5.7 GREENHOUSE GAS EMISSIONS

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the Antelope Valley Area Plan Update (Proposed Project) to cumulatively contribute to greenhouse gas (GHG) emissions impacts. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis. This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (SCAQMD) and the Antelope Valley Air Quality Management District (AVAQMD). Emissions were calculated using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2, and are based on the buildout land use projections and on average daily vehicle trips and vehicle miles traveled (VMT) provided by Fehr & Peers. GHG emissions modeling for the Proposed Project is included in Appendix F of this DEIR.

5.7.1 Environmental Setting

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to the atmosphere. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[1,2] The major GHGs are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities, as well as during the combustion of fossil fuels and solid waste.

[1]Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant because it is considered part of the feedback loop of changing radiative forcing rather than a primary cause of change.

[2] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2014a).However, state and national GHG inventories do not include black carbon yet due to ongoing work related to resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.
    - ***Chlorofluorocarbons (CFCs)*** are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.
    - ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF4] and perfluoroethane [C2F6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high GWP.
    - ***Sulfur Hexafluoride (SF6)*** is a colorless gas soluble in alcohol and ether, and slightly soluble in water. SF6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.
    - ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although they are ozone-depleting substances, they are less potent than CFCs. They have been introduced as temporary replacements for CFCs.
    - ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs (IPCC 2001; EPA 2012).

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 5.7-1, *GHG Emissions and their Relative Global Warming Potential Compared to CO_2*. The GWP is used to convert GHGs to CO_2e to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Second Assessment Report GWP values for CH_4, a project that generates 10 metric tons (MT) of CH_4 would be equivalent to 210 MT of CO_2.[3]

[3] CO_2-equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

Table 5.7-1 GHG Emissions and their Relative Global Warming Potential Compared to CO_2

GHGs	Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	50 to 200	1	1
Methane[2] (CH_4)	12 (±3)	21	25
Nitrous Oxide (N_2O)	120	310	298
Hydrofluorocarbons:			
HFC-23	264	11,700	14,800
HFC-32	5.6	650	675
HFC-125	32.6	2,800	3,500
HFC-134a	14.6	1,300	1,430
HFC-143a	48.3	3,800	4,470
HFC-152a	1.5	140	124
HFC-227ea	36.5	2,900	3,220
HFC-236fa	209	6,300	9,810
HFC-4310mee	17.1	1,300	1,030
Perfluoromethane: CF_4	50,000	6,500	7,390
Perfluoroethane: C_2F_6	10,000	9,200	12,200
Perfluorobutane: C_4F_{10}	2,600	7,000	8,860
Perfluoro-2-methylpentane: C_6F_{14}	3,200	7,400	9,300
Sulfur Hexafluoride (SF_6)	3,200	23,900	22,800

Source: IPCC2007

Note: The IPCC has published updated global warming potential (GWP) values in its Fifth Assessment Report (2013) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, GWP values identified in the Second Assessment Report are still used by SCAQMD to maintain consistency in GHG emissions modeling. In addition, the 2008 Scoping Plan was based on the GWP values in the Second Assessment Report.

1 Based on 100-year time horizon of theGWP of the air pollutant relative to CO_2.

2 The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

California's Greenhouse Gas Sources and Relative Contribution

California is the second largest emitter of GHG emissions in the United States, surpassed only by Texas, and is the tenth largest GHG emitter in the world (CEC 2005, USEIA 2011). However, California also has over 12 million more people than Texas. Because of more stringent air emission regulations, in 2001, California ranked fourth lowest in carbon emissions per capita and fifth lowest among states in CO_2 emissions from fossil fuel consumption per unit of Gross State Product (total economic output of goods and services) (CEC 2006a).

The California Air Resources Board's (CARB) last update to the statewide GHG emissions inventory that utilized the Second Assessment Report GWPs was conducted in 2012 for year 2009 emissions.[4] In 2009, California produced 457 million metric tons (MMT) of CO_2-equivalent (CO_2e) GHG emissions. California's transportation sector is the single largest generator of GHG emissions, producing 37.9 percent of the State's total emissions. Electricity consumption is the second largest source, comprising of 22.7 percent. Industrial activities are California's third largest source of GHG emissions, comprising of 17.8 percent of the State's

[4]Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (AB 32) (2006).

total emissions. Other major sectors of GHG emissions include commercial and residential, recycling and waste, high global warming potential GHGs, agriculture, and forestry (CARB 2012a).

