6. The California Emergency Management Agency (Cal EMA) will collaborate with CNRA, the CAT, the Energy Commission, and the CAAP to assess California's vulnerability to climate change, identify impacts to state assets, and promote climate adaptation/mitigation awareness through the Hazard Mitigation Web Portal and My Hazards Website as well as other appropriate sites. The transportation sector CAWG, led by Caltrans, will specifically assess how transportation nodes are vulnerable and the type of information that will be necessary to assist response to district emergencies. Special attention will be paid to the most vulnerable communities impacted by climate change in all studies. (CS-3 and 4; PH-4 and 5; OCR-5; W-4; F-2 and 3; TEI-2, 5, 6 and 8).

7. Using existing research the state should identify key California land and aquatic habitats that could change significantly during this century due to climate change. Based on this identification, the state should develop a plan for expanding existing protected areas or altering land and water management practices to minimize adverse effects from climate change induced phenomena. (BH-1; W-5; F-5).

8. The best long-term strategy to avoid increased health impacts associated with climate change is to ensure communities are healthy to build resilience to increased spread of disease and temperature increases. The California Department of Public Health will develop guidance by September 2010 for use by local health departments and other agencies to assess mitigation and adaptation strategies, which include impacts on vulnerable populations and communities and assessment of cumulative health impacts. This includes assessments of land use, housing and transportation proposals that could impact health, GHG emissions, and community resilience for climate change, such as in the 2008 Senate Bill 375 regarding Sustainable Communities. (PH-3).

9. The most effective adaptation strategies relate to short and long-term decisions. Most of these decisions are the responsibility of local community planning entities. As a result, communities with General Plans and Local Coastal Plans should begin, when possible, to amend their plans to assess climate change impacts, identify areas most vulnerable to these impacts, and develop reasonable and

rational risk reduction strategies using the CAS as guidance. Every effort will be made to provide tools, such as interactive climate impact maps, to assist in these efforts. (BH-1; OCR– 2 and 4; CS-2).

10. State fire fighting agencies should begin immediately to include climate change impact information into fire program planning to inform future planning efforts. Enhanced wildfire risk from climate change will likely increase public health and safety risks, property damage, fire suppression and emergency response costs to government, watershed and water quality impacts, and vegetation conversions and habitat fragmentation. (PH-4 and 5; F-1; TEI-2).

11. State agencies should meet projected population growth and increased energy demand with greater energy conservation and an increased use of renewable energy. Renewable energy supplies should be enhanced through the Desert Renewable Energy Conservation Plan that will protect sensitive habitat that will while helping to reach the state goal of having 33 percent of California's energy supply from renewable sources by 2020. (TEI-2).

12. Existing and planned climate change research can and should be used for state planning and public outreach purposes; new climate change impact research should be broadened and funded. By September 2010, the California Energy Commission will develop the CalAdapt Web site that will synthesize existing California climate change scenarios and climate impact research and to encourage its use in a way that is beneficial for local decision-makers. Every effort will be made to increase funding for climate change research, focusing on three areas: linkages with federal funding resources, developing Energy Commission -led vulnerability studies, and synthesizing the latest climate information into useable information for local needs through the CalAdapt tool. (CS-4; PH-7; BH-4; OCR-6; W-8, 9, and 10; A – 8; F-4 and 5; TEI-3 and 9).

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. Notably, however, although Congress approved, 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 may elect to 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.[35] Although the United States has not ratified the

[35] 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, (August 2008).

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.[36] Greenhouse gas intensity is the ratio of GHG emissions to economic output (i.e., gross domestic product).

Copenhagen Accord

The 2009 United Nations Climate Change Conference, commonly known as the Copenhagen Summit, was held in Copenhagen, Denmark in December of that year. The purpose of the Summit was to organize a meeting of world leaders from nations that are Parties to the United Nations Framework Convention on Climate Change (UNFCCC) to establish a framework for climate change mitigation beyond 2012, when the Kyoto Protocol expires. The Parties agree, at the 2007 United Nations Climate Change Conference in Bali, Indonesia, to jointly step up international efforts to combat climate change and get to an agreed outcome in Copenhagen in 2009. According to the UNFCCC, the Copenhagen Summit was to have provided clarity on four key issues:

- Ambitious emission reduction targets for developed countries;
- Nationally appropriate mitigation actions of developing countries;
- Scaling up financial and technological support for both adaptation and mitigation; and
- An effective institutional framework with governance structures that address the needs of developing countries.[37]

The Copenhagen Summit was attended by 120 heads of state and government and tens of thousands of delegates and observers. During the Summit, some nation stated what actions they were proposing to take if a binding agreement was achieved. The United States proposed to cut GHG emissions by 17 percent below 2005 levels by 2020, 42 percent by 2030 and 83 percent by 2050.[38] However, a biding agreement was not achieved at the Summit. At the final day of the Summit, an agreement was reached between the United States and a unified China, South Africa, India and Brazil. This agreement became known as the Copenhagen Accord. The Parties to the UNFCCC agreed to "take note of" the Copenhagen

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36 Council of Environmental Policy, "Addressing Global Climate Change." ttp://www.whitehouse.gov/ceq/global-change.html, (August 2008).

37 United Nations Framework Convention on Climate Change, "Fact sheet: Copenhagen – Background information," http://unfccc.int/press/fact_sheets/items/4975.php. 2010.

38 The White House, Office of the Press Secretary, "President to Attend Copenhagen Climate Talks: Administration Announces U.S. Emission Target for Copenhagen," http://www.whitehouse.gov/the-press-office/president-attend-copenhagen-climate-talks. 2009.

Accord, instead of fully adopting it; therefore, it is not legally binding.[39] As a result, climate negotiations continue in order to establish a successor to the Kyoto Protocol.

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 three working group reports and a synthesis report based on the first three reports) was published in 2007.[40] In its 2007 report, the IPCC stated that global temperature increases since the mid-20th century was "very likely" attributable to man-made activities (greater than 90 percent certainty).

United States Activities to Control Greenhouse Gas Emissions

There have been numerous federal actions over the past decade that have regulated greenhouse gases (GHG). The following is an overview of the most applicable regulations.

In *Massachusetts v. EPA*,[41] the Supreme Court held that U.S. EPA has the statutory authority through the CAA[42] 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 indicated 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, the President signed Executive Order 13432 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.[43]

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39 United Nations Framework Convention on Climate Change, "Copenhagen Accord," http://unfccc.int/home /items/5262.php. 2010.

40 The IPCC's Fourth Assessment Report http://www.ipcc.ch/.

41 *Massachusetts v. EPA*, 549 U.S. at 526.

42 42 U.S.C. § 7521(a)(1), Section 202(a)(1), Clean Air Act.

43 Federal Register (72 FR 27717), May 16, 2007, Executive Order 13432, *Cooperation Among Agencies in Protecting the Environment With Respect to Greenhouse Gas Emissions From Motor Vehicles, Nonroad Vehicles, and Nonroad Engines.*

In December 2007, the President signed the Energy Independence and Security Act of 2007,[44] which sets a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022 and sets a national fuel economy standard of 35 miles per gallon by 2020. The Act also contains provisions for energy efficiency in lighting and appliances and for the implementation of green building technologies in Federal buildings.

On July 11, 2008, the U.S. EPA issued an Advance Notice of Proposed Rulemaking on regulating GHGs under the CAA. The Advance Notice of Proposed Rulemaking reviews the various CAA provisions that may be applicable to the regulation of GHGs and presents potential regulatory approaches and technologies for reducing GHG emissions. In the Advance Notice of Proposed Rulemaking, the U.S. EPA seeks further public comment on the regulation of GHG emissions under the CAA.[45]

The U.S. EPA adopted a mandatory GHG reporting rule in September 2009. The rule would requires suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions submit annual reports to the U.S. EPA beginning in 2011 (covering the 2010 calendar year emission). Vehicle and engine manufacturers would begin reporting GHG emissions for model year 2011.

On September 15, 2009, the U.S. EPA and the Department of Transportation's (DOT) National Highway Traffic Safety Administration (NHTSA) issued a joint proposal to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The proposed standards would be phased in and would require passenger cars and light-duty trucks to comply with a declining emission standard. In 2012, passenger cars and light-duty trucks would have to meet an average emission standard of 295 grams of CO_2 per mile and 30.1 miles per gallon.[46] By 2016, the vehicles would have to meet a standard of 250 grams of CO_2 per mile and 35.5 miles per gallon.[47]

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

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44 The Energy Independence and Security Act of 2007 (Pub.L. 110-140, originally named the Clean Energy Act of 2007).

45 U.S. Environmental Protection Agency, "Advance Notice of Proposed Rulemaking: Regulating Greenhouse Gas Emissions under the Clean Air Act," http://www.epa.gov/climatechange/anpr.html. 2008.

46 U.S. Environmental Protection Agency, "EPA and NHTSA Propose Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks," http://epa.gov/otaq/climate /regulations/420f09047a.htm. 2009.

47 Ibid.

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations.

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

While these findings do not impose any requirements on industry or other entities, this action is a prerequisite to finalizing the U.S. EPA's proposed greenhouse gas emission standards for light-duty vehicles, which were jointly proposed by the U.S. EPA and the NHSTA. On April 1, 2012, the U.S. EPA and NHTSA issued final rules requiring that by the 2016 model-year, manufacturers must achieve a combined average vehicle emission level of 250 grams of CO_2 per mile, which is equivalent to 35.5 miles per gallon as measured by U.S. EPA standards.

California Activities to Control Greenhouse Gas Emissions

Title 24 Building Standards Code

The California Energy Commission (CEC) first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods. The latest revisions were adopted in 2008 and became effective on January 1, 2010.

The Title 24 (2008) standards contain mandatory measures for lighting, mechanical ventilation, pool systems and equipment, and prescriptive requirements for the home energy rating (HERS) index, cool roofs and roofing products, and additional lighting measures. According to data from the CEC, the Title 24 (2008) standards would result in first-year electricity savings of 22.7 percent from newly constructed single-family buildings and alterations, 19.7 percent from newly constructed multi-family buildings and alterations, and 4.9 percent from newly constructed nonresidential buildings.[48] According to data from the CEC, the Title 24 (2008) standards would result in first-year natural gas savings of 10.0 percent from

48 California Energy Commissions, *Impact Analysis for 2008 Energy Efficiency Standards*, (2007) 4.

newly constructed single-family buildings and alterations, 7.0 percent from newly constructed multi-family buildings and alterations, and 9.4 percent from newly constructed nonresidential buildings.[49]

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: 1) Planning and design; 2) Energy efficiency; 3) Water efficiency and conservation; 4) Material conservation and resource efficiency; and 5) Environmental air quality."[50] The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission (CBSC). The CBSC has released a *2010 Draft California Green Building Standards Code* on its website.[51] This update to Part 11 of the Title 24 Building Standards Code will be effective on January 1, 2011. Unless otherwise noted in the regulation, all newly constructed buildings in California are subject of the requirements of the CALGreen Code.

Stakeholder meetings and workshops are currently underway for the next update of the Title 24 standards, which are anticipated to be released in 2011. However, the CEC has yet to release any official documentation regarding this next update.

Assembly Bill 1493

In response to the transportation sector's contribution of more than half of California's CO_2 emissions, 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 whose primary use is noncommercial personal transportation. The bill requires CARB to set the GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. In setting these standards, CARB is required to consider cost-effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers. CARB adopted the statutorily mandated standards in September 2004. If fully phased in, the near-term (2009–2012) standards would result in about a 22 percent reduction in greenhouse gas emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards would result in a reduction of about 30 percent.

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49 California Energy Commissions, *Impact Analysis for 2008 Energy Efficiency Standards,* (2007) 6.

50 California Building Standards Commission, 2008 California Green Building Standards Code, (2009) 3.

51 California Building Standards Commission, "CALGreen," http://www.bsc.ca.gov/CALGreen/default.htm. 2010.

In December 2004, these regulations were challenged in federal court by the Alliance of Automobile Manufacturers, who claimed that the law regulated vehicle fuel economy, a duty assigned to the federal government. In December 2007, after the U.S. Supreme Court's decision in *Massachusetts v. EPA*, the U.S. District Court for the Eastern District dismissed the case against the AB 1493 regulations 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 CAA, which ordinarily preempts state regulation of motor vehicle emission standards. On June 30, 2009, the U.S. EPA formally approved California's waiver request. However, in light of the September 15, 2009 announcement by the U.S. EPA and NHTSA regarding the national program to reduce vehicle GHG emissions, California—and states adopting California emissions standards—have agreed to defer to the proposed national standard through model year 2016 if granted a waiver by the U.S. EPA. The 2016 endpoint of the two standards is similar, although the national standard ramps up slightly more slowly than required under the California standard. The Pavley standards require additional reductions in CO_2 emissions beyond 2016 (referred to as Phase II standards). Nonetheless, California and other states adopting the California standards will not toughen standards beyond the proposed national standard until at least the 2017 model year.

Renewables Portfolio Standard

In 2002, Senate Bill 1078 (SB 1078, Sher) established California's Renewables Portfolio Standard (RPS) 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 September 26, 2008, accelerated the Renewables Portfolio Standard by requiring investor-owned utilities to meet the 20 percent target by 2010.

On September 15, 2009, the Governor issued Executive Order S-21-0911 requiring CARB, under its AB 32 authority, to adopt regulations to meet a 33 percent RPS target by 2020. The CARB regulations would use a phased-in or tiered requirement to increase the amount of electricity from eligible renewable sources over an eight year period beginning in 2012. CARB will consider adoption of the regulation in in September 23, 2010 Board meeting.

Executive Order S-3-05

In June 2005, the Governor 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, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. The Secretary of California

Environmental Protection Agency (CalEPA) is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Some of the agency representatives involved in the GHG reduction plan include the Secretary of the Business, Transportation and Housing Agency, the Secretary of the Department of Food and Agriculture, the Secretary of the Resources Agency, the Chairperson of CARB, the Chairperson of the CEC, and the President of the Public Utilities Commission. Representatives from these agencies comprise the Climate Action Team.

Climate Action Team

The Climate Action Team is responsible for implementing global warming emissions reduction programs. The CalEPA 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 and 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.

Climate Action Team Report

The first report was developed in 2006. The 2006 Climate Action Team Report (2006 CAT Report) identified key measures that will help ensure that California will meet the GHG reduction goals established under the Governor's Executive Order S-3-05 (1990 levels by 2020 and 80 percent below 1990 levels by 2050). These key measures include establishing a market-based carbon trading system, mandatory GHG reporting for large emitters, production of alternative transportation fuels, energy efficiency and renewable portfolio standards for utilities, emission reporting protocols for local governments, establishing a public goods charge for transportation that funds key strategies to reduce climate change emissions, and leveraging California's universities to train the next generation of workers needed to service new technologies. Minor changes to some of the recommendations in the 2006 CAT Report were issued by the Climate Action Team in the *Updated Macroeconomic Analysis of Climate Strategies Presented in the March 2006 Climate Action Team Report* (2007 Update).[52]

The 2009 CAT Report provides more detailed information regarding sector-based impacts from climate change, such impacts to agriculture, forestry, water resources, coastal areas, energy, air quality, and public health. The 2009 CAT report also provides more information on economic impacts on these sectors from climate change. Lastly, the report discussed adaptation strategies for these sectors to avoid or

52 California Climate Action Team, *Updated Macroeconomic Analysis of Climate Strategies Presented in the March 2006 Climate Action Team Report*, (2007).

mitigate the potential adverse impacts. The Climate Action Team reports are available for review on the California Climate Change Portal.[53]

The Climate Action Team recognizes some strategies that are currently being implemented by state agencies such as CARB introducing vehicle climate change standards and diesel anti-idling measures, the Energy Commission implementing building and appliance efficiency standards, and the CalEPA implementing its green building initiative. The Climate Action Team also recommends future emission reduction strategies, such as 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 report, implementation of current and future emission reduction strategies have the potential to achieve the goals set forth in Executive Order S-3-05.