In 2013, the statewide GHG emissions inventory was updated for 2000 to 2012 emissions that utilized the GWPs in IPCC's Fourth Assessment Report. Based on the Fourth Assessment Report GWPs, in 2012, California produced 459 $MMTCO_2e$ GHG emissions. California's transportation sector remains the single largest generator of GHG emissions, producing 36.5 percent of the State's total emissions. Electricity consumption is the second largest source, comprising of 20.7 percent. Industrial activities are California's third largest source of GHG emissions, comprising of 19.4 percent of the State's total emissions. Other major sectors of GHG emissions include commercial and residential, recycling and waste, high global warming potential GHGs, agriculture, and forestry (CARB 2014b).

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and climate change pollutants that is attributable to human activities. The amount of CO_2 has increased by more than 35 percent since pre-industrial times and has increased at an average rate of 1.4 parts per million (ppm) per year since 1960, mainly due to combustion of fossil fuels and deforestation (IPCC 2007). These recent changes in climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is rising at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006).

Climate-change scenarios are affected by varying degrees of uncertainty. IPCC's "2007 IPCC Fourth Assessment Report" projects that the global mean temperature increase from 1990 to 2100, under different climate-change scenarios, will range from 1.4 to 5.8°C (2.5 to 10.4°F). In the past, gradual changes in the Earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime (IPCC 2007).

Potential Climate Change Impacts for California

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are also hard to predict. In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures; 2) a smaller fraction of precipitation falling as snow; 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones; 4) an advance snowmelt of 5 to 30 days earlier in the springs; and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms (CAT 2006). According to the California Climate Action Team, even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5.7-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 5.7-2, *Summary of GHG*

Emissions Risks to California, and include impacts to public health, water resources, agricultural, coastal sea level, forest and biological resource, and energy.

Table 5.7-2 Summary of GHG Emissions Risks to California

Impact Category	Potential Risk
Public Health Impacts	Poor air quality made worse More severe heat
Water Resources Impacts	Decreasing Sierra Nevada snow pack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pest and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species
Energy Demand Impacts	Potential reduction in hydropower Increased energy demand

Sources: CEC 2006b; CEC 2008.

Specific climate change impacts that could affect the Proposed Project include:

- **Increases in Ambient Temperatures.** On average, the Los Angeles region is expected to warm 4 to 5 degrees over land by mid-century. The coasts and oceans will likely warm the slowest, whereas the mountains and deserts will experience more rapid warming. Warming across the region will be greatest in the summer and fall. For the unincorporated areas of Los Angeles County in particular, the University of California, Los Angeles' (UCLA) high emissions modeling scenario predicts that mountain and inland areas may warm up to or greater than 4.5 degrees and coastal and valley/urban areas up to 3.7 to 3.9 degrees (Los Angeles 2014).

- **Increases in Extreme Heat Conditions.** Heat waves and very high temperatures could last longer and become more frequent. Extreme heat days are expected to triple in the coastal and central areas; the San Fernando Valley and San Gabriel Valley will witness almost a quadrupling of heat days. The number of

extreme heat days in the desert and mountain areas will increase 5 to 6 times relative to the current amounts. For the unincorporated areas of Los Angeles County in particular, including the Project Area, UCLA's high emissions modeling scenario predicts a nearly 12-fold increase in the number of heat days, down to a 1.5- to 2-fold increase for the inland/valley areas (Los Angeles 2014).

- **Decreased Snowfall and Winter Snowpack.** The region's mountains could see a 42 percent reduction in annual snowfall by mid-century. The winter snowpack is also expected to melt 16 days earlier as a result of rising temperatures. As of March 2014, California is facing a severe drought and the snowpack in the Sierra Nevada is 12 percent of the annual average. Changes in snowfall could exacerbate drought-like conditions, reducing water supplies and water security for all end users throughout Los Angeles County (Los Angeles 2014).

- **Wildfire projections** include slight increases in the amount of area burned in 2085 compared to the current (2010) risk, primarily in the northern and eastern portions of Los Angeles County (Los Angeles 2014).

5.7.1.1 REGULATORY SETTING

Federal Laws

The U.S. Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements, but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

The EPA's endangerment finding covers emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world (the first three are applicable to the Proposed Project).

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 $MTCO_2$ per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2010/2012)

The current Corporate Average Fuel Economy (CAFE) standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon [mpg] by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the

national program to also be deemed in compliance with state requirements. The federal government issued new standards in 2012 for model years 2017–2025, which will require a fleet average of 54.5 mpg in 2025.

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new stationary sources such as power plants, refineries, and other large sources of emissions. Pursuant to the President's 2013 Climate Action Plan, the EPA will be directed to also develop regulations for existing stationary sources.

State Laws

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-03-05, Assembly Bill 32 (AB 32), and Senate Bill 375 (SB 375).