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 were adopted and enforced on 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

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53 The California Climate Change Portal website is available at the following Web site address: http://www.climatechange.ca.gov/publications/cat/.

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 (SF_6) 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 $MMTCO_2e$. CARB also projected the state's 2020 GHG emissions under "business as usual" (BAU) conditions—that is, emissions that would occur without any plans, policies, or regulations to reduce GHG emissions. CARB used an average of the state's GHG emissions from 2002 through 2004 and projected the 2020 levels based on population and economic forecasts. The projected net emissions totaled approximately 596 $MMTCO_2e$. Therefore, the state must reduce its 2020 BAU emissions by approximately 29 percent in order to meet the 1990 target.

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 CARB[54], 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;

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

- 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	Estimated Reductions and Percent of Reductions
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).	Total "Capped Sector" Reductions: 146.7 $MMTCO_2e$; 84.3% Cap-and-Trade Reductions Only: 34.4 $MMTCO_2e$; 19.8% (The "Total Reductions" represent the reductions from the cap-and-trade program and the reductions from the "capped sectors" from the complementary measures listed under SPM-2 through SPM-12. The "Additional Needed" represents the reductions from the cap-and-trade program only, without the reductions from SPM-2 through SPM-12.)

Scoping Plan Measure	Description	Estimated Reductions and Percent of Reductions
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.	31.7 MMTCO2e; 18.2%
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.	26.3 MMTCO2e; 15.1%
SPM-4: Renewables Portfolio Standard	Achieve 33 percent Renewable Portfolio Standard by both investor-owned and publicly owned utilities.	21.3 MMTCO2e; 12.2%
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.	15 MMTCO2e; 8.6%
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.	5 MMTCO2e; 2.9% (This number represents an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.)
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.	4.5 MMTCO2e; 2.6%
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.	3.7 MMTCO2e; 2.1%
SPM-9: Million Solar Roofs Program	Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.	2.1 MMTCO2e; 1.2%
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.	1.4 MMTCO2e; 0.8%

Scoping Plan Measure	Description	Estimated Reductions and Percent of Reductions
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.	1.4 $MMTCO_2e$; 0.8%
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.	1.0 $MMTCO_2e$; 0.6%
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.	Although some of these emissions reductions may be additional, most of them are accounted for in the Energy, Waste, Water, and Transportation sectors. In addition, some of these reductions may occur out of state, making quantification more difficult. Because of this, these emissions reductions are not currently counted toward the AB 32 2020 goal.
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.	20.2 $MMTCO_2e$; 11.6%
SPM-15: Recycling and Waste	Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	1.0 $MMTCO_2e$; 0.6%
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 have 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.	5 $MMTCO_2e$; 2.9%

Scoping Plan Measure	Description	Estimated Reductions and Percent of Reductions
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.	Greenhouse gas emission reductions from the water sector are not currently counted toward the 2020 goal. CARB anticipates that a portion of these reductions will be additional to identified reductions in the Electricity sector and is working with the appropriate agencies to refine the electricity/water emissions inventory.
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.	Because the emission reductions from this measure are not required, they are not counted in the total.
Total Estimated Reductions from Scoping Plan Measures:		174 MMTCO$_2$e; 100% (The Scoping Plan calls for reductions that exceed the actual 2020 target as a precautionary measure in the event that the "uncapped sectors" do not reduce emissions by the expected amount.)

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 CO_2-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, the legislature enacted SB 97 (Dutton), which directed the Governor's Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of greenhouse gas emissions. A number of actions have taken place under SB 97, which are discussed below.

OPR Climate Change Technical Advisory

On June 19, 2008, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents.[55] The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions. The advisory did not recommend a specific threshold of significance.

CEQA Guideline Amendments

In its work to formulate CEQA Guideline Amendments for GHG emissions, OPR submitted the *Proposed Draft CEQA Guideline Amendments for Greenhouse Gas Emissions* to the Secretary for Natural Resources on April 13, 2009. The Natural Resources Agency conducted formal rulemaking procedures in 2009 and adopted the CEQA Guideline Amendments on December 30, 2009.

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55 State of California, Governor's Office of Planning and Research, *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*, (2008).

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

In accordance with SB 375, on January 23, 2009, CARB appointed a Regional Targets Advisory Committee (RTAC) to provide recommendations and methodologies to be used in the target setting process. The RTAC provided its recommendations in a report to CARB on September 29, 2009. On August 9, 2010, CARB staff issued the *Proposed Regional Greenhouse Gas Emission Reduction Targets For Automobiles And Light Trucks Pursuant To Senate Bill 375*.[56] CARB staff proposed draft reduction targets for the four largest MPOs (Bay Area, Sacramento, Southern California, and San Diego) of 7 to 8 percent for 2020 and reduction targets between 13 to 16 percent for 2035. For the Southern California Association of Governments (SCAG), which is the MPO for the region, CARB established a draft target of 8 percent for 2020 and 13 percent for 2035, subject to SCAG Board approval.

In the City's ongoing efforts to collaborate with SCAG regarding SB 375, the City of Santa Clarita has prepared a response to a data verification request from SCAG. The data transmitted to SCAG in October 2009 will be used to create the regional Sustainable Communities Strategy. In 2000, the City of Santa Clarita commenced a process to create a new General Plan document for the Santa Clarita Valley. Working in conjunction with Los Angeles County, the proposed General Plan document, often referred to as One Valley One Vision, includes programs and policies for implementation that are consistent with the requirements of SB 375. A description of the ultimate buildout scenarios of both OVOV and the current General Plan were included with the data submittal and provided detailed on OVOV is consistent with the requirements of SB 375. In summary, the proposed General Plan will:

- Reduce vehicle miles traveled (VMT) compared to the current General Plan buildout scenario;

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56 California Air Resources Board, *Staff Report: Proposed Regional Greenhouse Gas Emission Reduction Targets For Automobiles And Light Trucks Pursuant To Senate Bill 375*, (2010).

- Include more focus on higher residential and commercial density including transit oriented development (TOD) and mixed use development compared to the current General Plan buildout scenario; and
- Reduce the valley-wide carbon footprint compared to the current General Plan buildout scenario.

Reduction in VMT

The average intersection capacity utilization (ICU) value during the AM and PM peak hours would decrease with the proposed General Plan as compared to the existing General Plan. The average daily trips (ADT) would decrease slightly with the proposed General Plan compared with the buildout of the existing General Plan. The total VMT would decrease approximately 15 percent with the proposed General Plan than with the existing General Plan. Additionally, the average trip length would decrease by approximately 14 percent, with the proposed General Plan when compared to buildout of the existing General Plan.

The proposed General Plan goals, objectives, and policies address the deficiencies in the existing alternative transportation system, and provide direction for the expansion and improvement of alternative transportation throughout the Santa Clarita Valley. This would promote denser, transit-oriented development in areas where transit use is already high. Emphasis is also placed on introducing mixed-use development on older, underutilized commercial corridors in order to allow residents to reach services in ways that are not exclusively automobile-dependent, such as walking, biking and transit.

Grouping mixed uses together reduces the need for residents to make multiple vehicle trips to obtain services and reach employment centers, resulting in a net reduction in the number of vehicles on the roadway. This would yield an improved jobs-to-housing balance for the Santa Clarita Valley, which reduces the need for residents to commute outside the Valley to employment centers to the south.

Focus on Higher Density, TOD and Mixed Use:

The existing General Plan would continue to implement land use policy that designates land anywhere from 0.5 dwelling unit per acre (du/ac) to 32 du/ac. The proposed General Plan would designate land anywhere from 1.0 du/20 ac to 30 du/ac. A major difference between the existing and proposed General Plans is the incorporation of the Mixed-Use Overlay and Mixed-Use land use designation (MX) and the concentration of intensification of land uses along transportation corridors. A goal of the proposed General Plan is to provide a mix of land uses to accommodate growth, supported by adequate resources and maintaining community assets. The proposed General Plan provides opportunities for coordinated development of urban village corridors that offer a diverse range of complementary land uses served by public transit and in proximity to supportive uses and services.

The proposed General Plans for the City and County reduce the overall number of residential units at buildout of the Santa Clarita Valley when compared to the projected buildout of the existing general planning documents. While some residential densities would increase in the City, densities would decrease in the more environmentally sensitive areas adjacent to the City. In an effort to meet the requirements of SB 375 and the City's RHNA obligations, the City must provide the General Plan and zoning designations necessary to accommodate a minimum of 9,598 units. Consequently, the OVOV planning effort has designated specific areas in the City to receive increased residential density. This was accomplished by a) creating a Mixed Use category along transit hubs, transit corridors and at outdated strip commercial centers; and b) the designation for suitable sites that could accommodate a range of income levels.

The OVOV General Plan proposes to increase the amount of residential units by 2,338 units over the buildout of the City and Sphere of Influence when compared to the City's existing General Plan. This increase in residential density is abated by the reduction of units and sprawl in rural areas surrounding the City. Many of these units are accommodated in the Mixed Use category and are located along urbanized transit corridors, in transit hub areas and in the higher density commercial core of the City. The increase in residential units in the more dense environs of the City helps the City meet the objectives of SB 375 by creating a community that is more walkable, more transit oriented, and with creative opportunities for people to live, work and play in a variety of village environments throughout the planning area. It is also a mechanism for the revitalization of "strip" commercial centers to better utilize disturbed urbanized lands with immediate access to infrastructure.

By locating higher density in transit hub areas and along transit corridors, fewer vehicle trips are made. The Mixed Use concept encourages more walkability to services and commercial opportunities. The Mixed Use placement along transit corridors also encourages the use of both Metrolink and bus service. The OVOV General Plan proposes a dispersion of employment opportunities and hubs throughout the community, resulting in less VMT and shorter trips to and from employment centers and a corresponding reduction in GHG emissions.

Reduced Valley-wide Carbon Footprint:

The proposed General Plan and Area Plan contains numerous policies and project features that would reduce GHG emissions from "business as usual" conditions. The existing General Plan does not include many of these policies and would likely not result in GHG reductions on the same order of magnitude as the proposed General Plan and Area Plan. Buildout under the proposed General Plan and Area 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; they would achieve reductions in GHG emissions from business as usual conditions so as to not impede the State's ability to meet AB 32 (see analysis presented later in this section).

CARB Preliminary Draft Staff Proposal

On October 24, 2008, CARB issued a *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act* (*Preliminary Draft Staff Proposal*). In the *Preliminary Draft Staff Proposal*, CARB proposed a tiered approach to determine the significance of two types of projects: (1) industrial; and (2) commercial/residential. With respect to commercial/residential projects, CARB proposed a four-tiered threshold:

- Tier 1: Is the project exempt from further analysis under existing statutory or categorical exemptions? If yes, there is a presumption of less-than-significant impacts with respect to climate change.
- Tier 2: Does the project comply with a previously approved plan that addresses GHG emissions? (The plan must satisfy certain requirements (e.g., be consistent with AB 32 and/or SB 375).) If yes, there is a presumption of less-than-significant impacts with respect to climate change.
- Tier 3: Does the project satisfy certain minimum performance standards relating to construction and operational activities, or include equivalent mitigation measures, *and* emit no more than a yet to be determined quantity of emissions? If yes, there is a presumption of less-than-significant impacts with respect to climate change.
- Tier 4: The project will have significant climate change impacts.

With respect to industrial projects, CARB proposed a three-tiered threshold:

- Tier 1: Is the project exempt from further analysis under existing statutory or categorical exemptions? If yes, there is a presumption of less-than-significant impacts with respect to climate change.
- Tier 2: Does the project satisfy certain minimum performance standards relating to construction and transportation activities, or include equivalent mitigation measures, *and* emit no more than 7,000 $MTCO_2e$ from non-transportation-related GHG sources? If yes, there is a presumption of less-than-significant impacts with respect to climate change.
- Tier 3: The project will have significant climate change impacts.

CARB staff received public comments on the draft thresholds; however, as of this writing, the thresholds remain draft recommendations and CARB has ceased any further development of the threshold. CARB has not indicated when or if it will resume development of the threshold.

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."[57] The goal of the working group is 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.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects – residential; non-residential; industrial; etc. However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing Board with a significance threshold for stationary source projects where it is the lead agency. This threshold uses a tiered approach to determine a project's significance, with 10,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) as a screening numerical threshold.

At the present time, the SCAQMD has not adopted thresholds for projects such as the one analyzed in this technical report. The SCAQMD is considering a tiered approach to determine the significance of residential and commercial projects. The draft approach that was published in October 2008 is as follows:[58]

- Tier 1: Is the project exempt from further analysis under existing statutory or categorical exemptions? If yes, there is a presumption of less-than-significant impacts with respect to climate change.

- Tier 2: Is the project's GHG emissions within the GHG budgets in an approved regional plan? (The plan must be consistent with *State CEQA Guidelines* §§15064(h)(3), 15125(d), or 15152(s).) If yes, there is a presumption of less-than-significant impacts with respect to climate change.

- Tier 3: Is the project's incremental increase in GHG emissions below or mitigated to less than the significance screening level (10,000 $MTCO_2e$ per year for industrial projects and 3,000 $MTCO_2e$ for commercial/residential projects) and is the project X percent beyond the Title 24 standard and achieve Y percent reduction in water use (the X and Y values were not determined at the time the draft approach was published)? If yes, there is a presumption of less-than-significant impacts with respect to climate change.

- Tier 4: Does the project meet one of the following performance standards (the performance standards were not well-defined at the time the draft approach was published)? If yes, there is a presumption of less-than-significant impacts with respect to climate change.

  Option #1: Uniform Percent Emission Reduction Target Objective (e.g., 30 percent) from BAU by incorporating project design features and/or implementing emission reduction measures.

  Option #2: Early Implementation of Applicable AB32 Scoping Plan Measures.

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57 For more information see: http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html.

58 South Coast Air Quality Management District, "Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting #6," http://www.aqmd.gov/ceqa/handbook/GHG/2008/oct22mtg/oct22.html. 2008.

Option #3: Achieve sector-based standard (e.g., pounds per person, pounds per square foot, etc.).

- Tier 5: Does the project obtain offsets alone or in combination with the above to achieve the target significance screening level (offsets provided for 30-year project life, unless project life limited by permit, lease, or other legally binding conditions)? If yes, there is a presumption of less-than-significant impacts with respect to climate change. Otherwise, the project is significant.

In November 2009, the following revisions were proposed for Tiers 3 and 4:[59]

- Tier 3: Is the project's incremental increase in GHG emissions below or mitigated to less than the significance screening level (10,000 $MTCO_2e$ per year for industrial projects; 3,500 $MTCO_2e$ for residential projects; 1,400 $MTCO_2e$ for commercial projects; 3,000 $MTCO_2e$ for mixed-use or all land use projects)? If yes, there is a presumption of less-than-significant impacts with respect to climate change.

- Tier 4: Does the project meet one of the following performance standards? If yes, there is a presumption of less-than-significant impacts with respect to climate change.

  Option #1: Achieve a 28 percent reduction from a base case scenario, including land use sector reductions from AB 32 (total emissions not to exceed 25,000 $MTCO_2e$).