Executive Order S-03-05

Executive Order S-3-05, signed June 1, 2005, set the following GHG reduction targets for the state:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32, the Global Warming Solutions Act. AB 32 was passed by the California state legislature on August 31, 2006, to place the State on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-3-05.

CARB 2008 Scoping Plan

The final Scoping Plan was adopted by CARB on December 11, 2008. AB 32 directed CARB to adopt discrete early action measures to reduce GHG emissions and outline additional reduction measures to meet the 2020 target. In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 $MTCO_2e$ per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

The 2008 Scoping Plan estimated that GHG emissions in California are anticipated to be approximately 596 $MMTCO_2e$ in 2020 if no steps are taken to reduce GHG emissions (i.e., the business as usual [BAU] scenario). In December 2007, CARB approved a 2020 emissions limit of 427 $MMTCO_2e$ (471 million tons) for the State. The 2020 target requires a total emissions reduction of 169 $MMTCO_2e$, from the BAU scenario, or a 28.5 percent for the year 2020 (i.e. 28.5 percent of 596 $MMTCO_2e$) (CARB 2008).[5]

[5]CARB defines BAU in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and

Since release of the 2008 Scoping Plan, CARB has updated the Statewide GHG emissions inventory to reflect GHG emissions in light of the economic downturn and of measures not previously considered in the 2008 Scoping Plan baseline inventory. The updated forecast predicts BAU emissions to be 545 $MMTCO_2e$ by 2020. The revised BAU 2020 forecast shows that the State would have to reduce GHG emissions by 21.7 percent from BAU in order to achieve 1990 levels, compared to the 28.5-percent reduction that was estimated in the 2008 Scoping Plan. The new inventory also identifies that if the updated 2020 forecast includes the reductions assumed from implementation of the Pavley standards (26 $MMTCO_2e$ of reductions) and the 33 percent renewable portfolio standard (RPS) (12 $MMTCO_2e$ of reductions), the forecast would be 507 $MMTCO_2e$ in 2020, in which case an estimated 80 $MMTCO_2e$ of additional reductions would be necessary to achieve the statewide emissions GHG reduction target of AB 32, or a 15.7 percent reduction compared to adjusted BAU forecast (i.e., 15.7 percent of 507 $MMTCO_2e$) (CARB 2012b).

Key elements of CARB's GHG reduction plan that may be applicable to the project include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards (adopted and cycle updates in progress).
- Achieving a mix of 33 percent for energy generation from renewable sources (anticipated by 2020).
- A California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system for large stationary sources (adopted 2011).
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets (several Sustainable Communities Strategies have been adopted).
- Adopting and implementing measures pursuant to state laws and policies, including California's clean car standards (amendments to the Pavley Standards adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (LCFS) (adopted 2009).[6]
- Creating target fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation (in progress).

used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

[6]On December 29, 2011, the U.S. District Court for the Eastern District of California issued several rulings in the federal lawsuits challenging the LCFS. One of the court's rulings preliminarily enjoined the CARB from enforcing the regulation during the pendency of the litigation. In January 2012, CARB appealed the decision and on April 23, 2012, the Ninth Circuit Court granted CARB's motion for a stay of the injunction while it continued to consider CARB's appeal of the lower court's decision. On July 15, 2013, the State of California Court of Appeals held that the LCFS would remain in effect and that CARB can continue to implement and enforce the 2013 regulatory standards while it corrects certain aspects of the procedures by which the LCFS was adopted. Accordingly, CARB is continuing to implement and enforce the LCFS while addressing the court's concerns.

Table 5.7-3, *Scoping Plan GHG Reduction Measures and Reductions toward 2020 Target*, shows the anticipated reductions from regulations and programs outlined in the 2008 Scoping Plan. Although local government operations were not accounted for in achieving the 2020 emissions reduction, CARB estimates that land use changes implemented by local governments that integrate jobs, housing, and services result in a reduction of 5 $MMTCO_2e$, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments play in the successful implementation of AB 32, the 2008 Scoping Plan cited a GHG reduction goal for local governments 15 percent of current levels (2005-2008) by 2020 to ensure that municipal and community-wide emissions match the State's reduction target.[7] Measures that local governments take to support shifts in land use patterns are anticipated to emphasize compact, low-impact growth over development in greenfields, resulting in fewer VMT (CARB 2008).