  Option #2: Achieve a project-level efficiency target of 4.6 $MTCO_2e$ per service population (total emissions not to exceed 25,000 $MTCO_2e$) or plan-level efficiency target of 6.6 $MTCO_2e$ per service population.

The SCAQMD has not announced when staff is expecting to present a finalized version of these thresholds to the Governing Board. The SCAQMD has also adopted Rules 2700, 2701, and 2702 that address GHG reductions; however, these rules are currently applicable to boilers and process heaters, forestry, and manure management projects.

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 sustainable building program into County capital improvement projects and seeks to integrate energy efficient and sustainable designs into future County building plans.[60]

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59 South Coast Air Quality Management District, "Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting #14," http://www.aqmd.gov/ceqa/handbook/GHG/2009/nov19mtg/nov19.html. 2009.

60 Documents relating to this County Policy http://lacounty.info/bos/sop/supdocs/29480.pdf and http://lacounty.info/bos/sop/supdocs/29932.pdf.

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.[61] 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*: 2 trees planted per single family home, 1 tree planted per 5,000 square feet of lot area for multi-family projects, 3 trees planted per 10,000 square feet of lot area for nonresidential projects; and
- *Low Impact Development*: Single-family residences to use three (3) of seven (7) approved low-impact development best management practices.

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

THRESHOLDS OF SIGNIFICANCE

In accordance with Senate Bill (SB) 97, the Natural Resources Agency adopted amendments to the *State CEQA Guidelines* on December 30, 2009, which includes criteria for evaluating GHG emissions.[62] Specifically, Appendix G of the *State CEQA Guidelines* (Environmental Checklist Form) lists the following thresholds, under which a project may be deemed to have a significant impact on air quality if it would:

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

Under CEQA, "the determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data."[63] CEQA grants agencies with the general authority to adopt criteria for determining whether a given impact is "significant."[64] When n

o guidance exists under CEQA, the agency may look to and assess general compliance with comparable regulatory schemes.[65]

Several air quality management and air pollution control districts have adopted guidance documents for evaluating the significance of GHG emissions. Other districts have published draft guidance documents that have not yet been formally adopted. A brief description of the available guidance documents from several air quality management and air pollution control districts is provided below. As listed below, the guidance documents do not provide a set of consistent thresholds for evaluating the significance of GHGs on the global climate.

- CARB published preliminary draft thresholds in 2008, but ceased further development of their threshold as of the date of this writing. The preliminary draft thresholds recommended that the significance of a project's GHG emissions should be based on compliance with a previously approved plan that addresses GHG emissions or compliance with performance standards relating to construction and operational activities (or equivalent GHG-reduction measures) and emitting no

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62 The adopted amendments may be viewed at the following website: http://ceres.ca.gov/ceqa/guidelines/. 2010.

63 *State CEQA Guidelines* Section 15064(b).

64 See *Cal. Pub. Resources Code § 21082*.

65 See *Protect Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal. App. 4th 1099, 1107* ["'[A] lead agency's use of existing environmental standards in determining the significance of a project's environmental impacts is an effective means of promoting consistency in significance determinations and integrating CEQA environmental review activities with other environmental program planning and resolution.""]. Lead agencies can, and often do, use regulatory agencies' performance standards. A project's compliance with these standards usually is presumed to provide an adequate level of protection for environmental resources. See, e.g., *Cadiz Land Co. v. Rail Cycle (2000) 83 Cal.App.4th 74, 106-09* (upholding use of regulatory agency performance standard).

more than a yet to be determined quantity of GHG emissions for residential and commercial projects and 7,000 $MTCO_2e$ for industrial projects from non-transportation-related GHG sources. Projects that do not meet these thresholds would be considered to have a significance impact.

- The San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* in late 2009. According to the guidance, the SJVAPCD guidance recommends the use of best performance standards to assess the significance of GHG emissions. The SJVAPCD expects that compliance with the recommended best performance standards would reduce a project's GHG emissions by a target of 29 percent or more, compared to 'business as usual' (BAU) conditions. The 29 percent reduction target is based on the goal of AB 32, which is to reduce the state's GHG emissions to 1990 levels by 2020.

- The Sacramento Metropolitan Air Quality Management District (SMAQMD) has also adopted guidance recommending that project achieve a 29 percent reduction from BAU conditions.

- The Bay Area Air Quality Management District (BAAQMD) adopted revisions to its CEQA Guidelines in June 2010 that recommends a project-level significance threshold of 1,100 $MTCO_2e$ for residential and commercial projects or a project-level efficiency target of 4.6 $MTCO_2e$ per service population (residents plus employees) per year. The recommended plan-level significance thresholds are compliance with a qualified greenhouse gas reduction strategy (or similar criteria included in a General Plan) or a plan-level efficiency target of 6.6 $MTCO_2e$ per service population (residents plus employees) per year.

- The SCAQMD is currently developing thresholds for GHG emissions. As noted previously, the SCAQMD recommends a tiered approach. The Tier 3 threshold requires that a project's incremental increase in GHG emissions should be below or mitigated to less than the significance screening level (10,000 $MTCO_2e$ per year for industrial projects; 3,500 $MTCO_2e$ for residential projects; 1,400 $MTCO_2e$ for commercial projects; 3,000 $MTCO_2e$ for mixed-use or all land use projects). The Tier 4 threshold requires that projects achieve a 28 percent reduction from a base case scenario, including land use sector reductions from AB 32 (total emissions not to exceed 25,000 $MTCO_2e$) or achieve a project-level efficiency target of 4.6 $MTCO_2e$ per service population per year (total emissions not to exceed 25,000 $MTCO_2e$ per year). The recommended plan-level significance thresholds is an efficiency target of 6.6 $MTCO_2e$ per service population per year.

- The California Air Pollution Control Officers Association (CAPCOA) prepared a white paper on CEQA and Climate Change in January 2008. The white paper contains a disclaimer that states the paper is intended to be used as a resource by lead agencies when considering policy options and not as a guidance document. Specifically, the white paper discusses three possible approaches to evaluating the significance of GHG emissions and possible mitigation measures; however, CAPCOA does not endorse any particular approach. The three alternative significance approaches are (1) not establishing a significance threshold for GHG emissions; (2) setting the GHG emission threshold at zero; and (3) setting the GHG emission threshold at some non-zero level. The white paper evaluates potential considerations and pitfalls associated with the three approaches. At the end of the white paper, CAPCOA provides a list of potential mitigation measures and discusses each in terms of emissions reduction effectiveness, cost effectiveness, and technical and logistical feasibility.

While a wide array of thresholds, standards, and considerations have been presented, the amendments to the *State CEQA Guidelines* reaffirm that the lead agency has the discretion to determine how to evaluate a project's significance under CEQA. The *State CEQA Guidelines* includes a new Section 15064.4, which states that, when making a determination of the significance of GHG emissions, a lead agency shall have discretion to determine whether to use a model or methodology to quantify GHG emissions and/or rely on a qualitative analysis or performance based standards.

Based on the above discussion, the Appendix G thresholds of the *State CEQA Guidelines* (Environmental Checklist Form) shall be assessed by performing an analysis of the project's GHG emissions from construction and operational activities. The Proposed General Plan Goals, Objectives and Policies and Proposed Area Plan Policies address GHG emissions. Therefore, the significance of the project's consistency with an applicable plan shall be determined by assessing the goals, objectives, and policies with the emission reduction 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 General Plan GHG emissions and the goals, objectives, and policies and proposed Area Plan 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.

Impact 3.4-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Construction Sources of GHG Emissions

The construction activities required to facilitate buildout of the proposed project would include the use of heavy duty construction equipment. The vast majority of construction equipment (*e.g.*, backhoes; cranes; rubber-tired loaders; scrapers; haul trucks) relies on fossil fuels, primarily diesel, as an energy source. The combustion of fossil fuels in construction equipment results in GHG emissions of CO_2 and much smaller amounts of CH_4 and N_2O. Other sources of construction-related GHG emissions include the use of motor vehicles to transport workers and vendor supplies to and from the project site. Typically, light-duty and medium-duty automobiles and trucks would be used for worker trips and heavy-duty trucks would be used for vendor trips. The vast majority of motor vehicles used for worker trips rely on gasoline as an energy source while motor vehicles used for vendor trips relies on diesel as an energy source. The combustion of gasoline in motor vehicles results in GHG emissions of CO_2 and smaller amounts of CH_4

and N_2O. The combustion of diesel in heavy-duty trucks results in GHG emissions of CO_2 and much smaller amounts of CH_4 and N_2O.

The methodology used to estimate the GHG emissions associated with construction of the proposed project is based on the SCAQMD's *CEQA Air Quality Handbook*, the URBEMIS2007 (Version 9.2.4) Environmental Management Software, and information provided in the URBEMIS2007 v9.2 User's Manual.[66] URBEMIS2007 is an update to the previous model, URBEMIS2002 (Version 8.7), and uses CARB's EMFAC2007 model for on-road vehicle emissions and CARB's OFFROAD2007 model for off-road vehicle emissions. URBEMIS2007 calculates emissions of CO_2 using emission factors from EMFAC2007 and OFFROAD2007.

The California Climate Action Registry's *General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1* contains emission factors for CH_4 and N_2O from off-road construction equipment.[67] These factors, along with the CO_2 emissions calculated with the URBEMIS2007 program, were used to calculate the GHG emissions from construction equipment in terms of carbon dioxide equivalents (CO_2e), using GWPs of 21 for CH_4 and 310 for N_2O. Based on the factors, CO_2 emissions account for the vast majority of the total GHG emissions from off-road construction equipment.

While the CCAR *General Reporting Protocol* also contains CH_4 and N_2O emission factors for on-road heavy-duty trucks and passenger vehicles, they are based on specific vehicle model years. It is not known what vehicle model years would be in use during project construction; therefore, CO_2e emissions were estimated based on additional data from the California Energy Commission and the U.S. EPA Office of Transportation and Air Quality. Vice Chair James D. Boyd of the CEC stated in a document published in 2002 that fuel economy in Class 8 heavy-duty trucks have improved from 5.2 miles per gallon to 6.5 miles per gallon between 1982 and 2000.[68] As a conservative measure, this assessment assumed a fuel economy of six (6) miles per gallon for on-road heavy-duty trucks. Using this information, in conjunction with emission factors from the CCAR, CO_2e emissions were determined for on-road heavy-duty trucks. The U.S. EPA Office of Transportation and Air Quality published a document in 2005 that stated CO_2 emissions represent approximately 95 percent of the total GHG emissions from passenger vehicles on a

66 Rimpo and Associates, URBEMIS2007 Version 9.2.4, http://www.urbemis.com. 2007.

67 California Climate Action Registry, *General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions,* Version 3.0, (2007) 94–96.

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

CO_2e basis.[69] Using this information in conjunction with the emissions obtained from the URBEMIS2007 program, CO_2e emissions were determined for passenger (worker) vehicles.

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.

The SCAQMD recommends amortizing construction-related GHG emissions over a project's lifetime in order to include these emissions as part of the annual total operational emissions. The SCAQMD has defined a project lifetime to be a 30-year period. Therefore, the construction GHG emissions have been amortized over this period and included in the annual total operational emissions discussed in the next sections.

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, commercial, office, industrial, institutional, 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 CO_2 and smaller amounts of CH_4 and N_2O. 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 CO_2 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

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69 US Environmental Protection Agency, Office of Transportation and Air Quality, *Emission Facts–Greenhouse Gas Emissions from a Typical Passenger Vehicle (EPA420-F-05-004)*, (2005) 4.

calculated assuming a representative motor vehicle fleet mix in 2030. While URBEMIS2007 projects vehicle fleet out to 2040, the OVOV General Plan does not identify a buildout year; therefore, 2030 was used as a reasonable estimate. Motor vehicle emission reductions from the Low Carbon Fuel Standard and the Assembly Bill 1493 (Pavley standards) were taken into account using the Bay Area Air Quality Management District's (BAAQMD) Greenhouse Gas Calculator (Version 1.1.9), which is an add-on module to the URBEMIS2007 model. The BAAQMD's Greenhouse Gas Calculator uses the UREMIS2007 model files and applies phased-in reductions associated with Low Carbon Fuel Standard and the Assembly Bill 1493 using emission factor data from the US EPA and CARB. The BAAQMD's calculator also converts the URBEMIS2007 emissions data to carbon dioxide equivalents.

Area Source Emissions (Landscaping Equipment and Hearths)

Area source emissions from gasoline-powered landscaping equipment and natural gas-fired and wood-fired stoves and hearths were estimated using the URBEMIS2007 model. As noted above, the URBEMIS2007 program calculates CO_2 emissions. Therefore, the BAAQMD's Greenhouse Gas Calculator was used to convert these emissions to carbon dioxide equivalents.

Natural Gas

The proposed project would utilize natural gas, primarily for heating and cooking needs. The combustion of natural gas results in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O. Natural gas emissions were estimated using the URBEMIS2007 model. Emission factors for CH_4 and N_2O were obtained from the California Climate Action Registry's *General Reporting Protocol*.[70]

Electrical Generation

Most of 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 CO_2 and smaller amounts of CH_4 and N_2O. 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.

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70 California Climate Action Registry, *General Reporting Protocol*, Version 3.1 (2009) 103.

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 CCAR.[71] 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 CO_2e per megawatt-hour (MW-hr), which was converted to metric tons per million kilowatt-hours (10^6 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 project's 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 the 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 CO_2 and smaller amounts of CH_4 and N_2O. 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**.

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

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.[72] This estimate takes into account system losses of five (5) percent for conveyance.[73] This factor also assumes that the primary sources of water in Southern California are the east and west branches of the State Water Project.[74] 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 proposed project.

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.[75] These factors take into account system losses of five (5) percent for water treatment and six (6) percent for water distribution.[76] The CEC did not identify any geographic differences in electricity consumption for wastewater treatment or distribution.[77] 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 PUP Report* to the CCAR.[78]

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 CH_4, if the organic components in the wastewater are treated anaerobically (*i.e.*, without

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72 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]), http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

73 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]), 21. http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

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]), 19. http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

75 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.

76 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]), 21. This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

77 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]), 18. This document is available for review at http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

78 California Climate Action Registry, "Reporting Online Tool, Public Annual Entity Emissions," http://www.climateregistry.org/CARROT/public/Reports.aspx, (March 2009).

oxygen).[79] Wastewater treatment also produces emissions of N_2O during both nitrification and 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 (NO_3) 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 (N_2). N_2O can be an intermediate product of both these processes.[80] Additional GHG emissions of CO_2, CH_4, and N_2O 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.[81] Electrical demand GHG emissions factors for wastewater treatment were obtained from the *SCE 2006 PUP Report* to the CCAR.[82]

Operational GHG Emissions

Build out of the proposed General Plan and Area Plan would result in direct operational emissions of GHGs. These emissions, primarily CO_2, CH_4, and N_2O, 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 O_3 are also not quantified as project GHG emissions because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks[83] rather than emissions from project related activities. Furthermore, O_3 in the troposphere is relatively short-lived and project emissions of ozone precursors would not significantly contribute to climate change.

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

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

81 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]), 22, http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

82 California Climate Action Registry, "Reporting Online Tool, Public Annual Entity Emissions," http://www.climateregistry.org/CARROT/public/Reports.aspx, (March 2009).

83 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 CO_2 were estimated using URBEMIS2007 with the following adjustments to convert CO_2 emissions to GHG emissions on a CO_2e basis:

- Area sources (natural gas combustion): The CO_2 emissions from natural gas consumption for the project were adjusted based on emission factors for CO_2, CH_4, and N_2O for natural gas combustion from URBEMIS2007 and the California Climate Action Registry.[84]

- Motor vehicles: The CO_2 emissions associated with project-generated trips were multiplied by a factor based on the assumption that CO_2 represents 95 percent of the CO_2e emissions associated with passenger vehicles, which account for most of the project-related trips.[85]

The Plan 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 (CH_4).