Table 5.7-3 Scoping Plan GHG Reduction Measures and Reductions toward 2020 Target

Recommended Reduction Measures	Reductions Counted toward 2020 Target of 169 MMT CO_2e	Percentage of Statewide 2020 Target
Cap and Trade Program and Associated Measures		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets1	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
Total Cap and Trade Program Reductions	146.7	87%
Uncapped Sources/Sectors Measures		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%
Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
Total Uncapped Sources/Sectors Reductions	27.3	16%
Total Reductions Counted toward 2020 Target	174	100%
Other Recommended Measures – Not Counted toward 2020 Target		
State Government Operations	1.0 to 2.0	1%
Local Government Operations[2]	To Be Determined	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%

[7]The Scoping Plan references a goal for local governments to reduce community GHG emissions by 15 percent from current (interpreted as 2008) levels by 2020, but it does not rely on local GHG reduction targets established by local governments to meet the state's GHG reduction target of AB 32.

Table 5.7-3 Scoping Plan GHG Reduction Measures and Reductions toward 2020 Target

Recommended Reduction Measures	Reductions Counted toward 2020 Target of 169 MMT CO_2e	Percentage of Statewide 2020 Target
Methane Capture at Large Dairies	1	1%
Total Other Recommended Measures – Not Counted toward 2020 Target	42.8	NA

Source:CARB 2008.
Notes: The percentages in the right-hand column add up to more than 100 percent because the emissions reduction goal is 169 $MMTCO_2e$ and the Scoping Plan identifies 174 $MTCO_2e$ of emissions reductions strategies.
$MMTCO_2e$: million metric tons of CO_2e
[1] Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.
[2] According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO_2e (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 target.

Update to the Scoping Plan

CARB has completed a five-year update to the 2008 Scoping Plan, as required by AB 32. It released the draft of the Update to the Scoping Plan on February 10, 2014, and was adopted by CARB on May 22, 2014. The Update to the Scoping Plan defines CARB's climate change priorities for the next five years and lays the groundwork to reach post-2020 goals in Executive Orders S-3-05 and B-16-2012. The update includes the latest scientific findings related to climate change and its impacts, including short-lived climate pollutants. The GHG target identified in the 2008 Scoping Plan is based on IPCC's GWP identified in the Second and Third Assessment Reports. IPCC's Fourth and Fifth Assessment Reports identified more recent GWP values based on the latest available science. As a result, CARB recalculated the 1990 GHG emission levels with the updated GWPs in the Fourth Assessment Report, which was available at the time of the report preparation. Using the new GWPs in the Fourth Assessment Report, the 427 $MMTCO_2e$ 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, would be slightly higher at 431 $MMTCO_2e$ (CARB 2014a).

The Update to the Scoping Plan highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the original 2008 Scoping Plan. As identified in the Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the Update to the Scoping Plan also addresses the state's longer-term GHG goals in a post-2020 element. The post-2020 element provides an overview of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the state to adopt a midterm target. According to the Update to the Scoping Plan, reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit (CARB 2014b).

Senate Bill 375

In 2008, Senate Bill 375 (SB 375), the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-

range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the metropolitan planning organizations (MPOs). Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010).

The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's existing transportation network. The proposed targets would result in 3 $MMTCO_2e$ of reductions by 2020 and 15 $MMTCO_2e$ of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

SCAG's 2012 RTP/SCS

SB 375 requires the MPOs to prepare a Sustainable Communities Strategy (SCS) in their regional transportation plan. For the SCAG region, the 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted in April 2012 (SCAG 2012). In addition, the Gateway Cities Council of Governments (COG) has created its own SCS. Data and policies in this subregional SCS are incorporated into SCAG's 2012 RTP/SCS. The SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement). The SCS is meant to provide growth strategies that will achieve the regional GHG emissions reduction targets. However, the SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives for consistency for governments and developers.

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles (see also the discussion on the update to the CAFE standards under Federal Laws, above).In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by

2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the State set 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 carbon dioxide equivalent gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

Executive Order B-16-2012

On March 23, 2012, the State identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directs the number of zero-emission vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero-emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions from the transportation sector 80 percent below 1990 levels.

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

A major component of California's Renewable Energy Program is the renewable portfolio standard (RPS) established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. CARB has now approved an even higher goal of 33 percent by 2020. In 2011, the State legislature adopted this higher standard in SBX1-2. Executive Order S-14-08 was signed in November 2008, which expands the state's Renewable Energy Standard to 33 percent renewable power by 2020. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

California Building Code

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2013 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency

technologies and methods. On May 31, 2012, the CEC adopted the 2013 Building and Energy Efficiency Standards, which went into effect on July 1, 2014. Buildings that are constructed in accordance with the 2013 Building and Energy Efficiency Standards are 25 percent (residential) to 30 percent (non-residential) more energy efficient than the 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24, known as "CALGreen") was adopted as part of the California Building Standards Code (Title 24, CCR). CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[8] The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011 and were updated most recently in 2013.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

5.7.1.2 LOCAL GHG REDUCTION PLANNING

Los Angeles County Energy and Environmental Program

In 2006, the County of Los Angeles (County) Board of Supervisors adopted an Energy and Environmental Program (EEP) for the development and enhancement of energy conservation and environmental programs for County departments. These programs contribute to the County's efforts to reduce community-wide GHGs and GHGs from County operations. The EEP consists of the following programs:

- **Energy and Water Efficiency:** The EEP establishes a reduction target of 20 percent by 2015 and implements conservation monitoring practices and water and energy shortage awareness programs for County buildings and departments.