Electricity would not only be used on the Plan area, 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.[86] The estimated annual electrical demand for the Plan 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 distribution[87] was

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84 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.

85 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), http://www.epa.gov/oms/climate/420f05004.pdf.

86 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 CO_2e per megawatt-hour (MW-hr), which was converted to metric tons per million kilowatt-hours (10^6 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.

87 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]), 22. http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html.

obtained from the CEC. GHG emission factors for wastewater treatment[88] and solid waste disposal[89] were obtained from the US EPA.

In order to assess the 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 Proposed General Plan and Area Plan Designations

Operational GHG emissions 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 3,221,900 $MTCO_2e$/year.

Table 3.4-5
Estimated Existing Annual GHG Emissions

Existing GHG Emissions Sources	Emissions (Metric Tons CO_2e/year)
Motor Vehicles	2,457,800
Area Sources (Landscaping; Hearths)	9,900
Natural Gas Consumption	306,300
Electricity Consumption	313,200
Solid Waste Generation	10,300
Water Supply	105,600
Wastewater Treatment	18,800
Annual Total Existing GHG Emissions	**3,221,900**

*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.

88 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 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.

89 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 Proposed General Plan and Area Plan

As shown in **Table 3.4-6, GHG Emissions from the Proposed General Plan and Area Plan**, the GHG emissions after buildout of the OVOV Planning Area under the proposed General Plan and Area Plan designations would be conservatively estimated at 5,070,300 MT CO_2e/year. This represents an approximate increase of 1,848,400 MTCO_2e/year over existing conditions.

Table 3.4-6
GHG Emissions from the Proposed General Plan and Area Plan

General Plan & Area Plan GHG Emissions Sources	Emissions (Metric Tons CO_2e/year)
Amortized Construction	19,200
Motor Vehicles	3,602,300
Area Sources (Landscaping; Hearths)	20,000
Natural Gas Consumption	512,300
Electricity Consumption	722,800
Solid Waste Generation	21,800
Water Supply	144,800
Wastewater Treatment	27,100
Annual Total GHG Emissions	**5,070,300**
Existing Annual Total GHG Emissions	**3,221,900**
Net Total GHG Emissions[1]	**1,848,400**

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

[1] *Annual Total GHG Emissions minus Existing Annual Total GHG 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 work-day. 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 3.4-6**, GHG emissions from motor vehicles represent the majority of the total operational GHG emissions associated with the proposed General Plan and Area Plan. Several regulatory actions have taken place at the federal and state level that would reduce GHG emissions from motor vehicles. As discussed previously, reductions associated with the Low Carbon Fuel Standard and the GHG emission standards for light-duty automobiles and light-duty trucks under Assembly Bill 1493 have been taken into account. However, additional motor vehicle reductions are planned under AB 32. Under CARB's *Climate Change Scoping Plan*, fuel-efficient tire standards are being pursued (Scoping Plan Measure 7). Also, CARB is anticipated to adopt land use planning GHG reduction targets for Metropolitan Planning Organization under Senate Bill 375. Additionally, it is likely that technology would continue to improve and CAFE standards would become more stringent in future years.

Similarly, the GHG emissions associated with electricity, natural gas, and water consumption represent conservative estimates since the effect of many of the reductions associated with energy efficiency policies 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.[90] 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.

Impact 3.4-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

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

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

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 strengthening building codes for new construction and renovation to achieve a higher level of energy efficiency; adopting a Green Building Program or Green Building Code; promoting orientation of buildings to maximize passive solar heating, minimizing solar heat gain, enhancing natural ventilation, promoting effective use of daylight, and optimizing opportunities for on-site solar generation; encouraging mitigation of the "heat island" effect through use of cool roofs, light-colored paving, and shading to reduce energy consumption for air conditioning; ensuring that all new City 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 equivalent of; and supporting the use of sustainable alternative fuel vehicles for machinery and fleets by evaluating fuel sources, manufacturing processes, maintenance costs and vehicle lifetime use.

Achievement of proposed **Goals LU 1, LU 2, LU 3, LU 4, LU 5**, **LU 6, LU 7, LU 9, C 1**, **C 2, C 3, C 4, C 5, C 6, C 7, CO 1, CO 3, CO 4, CO 7**, **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 through the proposed objectives and policies, which are listed in their entirety below: **Objective LU 1.2, Policy LU 1.2.13; Objective LU 2.1, Policy LU 2.1.2; Objective LU 2.3, Policies LU 2.3.2, LU 2.3.5; Objective LU 3.1, Policies LU 3.1.3, LU 3.1.7; Objective LU 3.2, Policies LU 3.2.1, LU 3.2.2; Objective LU 4.1, Policy LU 4.1.3; Objective LU 4.2, Policies LU 4.2.1, LU 4.2.2; Objective LU 4.4, Policy LU 4.4.3; Objective LU 4.5, Policies LU 4.5.2**, **LU 4.5.3, LU 4.5.4; Objective LU 5.1, Policies LU 5.1.3, LU 5.1.4, LU 5.1.5; Objective LU 5.2, Policies LU 5.2.1, LU 5.2.2, LU 5.2.3, LU 5.2.4, LU 5.2.5; Objective LU 6.1, Policy LU 6.1.3; Objective LU 7.1, Policies LU 7.1.2, LU 7.1.3, LU 7.1.4; Objective LU 9.1, Policy LU 9.1.7; Objective C 1.1, Policies C 1.1.1, C 1.1.2, C 1.1.3, C 1.1.4, C 1.1.6, C 1.1.10, C 1.1.11, C 1.1.12, C 1.1.13; Objective C 1.2, Policies C 1.2.1, C1.2.2, C 1.2.3, C 1.2.4, C 1.2.5, C 1.2.6, C 1.2.7, C 1.2.8, C 1.2.9, C 1.2.10, C 1.2.11, C 1.2.12; Objective C 1.3, Policies C 1.3.2, C 1.3.6, C 1.3.7; Objective C 2.2, Policies C 2.2.6, C 2.2.7; Objective C 3.1, Policies C 3.1.1, C 3.1.2, C 3.1.3, C 3.1.4, C 3.1.5, C 3.1.6, C 3.1.7; Objective C 3.2, Policies C 3.2.1, C 3.2.2, C 3.2.3, C 3.2.4; Objective C 3.3, Policies C 3.3.2, C 3.3.3, C 3.3.4, C 3.3.6, C 3.3.7; Objective C 4.1, Policies C 4.1.1, C 4.1.2, C 4.1.3, C 4.1.6, C4.1.7; Objective C 4.2, Policies C 4.2.1, C 4.2.2, C 4.2.3; Objective C 5.1, Policies C 5.1.2, C 5.1.4; Objective C 5.2, Policies C 5.2.1, C 5.2.4, C 5.2.5; Objective C 5.3, Policies C 5.3.3, C 5.3.4; Objective C 5.4, Policy C 5.4.3;**

Objective C 6.1, Policy C 6.1.5; Objective C 6.2, Policies C 6.2.1, C 6.2.2, C 6.2.3; Objective C 7.1, Policies C 7.1.1, C 7.1.2, C 7.1.3, C 7.1.4, C 7.1.5, C 7.1.6, C 7.1.7, C 7.1.8, C 7.1.9, C 7.1.10; Objective CO 1.1, Policy CO 1.1.1; Objective CO 1.2, Policy CO 1.2.1; Objective CO 1.3, Policies CO 1.3.1, CO 1.3.2, CO 1.3.3, CO 1.3.4; Objective CO 1.5, Policies CO 1.5.1, CO 1.5.7; Objective CO 3.1, Policies CO 3.1.5, CO 3.1.7, CO 3.1.11; Objective C 3.4, Policy C 3.4.2; 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 C 7.1, Policies C 7.1.1, C 7.1.2, C 7.1.3,; 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 8.2.4, CO 8.2.5, 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, CO 8.2.13, CO 8.2.14; 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, CO 8.3.12; Objective CO 8.4, Policies CO 8.4.1, CO 8.4.2, CO 8.4.3, CO 8.4.4, CO 8.4.5, CO 8.4.6, CO 8.4.7, 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 build-up of carbon dioxide in the atmosphere. Trees remove (sequester) CO_2 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 General Plan Goals, Objectives and Policies and Proposed Area Plan Policies

The goals, objectives, and policies listed below are the same for the City's General Plan and the County's Area Plan. These goals, objectives, and policies address consistency with the state's legislative efforts to reduce GHG emissions. State legislation, especially with respect to global climate change, is subject to a high degree of change given the difficulty in estimating the effects of legislation on future potential impacts, which are also not yet fully understood. Therefore, these goals, objectives, and policies are designed to incorporate flexibility in order to deal with legislative uncertainties. The City is evaluating General Plan goals, objectives, and policies and the County's Area Plan focuses on policies.

Goal LU 1: An interconnected Valley of Villages providing diverse lifestyles, surrounded by a greenbelt of natural open space.

Objective LU 1.2: Maintain the distinctive community character of villages and neighborhoods throughout the planning area by establishing uses, densities, and design guidelines appropriate to the particular needs and goals of each area, including but not limited to the following:

Policy LU 1.2.13: Encourage use of the specific plan process to plan for cohesive, vibrant, pedestrian-oriented communities with mixed uses, access to public transit, and opportunities for living and working within the same community.

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

Objective LU 2.1: Provide adequate, suitable sites for housing, employment, business, shopping, public facilities, public utility facilities, and community services to meet current needs and the anticipated needs of future growth.

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.

Objective LU 2.3: Increase mixed-use development to create more livable neighborhoods, walkable business districts, and to reduce vehicle trips, while ensuring land use compatibility, through mixed-use zoning:

Policy LU 2.3.2: Either vertical or horizontal integration of uses shall be allowed in a mixed-use development, with an emphasis on tying together the uses with appropriate pedestrian linkages.

Policy LU 2.3.5: Mixed-use developments shall 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.

Goal LU 3: Healthy and safe neighborhoods for all residents.

Objective LU 3.1: Provide for a diversity of housing types available to provide safe and suitable homes for all economic levels, household sizes, age groups and special needs groups within the community.

Policy LU 3.1.3: Promote opportunities for live-work units to accommodate residents with home-based businesses.

Policy LU 3.1.7: Promote development of housing for students attending local colleges, in consideration of access to campuses to the extent practicable.

Objective LU 3.2: Promote walkable neighborhoods that provide safe access to community services and essential services.

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.

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.

Goal LU 4: A diverse and healthy economy.

Objective LU 4.1: Promote creation of strong regional and local economies.

Policy LU 4.1.3: Direct business creation and expansion for larger companies within and adjacent to existing and planned business centers and major transportation corridors.

Objective LU 4.2: Promote job creation, focusing on employment generators in the technical and professional sectors.

Policy LU 4.2.1: Pursue business attraction and expansion programs for clean industries that provide job opportunities for local residents,

particularly in the areas of film/entertainment, biotechnology, aerospace, and technology.

Policy LU 4.2.2: Achieve a balanced ratio of jobs to housing through business expansion and economic development programs, with a goal of at least 1.5 jobs per household.

Objective LU 4.4: Expand infrastructure to attract and sustain new business.

Policy LU 4.4.3: Evaluate the feasibility of connecting business activity centers throughout the Santa Clarita Valley with light rail, to provide increased mobility and access for customers and employees between the Valencia Town Center, Whittaker Bermite property, Newhall, Valencia Industrial Center, Magic Mountain and Entrada, Newhall Ranch, and other areas as deemed appropriate.

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.

Policy LU 4.5.4: Encourage the provision of support services for employees within business park areas, such as dining and personal services where appropriate, to reduce vehicle trips and promote pedestrian-friendly work environments.

Goal LU 5: Enhanced mobility through alternative transportation choices and land use patterns.

Objective LU 5.1: Provide for alternative travel modes linking neighborhoods, commercial districts, and job centers.

Policy LU 5.1.1: Require safe, secure, clearly delineated, adequately illuminated walkways and bicycle facilities in all commercial and business centers.

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.

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.

Objective LU 5.2: Coordinate land use designations with support services and public transit in order to encourage vehicle trip reduction.

Policy LU 5.2.1: Designate higher-density residential uses in areas served by public transit and a full range of support services.

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.

Policy LU 5.2.3: Promote location of non-polluting businesses providing employment opportunities in proximity to neighborhoods, to encourage walking to work.

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.

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.

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.

Policy LU 7.1.4: Support the establishment of energy-efficient industries in the Santa Clarita Valley.

Goal LU 9: Adequate public facilities and services, provided in a timely manner and in appropriate locations to serve existing and future residents and businesses.

Objective LU 9.1: Coordinate land use planning with provision of adequate public services and facilities to support development.

Policy LU 9.1.7: Provide for location of additional waste transfer stations and other facilities to promote recycling and reuse of materials

within Industrial designations on the Land Use Map, subject to applicable zoning requirements.

Goal C 1: An inter-connected network of circulation facilities that integrates all travel modes, provides viable alternatives to automobile use, and conforms with regional plans.

Objective C 1.1: Provide multi-modal circulation systems that move people and goods efficiently while protecting environmental resources and quality of life.

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.

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.

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.

Policy C 1.1.4: Promote public health through provision of safe, pleasant, and accessible walkways, bikeways, and multi-purpose trail systems for residents.

Policy C 1.1.6: Provide 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.

Policy C 1.1.10: Provide for flexibility in the transportation system to accommodate new technology as it becomes available, in order to reduce trips by vehicles using fossil fuels where feasible and appropriate.

Policy C 1.1.11: Promote use of multi-modal facilities by providing adequate and attractive way-finding programs directing users to transit stations, park-and-ride lots, bicycle storage, and other facilities.

Policy C 1.1.12: Implement recommendations of the City's Non-Motorized Transportation Plan to expand opportunities for alternative travel modes.

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.

Objective C 1.2: Coordinate land use and circulation planning to achieve greater accessibility and mobility for users of all travel modes.

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.

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.

Policy C 1.2.3: Require that new commercial and industrial development provide walkway connections to public sidewalks and transit stops, where available.

Policy C 1.2.4: Consider location, availability, and accessibility of transit in evaluating new development plans.

Policy C 1.2.5: In mixed-use projects, require compact development and a mix of land uses to locate housing, workplaces, and services within walking distance or bicycling distance of each other.

Policy C 1.2.6: Provide flexible standards for parking and roadway design in transit-oriented development areas to promote transit use, where appropriate.

Policy C 1.2.7: In pedestrian-oriented areas, provide a highly connected circulation grid with relatively small blocks to encourage walking.

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.

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.

Policy C 1.2.10: Protect communities by discouraging the construction of facilities that sever residential neighborhoods.

Policy C 1.2.11: Reduce vehicle miles traveled (VMT) through the use of smart growth concepts.

Policy C 1.2.12: Balance the anticipated volume of people and goods movement with the need to maintain a walkable and bicycle friendly environment.

Objective C 1.3: Ensure conformance of the Circulation Plan with regional transportation plans.

Policy C 1.3.2: Through trip reduction strategies and emphasis on multi-modal transportation options, contribute to achieving the air quality goals of the SCAQMD Air Quality Management Plan.

Policy C 1.3.6: Support the expansion of Palmdale Regional Airport and the extension of multi-modal travel choices between the airport and the Santa Clarita Valley, in conformance with regional planning efforts.

Policy C 1.3.7: Apply for regional, state, and federal grants for bicycle and pedestrian infrastructure projects.

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.

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.

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

Objective C 3.1: Promote the use of travel demand management strategies to reduce vehicle trips.

Policy C 3.1.1: In evaluating new development projects, require trip reduction measures as feasible to relieve congestion and reduce air pollution from vehicle emissions.

Policy C 3.1.2: Promote home-based businesses and live-work units as a means of reducing home-to-work trips.

Policy C 3.1.3: Promote the use of flexible work schedules and telecommuting to reduce home to work trips.

Policy C 3.1.4: Promote the use of employee incentives to encourage alternative travel modes to work.

Policy C 3.1.5: Promote the use of van pools, car pools, and shuttles to encourage trip reduction.

Policy C 3.1.6: Promote the provision of showers and lockers within businesses and employment centers, in order to encourage opportunities for employees to bicycle to work.

Policy C 3.1.7: Encourage special event center operators to advertise and offer discounted transit passes with event tickets.

Objective C 3.2: Encourage reduction in airborne emissions from vehicles through use of clean vehicles and transportation system management.

Policy C 3.2.1: Adopt clean vehicle purchase policies for City and County fleets.

Policy C 3.2.2: Continue to enhance signal timing and synchronization to allow for free traffic flow, minimizing idling and vehicle emissions.

Policy C 3.2.3: When available and feasible, provide opportunities and infrastructure to support use of alternative fuel vehicles and travel devices.

Policy C 3.2.4: The City/County will encourage new commercial and retail developments to provide prioritized parking for electric vehicles and vehicles using alternative fuels.

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 3.3.2: In pedestrian-oriented, high-density mixed use districts, provide for common parking facilities to serve the district, where appropriate.

Policy C 3.3.3: Promote shared use of parking facilities between businesses with complementary uses and hours, where feasible.

Policy C 3.3.4: Within transit-oriented development projects, provide incentives such as higher floor area ratio and/or lower parking requirements for commercial development that provides transit and ride-share programs.

Policy C 3.3.6: In the development review process, prioritize direct pedestrian access between building entrances, sidewalks and transit stops, by placing parking behind buildings where possible, to the sides of buildings when necessary, and always away from street intersections.

Policy C 3.3.7: Create parking benefit districts, which invest meter revenues in pedestrian infrastructure and other public amenities wherever feasible.

Goal C 4: Rail service to meet regional and inter-regional needs for convenient, cost-effective travel alternatives, which are fully integrated into the Valley's circulation systems and land use patterns.

Objective C 4.1: Maximize the effectiveness of Metrolink's commuter rail service through provision of support facilities and land planning.

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.

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.

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.

Policy C 4.1.6: Provide incentives to promote transit-oriented development near rail stations.

Policy C 4.1.7: Facilitate coordination of planning for any future high speed regional rail systems in the Valley with Metrolink services.

Objective C 4.2: Access to a high speed rail system connecting the Santa Clarita Valley with other regions, and other regional rail service connections.

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 destinations.

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.

Policy C 4.2.3: Promote and encourage the expansion of Amtrak Rail Service to the Santa Clarita Valley.

Goal C 5: Bus transit service as a viable choice for all residents, easily accessible and serving destinations throughout the Valley.

Objective C 5.1: Ensure that street patterns and design standards accommodate transit needs.

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.

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.

Objective C 5.2: Maximize the accessibility, safety, convenience and appeal of transit stops.

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.

Policy C 5.2.4: Enhance way-finding signage along walkways and paseos to direct pedestrians to transit stops.

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.

Objective C 5.3: Explore opportunities to improve and expand bus transit service.

Policy C 5.3.3: Evaluate the feasibility of providing "fly-away" bus transit service to airports located at Burbank, Palmdale, and Los Angeles, and implement this program when warranted by demand.

Policy C 5.3.4: Evaluate the feasibility of providing bus rapid transit (BRT) for key transit corridors when light-rail is not feasible or cost effective.

Objective C 5.4: Provide adequate funding to expand transit services to meet the needs of new development in the Valley.

Policy C 5.4.3: Seek funding for transit system expansion and improvement from all available sources, including local, state, and federal programs and grants.

Goal C 6: A unified and well-maintained bikeway system with safe and convenient routes for commuting, recreational use and utilitarian travel, connecting communities and the region.

Objective C 6.1: Adopt and implement a coordinated master plan for bikeways for the Valley, including both City and County areas, to make bicycling an attractive and feasible mode of transportation.

Policy C 6.1.5: Plan for continuous bikeways to serve major destinations, including but not limited to regional shopping areas, college campuses, public buildings, parks, and employment centers.

Objective C 6.2: Encourage provision of equipment and facilities to support the use of bicycles as an alternative means of travel.

Policy C 6.2.1: Require bicycle parking, which can include bicycle lockers and sheltered areas at commercial sites and multi-family housing complexes for use by employees and residents, as well as customers and visitors.

Policy C 6.2.2: Provide bicycle racks on transit vehicles to give bike-and-ride commuters the ability to transport their bicycles.

Policy C 6.2.3: Promote the inclusion of services for bicycle commuters, such as showers and changing rooms, as part of the development review process for new development or substantial alterations of existing commercial or industrial uses, where appropriate.

Goal C 7: Walkable communities, in which interconnected walkways provide a safe, comfortable and viable alternative to driving for local destinations.

Objective C 7.1: A continuous, integrated system of safe and attractive pedestrian walkways, paseos and trails linking residents to parks, open space, schools, services, and transit.

Policy C 7.1.1: In reviewing new development proposals, consider pedestrian connections within and between developments as an integral component of the site design, which may include seating, shading, lighting, directional signage, accessibility, and convenience.

Policy C 7.1.2: For existing walled subdivisions, extend pedestrian access to connect these neighborhoods to transit and services through public education and by facilitating retrofitted improvements where feasible.

Policy C 7.1.3: Where feasible and practical, consider grade separated facilities to provide pedestrian connections across arterial streets, flood control channels, utility easements, and other barriers.

Policy C 7.1.4: Identify and develop an improvement program to connect existing walkways and paseos to transit and services, where needed and appropriate.

Policy C 7.1.5: In new commercial development, provide for direct, clearly delineated, and preferably landscaped pedestrian walkways from transit stops and parking areas to building entries, and avoid placement of uses (such as drive-through facilities) in locations that would obstruct pedestrian pathways.

Policy C 7.1.6: Encourage placement of building entries in locations accessible to public sidewalks and transit.

Policy C 7.1.7: Utilize pedestrian-oriented scale and design features in areas intended for pedestrian use.

Policy C 7.1.8: Upgrade streets that are not pedestrian-friendly due to lack of sidewalk connections, safe street crossing points, vehicle sight distance, or other design deficiencies.

Policy C 7.1.9: Promote pedestrian-oriented street design through traffic-calming measures where appropriate, which may include but are not limited to bulb-outs or chokers at intersections, raised crosswalks, refuge islands, striping, and landscaping.

Policy C 7.1.10: Continue to expand and improve the Valley's multi-use trail system to provide additional routes for pedestrian travel.

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.

Policy CO 1.3.4: Promote and encourage cogeneration projects for commercial and industrial facilities, provided they meet all applicable environmental quality standards including air, noise and provide a new reduction in GHG emissions associated with energy production.

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 1.5.1: Promote the use of environmentally-responsible building design and efficiency standards in new development, and provide examples of these standards in public facilities.

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: Require 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 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 the use of low-flow and/or waterless plumbing fixtures and appliances in all new on-residential development and residential development of five or more dwelling units.

Policy CO 4.1.6: Support amendments to the 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, 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 development 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.

Goal CO 7: Clean air to protect human health and support healthy ecosystems.

Objective CO 7.1: Reduce air pollution from mobile sources.

Policy CO 7.1.1: Through the mixed land use patterns and multi-modal circulation policies set forth in the Land Use and Circulation Elements, limit air pollution from transportation sources.

Policy CO 7.1.2: Support the use of alternative fuel vehicles.

Policy CO 7.1.3: Support alternative travel modes and new technologies, including infrastructure to support alternative fuel vehicles, as they become commercially available.

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 8.1.1: Create and adopt a Climate Action Plan within 18 months of the OVOV adoption date 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) Plan to meet regional targets for greenhouse gas emission reductions, as required by SB 375.

Policy CO 8.1.3: Revise codes and ordinances as needed to address energy conservation, including but not limited to the following:

a. Strengthen building codes for new construction and renovation to achieve a higher level of energy efficiency, with a goal of exceeding energy efficiency beyond that required by Title 24;

b. Adopt a Green Building Program to encourage green building practices and materials, along with appropriate ordinances and incentives;

c. Require orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, promote effective use of daylight, and optimize opportunities for on-site solar generation;

d. Encourage mitigation of the "heat island" effect through use of cool roofs, light-colored paving, and shading to reduce energy consumption for air conditioning.

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

Policy CO 8.1.5: Coordinate various activities within the community and appropriate agencies related to GHG emissions reduction activities.

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 City 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 8.2.2: 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, with a goal of completing energy repairs in City facilities by 2012.

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

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.

Policy CO 8.2.5: Support installation of photovoltaic and other renewable energy equipment on public facilities, 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 8.2.7: 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.

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 City employees on sustainable planning, building, and engineering practices.

Policy CO 8.2.13: Support trip reduction strategies for employees as described in the Circulation Element.

Policy CO 8.2.14: Reduce extensive heat gain from paved surfaces through development standards wherever feasible.

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

Policy CO 8.3.1: Evaluate site plans proposed for new development based on energy efficiency pursuant to LEED (Leadership in Energy and Environmental Design) standards for New Construction and Neighborhood Development, including the following: a) location efficiency; b) environmental preservation; c) compact, complete, and connected neighborhoods; and d) resource efficiency, including use of recycled materials and water.

Policy CO 8.3.2: Promote construction of energy efficient buildings through requirements for LEED certification or through comparable alternative requirements as adopted by local ordinance.

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 other significant energy conservation efforts.

Policy CO 8.3.6: Require 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, shade trees, 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: Require 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.

Policy CO 8.3.12: Reduce extensive heat gain from paved surfaces through development standards wherever feasible.

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 8.4.3: Allow and encourage composting of greenwaste, where appropriate.

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 8.4.6: Introduce and assist with the placement of receptacles for recyclable products in public places, including at special events.

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.

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 natural 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 OVOV proposed project'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 3.4-7, Consistency of Sustainable Strategies with AB 32 Scoping Plan Measures.** The sustainable policies, project design features, and mitigation measures included in the OVOV proposed project are evaluated relative to the key measures included in CARB's *Climate Change Scoping Plan.* As shown in the table below, the OVOV proposed project would comply with the applicable Scoping Plan measures.

Table 3.4-7
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: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
SPM-2: California Light-Duty Vehicle GHG Standards	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
SPM-3: Energy Efficiency	**Project is Consistent:** **Policy CO 8.1.3:** Revise codes and ordinances as needed to address energy conservation, including but not limited to the following: (a) Strengthen building codes for new construction and renovation to achieve a higher level of energy efficiency, with a goal of exceeding energy efficiency beyond that required by Title 24; (b) Adopt a Green Building Program to encourage green building practices and materials, along with appropriate ordinances and incentives; (c) Require orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, promote effective use of daylight, and optimize opportunities for on-site solar generation; (d) Encourage mitigation of the "heat island" effect through use of cool roofs, light colored paving, and shading to reduce energy consumption for air conditioning. **Policy CO 8.2.1:** Ensure that all new City 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 8.2.2:** 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, with a goal of completing energy repairs in City facilities by 2012. **Policy CO 8.2.3:** Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for city buildings and operations and other methods as deemed appropriate and feasible, in concert with significant energy conservation efforts. **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. **Policy CO 8.2.5:** Support installation of photovoltaic and other renewable energy equipment on public facilities, 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.

Scoping Plan Measure	OVOV Policy/Project Feature
	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 8.2.12:** Provide ongoing training to appropriate City employees on sustainable planning, building, and engineering practices. **Policy CO 8.3.1:** Evaluate site plans proposed for new development based on energy efficiency pursuant to LEED (Leadership in Energy and Environmental Design) standards for New Construction and Neighborhood Development, including the following: (a) location efficiency; (b) environmental preservation; (c) compact, complete, and connected neighborhoods; and (d) resource efficiency, including use of recycled materials and water. **Policy CO 8.3.2:** Promote construction of energy efficient buildings through requirements for LEED certification or through comparable alternative requirements as adopted by local ordinance. **Policy CO 8.3.3:** Promote energy efficiency and water conservation upgrades to existing non-residential buildings at the time of sale, 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:** Require 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, shade trees 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. **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.

Scoping Plan Measure	OVOV Policy/Project Feature
SPM-4: Renewables Portfolio Standard	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
SPM-5: Low Carbon Fuel Standard	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
SPM-6: Regional Transportation-Related Greenhouse Gas Targets	**Project is Consistent:** **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. **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. **Policy LU 2.3.2:** Either vertical or horizontal integration of uses shall be allowed in a mixed use development, with an emphasis on tying together the uses with appropriate pedestrian linkages. **Policy LU 2.3.4:** Adequate public spaces and amenities shall 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. **Policy LU 2.3.5:** Mixed-use developments shall 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. **Policy LU 2.3.6:** Provide parking alternatives in mixed-use developments, including subterranean parking and structured parking to limit the amount of surface area devoted to vehicle storage. **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. **Policy LU 3.1.3:** Promote opportunities for live-work units to accommodate residents with home-based businesses. **Policy LU 3.1.4:** Promote development of workforce housing to meet the needs of those employed in the Santa Clarita Valley. **Policy LU 3.1.7:** Promote development of housing for students attending local colleges, in consideration of access to campuses to the extent practicable. **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. **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. **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. **Policy LU 5.1.1:** Require safe, secure, clearly-delineated, adequately-illuminated walkways and bicycle facilities in all commercial and business centers. **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.

Scoping Plan Measure	OVOV Policy/Project Feature
	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. **Policy LU 5.2.1:** Designate higher-density residential uses in areas served by public transit and a full range of support services. **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. **Policy LU 5.2.3:** Promote location of non-polluting businesses providing employment opportunities in proximity to neighborhoods, to encourage walking to work. **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. **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. **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. **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. **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, vanpools, car pools, bus pools, bicycling, walking, and automobiles. **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. **Policy C 1.1.12:** Implement recommendations of the City's Non-Motorized Transportation Plan to expand opportunities for alternative travel modes. **Policy C 1.1.13:** Activity centers should be designed or improved to prioritize walking, bicycling and circulator transit for internal circulation of person-travel. **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. **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. **Policy C 1.2.3:** Require that new commercial and industrial development provide walkway connections to public sidewalks and transit stops, where available. **Policy C 1.2.4:** Consider location, availability, and accessibility of transit in evaluating new development plans. **Policy C 1.2.5:** In mixed-use projects, require compact development and a mix of land uses to locate housing, workplaces, and services within walking or bicycling distance of each other.

Scoping Plan Measure	OVOV Policy/Project Feature
	Policy C 1.2.6: Provide flexible standards for parking and roadway design in transit-oriented development areas to promote transit use, where appropriate. **Policy C 1.2.7:** In pedestrian-oriented areas, provide a highly connected circulation grid with relatively small blocks to encourage walking. **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. **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. **Policy C 1.2.11:** Reduce vehicle miles traveled (VMT) through the use of smart growth concepts. **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. **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. **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. **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. **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.
SPM-7: Vehicle Efficiency Measures	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant. See measures discussed above in SPM-2.
SPM-8: Goods Movement	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
SPM-9: Million Solar Roofs Program	**Project is Consistent:** **Policy LU 7.1.2:** Promote the use of solar panels and other renewable energy sources in all projects. **Policy CO 8.2.3:** Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for city 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 practicable.

Scoping Plan Measure	OVOV Policy/Project Feature
	Policy CO 8.3.4: Encourage new residential development to include on-site solar photovoltaic systems or prewiring in at least 50% of the residential units, in concert with other significant energy conservation efforts.
SPM-10: Heavy/Medium-Duty Vehicles	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
SPM-11: Industrial Emissions	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
SPM-12: High Speed Rail	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
SPM-13: Green Building Strategy	**Project is Consistent:** **Policy CO 8.3.1:** Evaluate site plans proposed for new development based on energy efficiency pursuant to LEED (Leadership in Energy and Environmental Design) standards for New Construction and Neighborhood Development, including the following: (a) location efficiency; (b) environmental preservation; (c) compact, complete, and connected neighborhoods; and (d) resource efficiency, including use of recycled materials and water. **Policy CO 8.3.2:** Promote construction of energy efficient buildings through requirements for LEED certification or through other alternative requirements as adopted by local ordinance. **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 prewiring 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 retails and office commercial buildings and associated parking lots, carports, and garages, in concert with other significant energy conservation efforts. **Policy CO 8.3.6:** Require 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, shade trees 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.
SPM-14: High Global Warming Potential Gases	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
SPM-15: Recycling and Waste	**Project is Consistent:** **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. **Policy CO 8.2.11:** Implement recycling in all public buildings, parks, and public facilities, including for special events.

Scoping Plan Measure	OVOV Policy/Project Feature
	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 8.4.3:** Allow and encourage composting **of** greenwaste, where appropriate. **Policy CO 8.4.5:** Develop and implement standards for refuse and recycling receptacles and enclosures to accommodate recycling in all development. **Policy CO 8.4.6:** Introduce and assist with the placement of receptacles for recyclable products in public places, including at special events. **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. **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. **Policy LU 7.5.1:** Ensure that all new development provides adequate space for recycling receptacles and bins on site.
SPM-16: Sustainable Forests	**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. **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 natural carbon sequestration benefits.
SPM-17: Water	**Project is Consistent:** **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 design into new residential subdivisions and other private development projects, including a reduction in the allowable 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 Programs, and/or other information on xeriscape, native California plants, and water-conserving irrigation techniques as materials become available. **Policy CO 4.1.5:** Promote the use of low-flow and waterless plumbing fixtures and appliances in all new residential and non-residential development and residential development of five or more dwelling units. **Policy CO 4.1.6:** Support amendments to the building code that would promote upgrades to water and energy efficiency when issuing permits for renovations or additions on existing buildings.

Scoping Plan Measure	OVOV Policy/Project Feature
	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 availability of non-potable water services, discourage and/or consider restrictions on the use of potable water for washing outdoor surfaces. **Policy CO 4.2.1:** In cooperation with the Sanitation District and other affected agencies, 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 development for irrigation, where feasible and practicable. **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). **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. **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.
SPM-18: Agriculture	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.

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), OVOV proposed project occupants 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 $MMTCO_2e$. Using 2002-2004 data, CARB projected the State's 2020 "business as usual" emissions at approximately 596 $MMTCO_2e$. 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 3.4-8, 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 3.4-8** 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 $MMTCO_2e$, 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 3.4-7**, the goals, objectives, and policies of the OVOV project would be consistent with the measures and strategies recommended by CARB. In addition to demonstrating consistency with these measures and strategies, the OVOV project 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 project 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 OVOV project would be consistent with the reduction levels listed in **Table 3.4-8** from regulatory- or permit-driven requirements. Reductions from measures and strategies applicable to the OVOV project 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 3.4-8
Climate Change Scoping Plan GHG Emission Reductions

Sector	ID No.	Scoping Plan Measure	Reductions ($MMTCO_2e$)	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 $MMTCO_2e$ 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

project 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.[91] Emission reductions due to the 2008 revisions to Title 24 were not included in the emission estimates provided in **Table 3.4-6**. 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 OVOV project, the average reduction in emissions would be 11.8 percent, under Title 24 (2008).[92] This value exceeds the sector-specific projected reduction of 9.4 percent listed in **Table 3.4-8**.

Reductions associated with Scoping Plan Measure 6 (Regional Transportation) are anticipated to equal approximately 5 $MMTCO_2e$. The Southern California Association of Governments 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. CARB has established draft regional reduction targets for SCAG of 8 percent for 2020 and 13 percent for 2035, subject to SCAG Board approval. In the City's ongoing efforts to collaborate with SCAG regarding SB 375, the City of Santa Clarita has prepared a response to a data verification request from SCAG. The data indicates that the total VMT would decrease approximately 15 percent with the proposed General Plan than with the existing General Plan. Additionally, the average trip length would decrease by approximately 14 percent, with the proposed General Plan when compared to buildout of the existing General Plan.

As previously discussed, the proposed General Plan includes goals, objectives, and policies address the deficiencies in the existing alternative transportation system, and provide direction for the expansion and improvement of alternative transportation throughout the Santa Clarita Valley and would promote denser, transit-oriented development in areas where transit use is already high. Emphasis is also placed on introducing mixed-use development on older, underutilized commercial corridors in order to allow residents to reach services in ways that are not exclusively automobile-dependent, such as walking, biking and transit. Grouping mixed uses together reduces the need for residents to make multiple vehicle trips to obtain services and reach employment centers, resulting in a net reduction in the number of vehicles on the roadway. This would yield an improved jobs-to-housing balance for the Santa Clarita Valley, which reduces the need for residents to commute outside the Valley to employment centers to the south.

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

92 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.

Specifically, the proposed General Plan would designate land anywhere from 1.0 du/20 ac to 30 du/ac and would incorporate the Mixed-Use Overlay and Mixed-Use land use designation (MX) and the concentration of intensification of land uses along transportation corridors. The Mixed Use concept encourages more walkability to services and commercial opportunities. The Mixed Use placement along transit corridors also encourages the use of both Metrolink and bus service.

In an effort to meet the requirements of SB 375 and the City's RHNA obligations, the City must provide the General Plan and zoning designations necessary to accommodate a minimum of 9,598 units. Consequently, the OVOV planning effort has designated specific areas in the City to receive increased residential density. This was accomplished by a) creating a Mixed Use category along transit hubs, transit corridors and at outdated strip commercial centers; and b) the designation for suitable sites that could accommodate a range of income levels. The OVOV General Plan proposes to increase the amount of residential units by 2,338 units over the buildout of the City and Sphere of Influence when compared to the City's existing General Plan. This increase in residential density is abated by the reduction of units and sprawl in rural areas surrounding the City. Many of these units are accommodated in the Mixed Use category and are located along urbanized transit corridors, in transit hub areas and in the higher density commercial core of the City. The increase in residential units in the more dense environs of the City helps the City meet the objectives of SB 375 by creating a community that is more walkable, more transit oriented, and with creative opportunities for people to live, work and play in a variety of village environments throughout the planning area.

Consistency with 2006 Climate Action Team Report (State of California)

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 3.4-9, Consistency with the 2006 Climate Action Team Report**, the OVOV proposed project would be consistent with the recommended measures.

Table 3.4-9
Consistency with the 2006 Climate Action Team Report

ID	Strategy	OVOV Policy/Project Feature
Implementing Agency: Cal/EPA/California Air Resources Board		
CAT-1	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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-2	Diesel Anti-Idling: In July 2004 the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-3	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).	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-4	HFC Reduction Strategies: CARB staff has identified five possible measures to reduce HFC emissions from vehicular and commercial refrigeration systems. 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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.

ID	Strategy	OVOV Policy/Project Feature
CAT-5	Transport Refrigeration Units Electrification, Off-road Electrification, Port Electrification (ship to shore).	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-6	Manure Management.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-7	Semi Conductor Industry Targets (PFC Emissions).	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-9	Alternative Fuels: Ethanol. Increase use of E-85 fuel.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.

ID	Strategy	OVOV Policy/Project Feature
Implementing Agency: Cal/EPA/Integrated Waste Management Board		
CAT-13	Achieve 50% Statewide Recycling Goal: 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.	**Project is Consistent:** The project would be in compliance with the Statewide 50% recycling goal. **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. **Policy CO 8.2.11:** Implement recycling in all public buildings, parks, and public facilities, including for special events. **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 8.4.3:** Allow and encourage composting **of** greenwaste, where appropriate. **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 8.4.6:** Introduce and assist with the placement of receptacles for recyclable products in public places, including at special events. **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. **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. **Policy LU 7.5.1:** Ensure that all new development provides adequate space for recycling receptacles and bins on site. **Policy LU 7.5.2:** Promote the use of recycled building materials.

ID	Strategy	OVOV Policy/Project Feature
CAT-14	Landfill Methane Capture: Landfills can install direct gas use projects or electricity projects with backup flare systems to capture and use methane.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-15	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.	**Project is Consistent:** See measure discussed above in CAT-13.
Implementing Agency: Resources Agency/Department of Forestry		
CAT-16	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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-17	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.	**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.
CAT-18	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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-19	Urban Forestry: 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.	**Project is Consistent:** **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 natural carbon sequestration benefits.

ID	Strategy	OVOV Policy/Project Feature
		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. **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.
CAT-20	Afforestation/Reforestation: Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
Implementing Agency: Resources Agency/Department of Water Resources		
CAT-21	Water Use Efficiency: 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.	**Project is Consistent:** **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 xeriscape or low water use landscaping in public spaces such as parks, landscaped medians and parkways, plazas, and around public buildings. **Policy CO 4.1.3:** Require 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 Castaic Lake Water Agency's Landscape Education Programs, and/or other information on xeriscape, native California plants, and water-conserving irrigation techniques as materials become available. **Policy CO 4.1.5:** Promote the use of 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 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

ID	Strategy	OVOV Policy/Project Feature
		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. **Policy CO 4.2.1:** In cooperation with the Sanitation District and other affected agencies, 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 development for irrigation, where feasible and practicable. **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). **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. **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.

ID	Strategy	OVOV Policy/Project Feature
Implementing Agency: Resources Agency/Energy Commission		
CAT-22/25	Building Energy Efficiency Standards in Place and in Progress: 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. 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.	**Project is Consistent:** **Policy CO 8.1.3:** Revise codes and ordinances as needed to address energy conservation, including but not limited to the following: (a) Strengthen building codes for new construction and renovation to achieve a higher level of energy efficiency, with a goal of exceeding energy efficiency beyond that required by Title 24; (b) Adopt a Green Building Program to encourage green building practices and materials, along with appropriate ordinances and incentives; (c) Require orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, promote effective use of daylight, and optimize opportunities for on-site solar generation; (d) Encourage mitigation of the "heat island" effect through use of cool roofs, light colored paving, and shading to reduce energy consumption for air conditioning. **Policy CO 8.2.1:** Ensure that all new City 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 8.2.2:** 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, with a goal of completing energy repairs in City facilities by 2012. **Policy CO 8.2.3:** Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for city buildings and operations and other methods as deemed appropriate and feasible, in concert with significant energy conservation efforts. **Policy CO 8.2.5:** Support installation of photovoltaic and other renewable energy equipment on public facilities, in concert with significant energy conservation efforts. **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.

ID	Strategy	OVOV Policy/Project Feature
		Policy CO 8.2.11: Implement recycling in all public buildings, parks, and public facilities, including for special events. **Policy CO 8.3.1:** Evaluate site plans proposed for new development based on energy efficiency pursuant to LEED (Leadership in Energy and Environmental Design) standards for New Construction and Neighborhood Development, including the following: a) location efficiency; b) environmental preservation; c) compact, complete, and connected neighborhoods; and d) resource efficiency, including use of recycled materials and water. **Policy CO 8.3.2:** Promote construction of energy efficient buildings through requirements for LEED certification or through comparable alternative requirements as adopted by local ordinance. **Policy CO 8.3.3:** Promote energy efficiency and water conservation upgrades to existing non-residential buildings at the time of sale, remodel, or additions. **Policy CO 8.3.4:** Encourage new residential development to include on-site solar photovoltaic systems or prewiring 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 other significant energy conservation efforts. **Policy CO 8.3.6:** Require 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, shade trees 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 8.3.10:** Provide incentives and technical assistance for installation of energy-efficient improvements in existing and new buildings.

ID	Strategy	OVOV Policy/Project Feature
		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. **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.
CAT-23/26	Appliance Energy Efficiency Standards in Place and in Progress: The Energy Commission adopts new standards for a variety of appliances. 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.	**Project is Consistent:** See measures discussed above in CAT-22.
CAT-24	Fuel-Efficient Replacement Tires & Inflation Programs: State legislation established a statewide program to encourage the production and use of more efficient tires.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-27	Cement Manufacturing: This strategy involves cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-28	Municipal Utility Energy Efficiency Programs/ Demand Response: The Energy Commission and the California PUC are collaborating on additional energy efficiency programs beyond those programs already adopted.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-29	Municipal Utility Renewable Portfolio Standard: Achieve the 20 percent goal by 2010 and 33 percent goal by 2020.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.

ID	Strategy	OVOV Policy/Project Feature
CAT-30	Municipal Utility Combined Heat and Power: 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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-31	Municipal Utility Electricity Sector Carbon Policy: 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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-32	Alternative Fuels: Non-Petroleum Fuels: This strategy involves increasing the use of non-petroleum fuels in California's transportation sector.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
Implementing Agency: Business, Transportation, and Housing Agency		
CAT-33	Measures to Improve Transportation Energy Efficiency: 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.	**Project is Consistent:** **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. **Policy LU 2.3.2:** Either vertical or horizontal integration of uses shall be allowed in mixed use development, with an emphasis on tying together the uses with appropriate pedestrian linkages. **Policy LU 2.3.4:** Adequate public spaces and amenities shall 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. **Policy LU 2.3.5:** Mixed use developments shall 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. **Policy LU 2.3.6:** Provide parking alternatives in mixed-use developments, including subterranean parking and structured parking to limit the amount of surface area devoted to vehicle storage. **Policy LU 3.1.3:** Promote opportunities for live-work units to accommodate residents with home-based businesses.

ID	Strategy	OVOV Policy/Project Feature
		Policy LU 3.1.4: Promote development of workforce housing to meet the needs of those employed in the Santa Clarita Valley. **Policy LU 3.1.7:** Promote development of housing for students attending local colleges, in consideration of access to campuses to the extent practicable. **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. **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. **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. **Policy LU 5.1.1:** Require safe, secure, clearly-delineated, adequately-illuminated walkways and bicycle facilities in all commercial and business centers. **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. **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. **Policy LU 5.2.1:** Designate higher-density residential uses in areas served by public transit and a full range of support services. **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. **Policy LU 5.2.3:** Promote location of non-polluting businesses providing employment opportunities in proximity to neighborhoods, to encourage walking to work. **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. **Policy LU 5.2.5:** Encourage the mix of compatible uses in areas where, though not served by rail or transit,

ID	Strategy	OVOV Policy/Project Feature
		mixed uses will achieve more walkable neighborhoods and trip reduction, in conformance with applicable policies. **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. **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. **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. **Policy C 1.1.6:** Provide 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. **Policy C 1.1.12:** Implement recommendations of the City's Non-Motorized Transportation Plan to expand opportunities for alternative travel modes. **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. **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. **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. **Policy C 1.2.3:** Require that new commercial and industrial development provide walkway connections to public sidewalks and transit stops, where available. **Policy 1.2.4:** Consider location, availability, and accessibility of transit in evaluating new development plans. **Policy C 1.2.5:** In mixed-use projects, require compact development and a mix of land uses to locate housing, workplaces, and services within walking or bicycling distance of each other.

ID	Strategy	OVOV Policy/Project Feature
		Policy C 1.2.6: Provide flexible standards for parking and roadway design in transit-oriented development areas to promote transit use, where appropriate. **Policy C 1.2.7:** In pedestrian-oriented areas, provide a highly connected circulation grid with relatively small blocks to encourage walking. **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. **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. **Policy C 1.2.11:** Reduce vehicle miles traveled (VMT) through the use of smart growth concepts. **Policy C 2.1.1:** Protect mobility on arterial streets and 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. **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 connector streets; and other improvements as deemed appropriate based on traffic analysis. **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. **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.

ID	Strategy	OVOV Policy/Project Feature
		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.
CAT-34	Smart Land Use and Intelligent Transportation: 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.	**Project is Consistent:** 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. See measures discussed above in CAT-33.
Implementing Agency: Department of Food and Agriculture		
CAT-35	Conservation tillage/cover crops: 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.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-36	Enteric Fermentation: To reduce climate change emissions resulting from enteric fermentation, feed adjustments may be made that improve milk and meat productivity.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
Implementing Agency: State and Consumer Services Agency		
CAT-37	Green Buildings Initiative: 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.	**Project is Consistent:** See measures discussed above in CAT-22.

ID	Strategy	OVOV Policy/Project Feature
Implementing Agency: Public Utilities Commission		
CAT-38	Accelerated Renewable Portfolio Std to 33 percent by 2020 (includes load-serving entities).	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
CAT-39	California Solar Initiative: The solar initiative includes installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses.	**Project is Consistent:** Solar thermal and photovoltaic systems will be installed where economically feasible. See measures discussed above in CAT-22.
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: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.

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. 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 3.4-10, Consistency with Office of Planning and Research Suggested Measures**, the OVOV proposed project would be consistent with OPR's recommended measures.

Table 3.4-10
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.	**Project is Consistent:** **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. **Policy LU 2.3.2:** Either vertical or horizontal integration of uses shall be allowed in a mixed-use development, with an emphasis on tying together the uses with appropriate pedestrian linkages. **Policy LU 2.3.4:** Adequate public spaces and amenities shall 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. **Policy LU 2.3.5:** Mixed use developments shall 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. **Policy LU 2.3.6:** Provide parking alternatives in mixed-use developments, including subterranean parking and structured parking to limit the amount of surface area devoted to vehicle storage. **Policy LU 3.1.3:** Promote opportunities for live-work units to accommodate residents with home-based businesses. **Policy LU 3.1.4:** Promote development of workforce housing to meet the needs of those employed in the Santa Clarita Valley. **Policy LU 3.1.7:** Promote development of housing for students attending local colleges, in consideration of access to campuses to the extent practicable. **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. **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. **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.

ID	Measures	OVOV Policy/Project Feature
		Policy LU 5.1.1: Require safe, secure, clearly-delineated, adequately-illuminated walkways and bicycle facilities in all commercial and business centers. **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. **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. **Policy LU 5.2.1:** Designate higher-density residential uses in areas served by public transit and a full range of support services. **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. **Policy LU 5.2.3:** Promote location of non-polluting businesses providing employment opportunities in proximity to neighborhoods, to encourage walking to work. **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. **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. **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. **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. **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.

ID	Measures	OVOV Policy/Project Feature
		Policy C 1.1.6: Provide 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. **Policy C 1.1.12:** Implement recommendations of the City's Non-Motorized Transportation Plan to expand opportunities for alternative travel modes. **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. **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. **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. **Policy C 1.2.3:** Require that new commercial and industrial development provide walkway connections to public sidewalks and transit stops, where available. **Policy C 1.2.4:** Consider location, availability, and accessibility of transit in evaluating new development plans. **Policy C 1.2.5:** In mixed-use projects, require compact development and a mix of land uses to locate housing, workplaces, and services within walking or bicycling distance of each other. **Policy C 1.2.6:** Provide flexible standards for parking and roadway design in transit-oriented development areas to promote transit use, where appropriate. **Policy C 1.2.7:** In pedestrian-oriented areas, provide a highly connected circulation grid with relatively small blocks to encourage walking. **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. **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. **Policy C 1.2.11:** Reduce vehicle miles traveled (VMT) through the use of smart growth concepts.

ID	Measures	OVOV Policy/Project Feature
OPR-2	Encourage infill, redevelopment, and higher density development, whether in incorporated or unincorporated settings.	**Project is Consistent:** **Policy LU 1.1.5:** Increase 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 and mixed-use, where appropriate.
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.	**Project is Consistent:** See measures discussed above in OPR-1.
OPR-4	Apply advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services.	**Project is Consistent:** **Policy C 2.1.1:** Protect mobility on arterial streets and 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. **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. **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. **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. **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. **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.

ID	Measures	OVOV Policy/Project Feature
		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 LOS F may be necessary, for limited durations during peak traffic periods. **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. **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. **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. **Policy C 2.2.8:** Local street patterns should be designed 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. **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. **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. **Policy C 2.2.11:** For intersections of collector or larger streets; four-way intersections are preferred over offset intersections.

ID	Measures	OVOV Policy/Project Feature
		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. **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. **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. **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. **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. **Policy C 2.4.4:** Adopt regulations for truck parking on public streets, to avoid impacts to residential neighborhoods.
OPR-5	Incorporate features into project design that would accommodate the supply of frequent, reliable and convenient public transit.	**Project is Consistent:** **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. **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. **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. **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.

ID	Measures	OVOV Policy/Project Feature
		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. **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. **Policy C 4.1.4:** Encourage the preservation of abandoned railroad right-of-way for future transportation facilities, where appropriate. **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. **Policy C 4.1.6:** Provide incentives to promote transit-oriented development near rail stations. **Policy C 4.1.7:** Facilitate coordination of planning for any future high speed regional rail systems in the Valley with Metrolink services. **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. **Policy C 4.2.1:** Continue to work with the Orange Line Development Authority (OLDA) to plan for development of an environmentally sensitive high transportation system with a route through the Santa Clarita Valley, including a regional station hub with associated infrastructure that would provide connections to the Los Angeles Basin, Palmdale Regional Airport, and other destinations. **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. **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. **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. **Policy C 5.1.3:** Consider the operational characteristics of buses when determining acceptable street designs, including grades and turning radii. **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.

ID	Measures	OVOV Policy/Project Feature
		Policy C 5.1.5: Location and design bus turnouts should not obstruct traffic and should provide sufficient merging length for the bus to re-enter the traffic flow. **Policy C 5.1.6:** Evaluate the feasibility of giving buses priority at signalized intersections to maintain transit service level standards, where appropriate. **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. **Policy C 5.2.4:** Enhance way-finding signage along walkways and paseos to direct pedestrians to transit stops. **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. **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. **Policy C 5.3.2:** Promote concentrated development patterns in coordination with transit planning to maximize service efficiency and ridership.
OPR-6	Implement street improvements that are designed to relieve pressure on a region's most congested roadways and intersections.	**Project is Consistent:** See measures described above in OPR-4 and -5.
OPR-7	Limit idling time for commercial vehicles, including delivery and construction vehicles.	**Project is Consistent:** The project would be in compliance with current State law, which restricts diesel truck idling to five minutes or less.
Urban Forestry		
OPR-8	Plant trees and vegetation near structures to shade buildings and reduce energy requirements for heating/cooling.	**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. **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.

ID	Measures	OVOV Policy/Project Feature
OPR-9	Preserve or replace on-site trees (that are removed due to development) as a means of providing carbon storage.	**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. **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 natural carbon sequestration benefits. **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. **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.
Green Buildings		
OPR-10	Encourage public and private construction of LEED (Leadership in Energy and Environmental Design) certified (or equivalent) buildings.	**Project is Consistent:** **Policy CO 8.2.1:** Ensure that all new City 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 8.3.1:** Evaluate site plans proposed for new development based on energy efficiency pursuant to LEED (Leadership in Energy and Environmental Design) standards for New Construction and Neighborhood Development, including the following: a) location efficiency; b) environmental preservation; c) compact, complete, and connected neighborhoods; and d) resource efficiency, including use of recycled materials and water. **Policy CO 8.3.2:** Promote construction of energy efficient buildings through requirements or LEED certification or through comparable alternative requirements as adopted by local ordinance.

ID	Measures	OVOV Policy/Project Feature
Energy Conservation Policies and Actions		
OPR-11	Recognize and promote energy saving measures beyond Title 24 requirements for residential and commercial projects.	**Project is Consistent:** **Policy CO 8.1.1:** Create and adopt a Climate Action Plan within 18 months of the OVOV adoption date 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 emissions 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 8.1.3:** Revise codes and ordinances as needed to address energy conservation, including but not limited to the following: (a) Strengthen building codes for new construction and renovation to achieve a higher level of energy efficiency, with a goal of exceeding energy efficiency beyond that required by Title 24; (b) Adopt a Green Building Program to encourage green building practices and materials, along with appropriate ordinances and incentives; (c) Require orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, promote effective use of daylight, and optimize opportunities for on-site solar generation; (d)Encourage mitigation of the "heat island" effect through use of cool roofs, light colored paving, and shading to reduce energy consumption for air conditioning. **Policy CO 8.1.4:** Provide information and education to the public about energy conservation and local strategies to address climate change. **Policy CO 8.1.5:** Coordinate various activities within the community and appropriate agencies related to GHG emissions reduction activities. **Policy CO 8.2.1:** Ensure that all new City 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 8.2.2:** 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, with a goal of completing energy repairs in City facilities by 2012.

ID	Measures	OVOV Policy/Project Feature
		Policy CO 8.2.3: Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for city buildings and operations and other methods as deemed appropriate and feasible, in concert with significant energy conservation efforts. **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. **Policy CO 8.2.5:** Support installation of photovoltaic and other renewable energy equipment on public facilities, 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 City employees on sustainable planning, building, and engineering practices. **Policy CO 8.3.3:** Promote energy efficiency and water conservation upgrades to existing non-residential buildings at the time of sale, remodel, or additions. **Policy CO 8.3.4:** Encourage new residential development to include on-site solar photovoltaic systems in at least 50% of the residential units, in concert with 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:** Require 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

ID	Measures	OVOV Policy/Project Feature
		windows, skylights, placement and type of windows, overhangs to shade doors and windows, and use of light colored roofs, shade trees, 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. **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.
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.	**Project is Consistent:** See measures discussed above in OPR-1, -4, and -5.
OPR-13	Educate the public, schools, other jurisdictions, professional associations, business and industry about reducing GHG emissions.	**Project is Consistent:** **Policy CO 8.1.4:** Provide information and education to the public about energy conservation and local strategies to address climate change. **Policy CO 8.1.5:** Coordinate various activities within the community and appropriate agencies related to GHG emissions reduction activities.
OPR-14	Replace traffic lights, streetlights, and other electrical uses to energy efficient bulbs and appliances.	**Project is Consistent:** See measures discussed above in OPR-11.
OPR-15	Purchase Energy Star equipment and appliances for public agency use.	**Project is Consistent:** See measures discussed above in OPR-11.

ID	Measures	OVOV Policy/Project Feature
OPR-16	Incorporate on-site renewable energy production, including installation of photovoltaic cells or other solar options.	**Project is Consistent:** **Policy CO 8.3.4:** Encourage new residential development to include on-site solar photovoltaic systems, or prewiring in at least 50% of the residential units, in concert with 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 other significant energy conservation efforts.
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.	**Project is Consistent:** See measures discussed above in OPR-11.
OPR-18	Design, build, and operate schools that meet the Collaborative for High Performance Schools (CHPS) best practices.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
OPR-19	Retrofit municipal water and wastewater systems with energy efficient motors, pumps and other equipment, and recover wastewater treatment methane for energy production.	**Project is Consistent:** See measures discussed above in OPR-11.
OPR-20	Convert landfill gas into energy sources for use in fueling vehicles, operating equipment, and heating buildings.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
OPR-21	Purchase government vehicles and buses that use alternatives 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: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
OPR-23	Offer rebates and low-interest loans to residents that make energy-saving improvements on their homes.	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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.

ID	Measures	OVOV Policy/Project Feature
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: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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.
Programs to Reduce Solid Waste		
OPR-30	Create incentives to increase recycling and reduce generation of solid waste by residential users.	**Project is Consistent:** **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. **Policy CO 8.2.11:** Implement recycling in all public buildings, parks, and public facilities, including for special events. **Policy LU 7.5.1:** Ensure that all new development provides adequate space for recycling receptacles and bins on site. **Policy LU 7.5.2:** Promote the use of recycled building materials.

ID	Measures	OVOV Policy/Project Feature
OPR-31	Implement a Construction and Demolition Waste Recycling Ordinance to reduce the solid waste created by new development.	**Project is Consistent:** 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.
OPR-32	Add residential/commercial food waste collection to existing greenwaste collection programs.	**Project is Consistent:** See measures discussed above in OPR-30.

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 3.4-11, Attorney General's Recommended General Plan Mitigation Measures**, the OVOV General Plan would be consistent with the Attorney General's recommended measures.

Table 3.4-11
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.	**Project is Consistent:** **Policy CO 8.1.1:** Create and adopt a Climate Action Plan within 18 months of the OVOV adoption date 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 emissions 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.

ID	Suggested Mitigation Measures	OVOV Policy
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.	**Project is Consistent:** See measures described above in AG-1.
AG-3	Strengthen local building codes for new construction and renovation to require a higher level of energy efficiency.	**Project is Consistent:** **Policy CO 8.1.3:** Revise codes and ordinances as needed to address energy conservation, including but not limited to the following: (a) Strengthen building codes for new construction and renovation to achieve a higher level of energy efficiency, with a goal of exceeding energy efficiency beyond that required by Title 24; (b)Adopt a Green Building Program to encourage green building practices and materials, along with appropriate ordinances and incentives; (c) Require orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, promote effective use of daylight, and optimize opportunities for on-site solar generation; (d) Encourage mitigation of the "heat island" effect through use of cool roofs, light colored paving, and shading to reduce energy consumption for air conditioning. **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, with a goal of completing energy repairs in City facilities by 2012. **Policy CO 8.2.3:** Support purchase of renewable energy for public buildings, which may include installing solar photovoltaic systems to generate electricity for city buildings and operations and other methods as deemed appropriate and feasible, in concert with significant energy conservation efforts. **Policy CO 8.2.5:** Support installation of photovoltaic and other renewable energy equipment on public facilities, in concert with significant energy conservation efforts. **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.

ID	Suggested Mitigation Measures	OVOV Policy
		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 8.2.11:** Implement recycling in all public buildings, parks, and public facilities, including for special events. **Policy CO 8.3.1:** Evaluate site plans proposed for new development based on energy efficiency pursuant to LEED (Leadership in Energy and Environmental Design) standards for New Construction and Neighborhood Development, including the following: a) location efficiency; b) environmental preservation; c) compact, complete, and connected neighborhoods; and d) resource efficiency, including use of recycled materials and water. **Policy CO 8.3.2:** Promote construction of energy efficient buildings through requirements of LEED certification or through comparable alternative requirements as adopted by local ordinance. **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 prewiring in at least 50% of the residential units, in concert with 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:** Require 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, shade trees 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.

ID	Suggested Mitigation Measures	OVOV Policy
		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 8.3.10:** 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. **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.
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 City 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.	**Project is Consistent:** **Policy CO 8.1.5:** Coordinate various activities within the community and agency related to GHG emissions reduction activities.
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.	**Project is Consistent:** See measures described above in AG-3.
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.	**Project is Consistent:** See measures described above in AG-3.
AG-12	Fund incentives to encourage the use of energy efficient vehicles, equipment and lighting. Provide financial incentives for adoption of identified efficiency measures.	**Project is Consistent:** **Policy C 4.1.6:** Provide incentives to promote transit-oriented development near rail stations. **Policy CO 8.3.10:** Provide incentives and technical assistance for installation of energy-efficient improvements in existing and new buildings. **Policy CO 8.2.4:** Establish maximum lighting levels for public facilities, 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. **Policy CO 8.2.6:** Promote use of solar lighting in parks and along paseos and trails, where practical. **Policy CO 8.2.10:** Support installation of energy-efficient traffic control devices, street lights, and parking lot lights. **Policy CO 8.2.12:** Provide ongoing training to appropriate City employees on sustainable planning, building, and engineering practices. **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.
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.	**Project is Consistent:** **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.

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.	**Project is Consistent:** **Policy CO 4.1.4:** Provide informational materials to applicants and contractors on Castaic Lake Water Agency's Landscape Education Programs, and/or other information on xeriscape, native California plants, and water-conserving irrigation techniques as materials become available. See additional measures described above in AG-13.
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.	**Project is Consistent:** **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. **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 8.2.9:** 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 8.3.6:** Require 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, shade trees and paving materials. **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. See additional measures described above in AG-3 and -4.

ID	Suggested Mitigation Measures	OVOV Policy
AG-16	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.	**Project is Consistent:** **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:** Require 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 Castaic Lake Water Agency's Landscape Education Programs, and/or other information on xeriscape, native California plants, and water-conserving irrigation techniques as materials become available. **Policy CO 4.1.5:** Promote the use of 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 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. **Policy CO 4.2.1:** In cooperation with the Sanitation District and other affected agencies, expand opportunities for use of recycled water for the purposes of landscape maintenance, construction, water recharge, and other uses as appropriate.

ID	Suggested Mitigation Measures	OVOV Policy
		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 development for irrigation, where feasible and practicable. **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). **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. **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.
AG-17	Adopt water conservation pricing, e.g., tiered rate structures, to encourage efficient water use.	**Project is Consistent:** The project would be consistent to the extent that the municipal water district servicing the area would implement water conservation pricing.
AG-18	Adopt water-efficient landscape ordinances.	**Project is Consistent:** See measures described above in AG-16.
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.	**Project is Consistent:** See measures described above in AG-16.
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.	**Project is Consistent:** See measures described above in AG-16.
AG-21	Provide individualized water audits to identify conservation opportunities. Provide financial incentives for adopting identified efficiency measures.	**Project is Consistent:** See measures described above in AG-16.

ID	Suggested Mitigation Measures	OVOV Policy
AG-22	Provide water audits for large landscape accounts. Provide financial incentives for efficient irrigation controls and other efficiency measures.	**Project is Consistent:** 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.	**Project is Consistent:** **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. **Policy CO 8.2.11:** Implement recycling in all public buildings, parks, and public facilities, including for special events. **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 8.4.3:** Allow and encourage composting **of** greenwaste, where appropriate. **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 8.4.6:** Introduce and assist with the placement of receptacles for recyclable products in public places, including at special events. **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. **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,

ID	Suggested Mitigation Measures	OVOV Policy
		including those that manufacture products made from recycled products, salvage, and resource recovery business parks. **Policy LU 7.5.1:** Ensure that all new development provides adequate space for recycling receptacles and bins on site. **Policy LU 7.5.2:** Promote the use of recycled building materials.
AG-25	Extend the types of recycling services offered (e.g., to include food and green waste recycling).	**Project is Consistent:** See measures described above in AG-24.
AG-26	Establish methane recovery in local landfills and wastewater treatment plants to generate electricity.	**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.
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.)	Not applicable: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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.	**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. **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 natural carbon sequestration benefits. **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. **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.

ID	Suggested Mitigation Measures	OVOV Policy
		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.
AG-29	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.	**Project is Consistent:** See measures described above in AG-28.
AG-30	Provide public education and information about options for reducing greenhouse gas emissions through responsible purchasing, conservation, and recycling.	**Project is Consistent:** **Policy CO 8.1.4:** Provide information and education to the public about energy conservation and local strategies to address climate change. **Policy CO 8.1.5:** Coordinate various activities within the community and appropriate agencies related to GHG emissions reduction activities.
Land Use Element		
AG-31	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.	**Project is Consistent:** **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. **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. **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. **Policy C 1.1.6:** Provide 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. **Policy C 1.1.12:** Implement recommendations of the City's Non-Motorized Transportation Plan to expand opportunities for alternative travel modes.

ID	Suggested Mitigation Measures	OVOV Policy
		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. **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. **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. **Policy C 1.2.3:** Require that new commercial and industrial development provide walkway connections to public sidewalks and transit stops, where available. **Policy C 1.2.4:** Consider location, availability, and accessibility of transit in evaluating new development plans. **Policy C 1.2.5:** In mixed use projects, require compact development and a mix of land uses to locate housing, workplaces, and services within walking or bicycling distance of each other. **Policy C 1.2.6:** Provide flexible standards for parking and roadway design in transit-oriented development areas to promote transit use, where appropriate. **Policy C 1.2.7:** In pedestrian-oriented areas, provide a highly connected circulation grid with relatively small blocks to encourage walking. **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. **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. **Policy C 1.2.11:** Reduce vehicle miles traveled (VMT) through the use of smart growth concepts.

ID	Suggested Mitigation Measures	OVOV Policy
		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. **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. **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. **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. **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. **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. **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.

ID	Suggested Mitigation Measures	OVOV Policy
		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. **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. **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. **Policy C 4.1.4:** Encourage the preservation of abandoned railroad right-of-way for future transportation facilities, where appropriate. **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. **Policy C 4.1.6:** Provide incentives to promote transit-oriented development near rail stations. **Policy C 4.1.7:** Facilitate coordination of planning for any future high speed regional rail systems in the Valley with Metrolink services. **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. **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 destinations. **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. **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.

ID	Suggested Mitigation Measures	OVOV Policy
		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. **Policy C 5.1.3:** Consider the operational characteristics of buses when determining acceptable street designs, including grades and turning radii. **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. **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. **Policy C 5.1.6:** Evaluate the feasibility of giving buses priority at signalized intersections to maintain transit service level standards, where appropriate. **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. **Policy C 5.2.4:** Enhance way-finding signage along walkways and paseos to direct pedestrians to transit stops. **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. **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. **Policy C 5.3.2:** Promote concentrated development patterns in coordination with transit planning to maximize service efficiency and ridership. **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.

ID	Suggested Mitigation Measures	OVOV Policy
		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. **Policy LU 2.3.2:** Either vertical or horizontal integration of uses shall be allowed in mixed use development, with an emphasis on tying together the uses with appropriate pedestrian linkages. **Policy LU 2.3.4:** Adequate public spaces and amenities shall 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. **Policy LU 2.3.5:** Mixed use developments shall 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. **Policy LU 2.3.6:** Provide parking alternatives in mixed-use developments, including subterranean parking and structured parking to limit the amount of surface area devoted to vehicle storage. **Policy LU 3.1.3:** Promote opportunities for live-work units to accommodate residents with home-based businesses. **Policy LU 3.1.4:** Promote development of workforce housing to meet the needs of those employed in the Santa Clarita Valley. **Policy LU 3.1.7:** Promote development of housing for students attending local colleges, in consideration of access to campuses to the extent practicable. **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. **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. **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.

ID	Suggested Mitigation Measures	OVOV Policy
		Policy LU 5.1.1: Require safe, secure, clearly-delineated, adequately-illuminated walkways and bicycle facilities in all commercial and business centers. **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. **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. **Policy LU 5.2.1:** Designate higher-density residential uses in areas served by public transit and a full range of support services. **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. **Policy LU 5.2.3:** Promote location of non-polluting businesses providing employment opportunities in proximity to neighborhoods, to encourage walking to work. **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. **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.
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.	**Project is Consistent:** See measures described above in AG-31.
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.

ID	Suggested Mitigation Measures	OVOV Policy
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: This measure is beyond the scope of the proposed project and beyond the control of the Project Applicant.
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.
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.

ID	Suggested Mitigation Measures	OVOV Policy
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.
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.

ID	Suggested Mitigation Measures	OVOV Policy
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.

ID	Suggested Mitigation Measures	OVOV Policy
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.	**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. **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 natural carbon sequestration benefits. **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. **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. **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.
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.	**Project is Consistent:** See measures described above in AG-60.
AG-62	Allow alternative energy projects in areas zoned for open space where consistent with other uses and values.	**Project is Consistent:** See measures described above in AG-60.
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.

ID	Suggested Mitigation Measures	OVOV Policy
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.	**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://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf. 2008.

Consistency with CAPCOA Recommended Measures

As previously discussed, the CAPCOA CEQA and Climate Change white paper includes 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. A consistency analysis of the OVOV General Plan and the CAPCOA recommended measures is provided in **Appendix 3.4**. As shown in the analysis, the OVOV General Plan would be generally consistent with the CAPCOA measures.

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. However, given the level of increase in GHG emissions from existing conditions, impacts are considered potentially significant.

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. However, given the level of increase in GHG emissions from existing conditions, impacts are considered potentially significant.

Plan to Plan Analysis

Development potential under existing General Plan or OVOV General Plan incorporate goals, objectives and policies that would reduce GHG emissions through effective land use planning, or in the case of OVOV, implementation of Greenhouse Gas policies that would further reduce impacts. However, both Plans would potentially increase the level of GHG emissions from existing conditions by substantial margins. As a result, impacts are considered potentially significant.

MITIGATION FRAMEWORK

The following mitigation measure shall be implemented for activities that would occur under the proposed plan. Additional mitigation measures to reduce the project's criteria pollutant emissions are found in **Section 6.3, Air Quality**. Many of these measures would also reduce the project's GHG emissions.

MM 3.4-1 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence of green building practices and design elements that reduce GHG emissions to the appropriate City and/or County Planning Department. (See, e.g., California Department of Housing and Community Development's Green Building & Sustainability Resources handbook at www.hcd.ca.gov/hpd/green_build.pdf; e.g., the American Institute of Architects at http://www.wiki.aia.org/Wiki%20Pages/Home.aspx)

MM 3.4-2 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence of energy-efficient designs to the appropriate City and/or County Planning Department such as those found in the Leadership in Energy and Environmental Design ("LEED") Green Building Ratings and/or comply with Title 24, Part 11, the California Green Building Standards Code.

MM 3.4-3 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence to the appropriate City and/or County Planning Department of energy efficient lighting, heating and cooling systems, appliances, equipment, and control systems.

(Information about ENERGY STAR-certified products are available at http://www.energystar.gov/index.cfm?fuseaction=find_a_product; see also the California Energy Commission's database of appliances meeting federal or state energy standards at http://www.appliances.energy.ca.gov; see the Electronic Product Environmental Assessment Tool for ranking of energy efficient computer equipment at http://www.epeat.net/AboutEPEAT.aspx; see the Online Guide to Energy Efficient Commercial Equipment at http://www.aceee.org/ogeece/ch1_index.htm)

MM 3.4-4 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence to the appropriate City and/or County Planning Department of light colored "cool" roofs and cool pavements. (See Consumer Energy Center, Cool Roofs at http://www.consumerenergycenter.org/coolroof/)

MM 3.4-5 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence to the appropriate City and/or County Planning Department of efficient lighting (including LEDs) for traffic, street, and other outdoor lighting purposes. (See http://www.energy.ca.gov/efficiency/partnership/case_studies/Tech AsstCity.pdf).

MM 3.4-6 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence to the appropriate City and/or County Planning Department of efficient pumps and motors for pools and spas. (See http://www.consumerenergycenter.org/ home/outside/pools_spas.html).

MM 3.4-7 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence to the appropriate City and/or County Planning Department of the ability to install solar, and solar hot water heaters. (See http://www.gosolarcalifornia.org/ builders/index.html; see also the California Public Utility Commission's website for solar water heating incentives at http://www.cpuc.ca.gov/puc/energy/solar/swh.htm).

MM 3.4-8 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence to the appropriate City and/or County Planning Department of water-efficient landscapes, which exceed the requirements of applicable City and/or County ordinances (See http://www.water.ca.gov/wateruseefficiency/landscapeordinance/technical.cfm; see also http://www.ciwmb.ca.gov/organics/Xeriscaping).

MM 3.4-9 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence to the appropriate City and/or County Planning Department of water efficient irrigation systems and devices, such as soil-based irrigation controls and use water-

efficient irrigation methods. (See http://www1.eere.energy.gov/femp/program/waterefficiency_bmp5.html; see also http://www.water.ca.gov/wateruseefficiency/landscape/).

MM 3.4-10 Prior to the issuance of a building permit for each implementing project, the applicant or their contractor shall submit to the appropriate City and/or County Public Works department for review and approval a site construction management plan for the reuse and recycle construction and demolition waste (including soil, vegetation, concrete, lumber, metal, and cardboard). (See http://www.ciwmb.ca.gov/condemo/).

MM 3.4-11 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence to the appropriate City and/or County Planning Department of reuse and recycling receptacles into residential, industrial, and commercial projects. (See http://zerowaste.ca.gov; see also http://www.ca-ilg.org/wastereduction).

MM 3.4-12 Prior to the issuance of building permits for each new tract, the applicant shall provide evidence to the appropriate City and/or County Planning Department of consistency with "smart growth" principles to reduce GHG emissions (i.e., ensure mixed-use, infill and higher density projects provide alternatives to individual vehicle travel and promote efficient delivery of goods and services). (See http://www.epa.gov/smartgrowth/index.htm)

MM 3.4-13 Prior to implementing project approval for each new tract map, the applicant shall preserve existing trees, to the extent feasible and consistent with mitigation measures, encourage the planting of new trees consistent with the final landscape palettes, and create open space where feasible. (See http://www.epa.gov/dced/brownfields.htm)

MM 3.4-14 All residential buildings within the OVOV planning area that are enabled by approval of the OVOV General Plan and Area Plan shall be designed to provide improved insulation and ducting, low E glass, high efficiency air conditioning units, and radiant barriers in attic spaces, as needed, or equivalent to ensure that all residential buildings operate at levels 15 percent better than the standards required by the version of Title 24 applicable at the time the building permit applications are filed.

MM 3.4-15 All commercial and public buildings within the OVOV planning area that are enabled by approval of the OVOV General Plan and Area Plan shall be designed to provide improved insulation and ducting, low E glass, high efficiency HVAC equipment, and energy efficient lighting design with occupancy sensors or equivalent to ensure that all

commercial and public buildings operate at levels 15 percent better than the standards required by the version of Title 24 applicable at the time the building permit applications are filed.

MM 3.4-16 Consistent with the Governor's Million Solar Roofs Plan, the project applicant or designee, acting as the seller of any single-family residence constructed as part of the development of at least 50 homes that are intended or offered for sale, shall offer a solar energy system option to all customers that enter negotiations to purchase a new production home constructed within the OVOV planning area on land for which an application for a tentative subdivision map has been deemed complete. The seller shall disclose the total installed cost of the solar energy system option, and the estimated cost savings.

SIGNIFICANCE OF IMPACT WITH MITIGATION FRAMEWORK

Based on the above quantitative analysis, the OVOV project could potentially impede or conflict with the state's goal of meeting AB 32 given the increase in GHG emissions. However, as demonstration by the above analysis, the OVOV project 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. Nonetheless, the project would result in a potentially significant impact on global climate change.