- **Green Building Construction and Operations:** The County's Green Building Program currently consists of the Green Building, Low-Impact Development, and Drought Tolerant Ordinances.[9]

- **Environmental Stewardship:** The Environmental Stewardship Program measures and reduces the County's environmental footprint, including the amount of GHGs produced through direct and indirect County operations, and develops climate change-related policies.

[8] The green building standards became mandatory in the 2010 edition of the code.
[9] The County's Green Building Program is being updated and/or appealed since green building and drought-tolerant landscaping requirements are now addressed through adherence to the California Green Building Standards Code (CALGreen). An update the Tree Planting Ordnance is also pending as a result of the mandatory provisions of CALGreen.

- **Public Outreach and Education:** The Public Outreach and Education Program utilizes the County's communication and outreach channels to share utility industry information, facilitate implementation of subsidy and assistance programs, and spread energy conservation practices throughout the region.

Community Climate Action Plan

While not yet adopted, the County of Los Angeles released the Final Unincorporated Los Angeles County Community Climate Action Plan 2020 (CCAP) in July of 2014. The plan addresses the County's local GHG reduction goals for 2020 pursuant to AB 32. The purpose of the CCAP is to: 1) establish a baseline emissions inventory and reduction needed to meet County goals; 2) identify specific actions that will measurably reduce GHG emissions consistent with AB 32; 3) establish a framework for implementing state and local level actions; and 4) provide a mechanism for ongoing tracking and updates to the CCAP.

As part of the CCAP, the County has identified a GHG reduction target of at least 11 percent below 2010 levels by 2020. The CCAP identifies 26 local actions to reduce community-wide GHG reductions in 2020 to reach the GHG reduction goal for the unincorporated areas of Los Angeles County (unincorporated areas). As identified in the CCAP, the community and statewide actions would reduce GHG emissions in the unincorporated areas by more than1.95 $MMTCO_2e$ (see Table 5.7-4, *Unincorporated Areas CCAP GHG Reductions*).

Table 5.7-4 Unincorporated Areas CCAP GHG Reductions

Parameter	GHG Emissions ($MTCO_2e$)
LA County 2020 forecast	9,055,469
Target for 2020—at least 11% below 2010 levels	7,104,621
Total[1]: Reductions needed to reach interim target (2020 forecast minus 2020 target)	1,950,849
Total reductions from state level actions	1,571,658
Total reductions from local programs	380,857
Total[2]: GHG reductions achieved by the CCAP (state plus local reductions)	1,952,514
Exceeds reduction target by ($Total_2$ minus $Total_1$)	1,665

Source: Los Angeles, County of 2014. Based on the GWPs in IPCC's Fourth Assessment Report.

Existing Emissions

The existing land uses within the Project Area includes residential, retail, commercial, agricultural, and industrial land uses. These land uses currently generate GHG emissions from mobile sources, natural gas and electricity use, water use and generation of wastewater, solid waste, and area sources (e.g., household consumer products, landscaping and agricultural equipment). Table 5.7-5, *Existing Antelope Valley Area Plan GHG Emissions Inventory*, shows the GHG inventory from the existing land uses within the Project Area.

Table 5.7-5 Existing Antelope Valley Area Plan GHG Emissions Inventory

Source	GHG Emissions $MTCO_2e$/Year	
	Existing	Percent of Total
Area[1]	37,705	5%
Energy	149,682	18%
Transportation[2]	582,391	70%
Waste	34,928	4%
Water	73	<1%
Agriculture[3]	28,221	3%
Total All Sectors	833,000	100%

Source: CalEEMod Version 2013.2.2.
1 Comprised of emissions from architectural coatings, household consumer products, and landscaping equipment.
2 Based on 2014vehicle emission rates.
3 Based on agricultural emissions data provided in the Public Draft Unincorporated Los Angeles County Community Climate Action Plan 2020 (Los Angeles County 2014).

5.7.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, the Proposed Project would have a significant effect on the environment with respect to GHG emissions if it would:

GHG-1 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

GHG-2 Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

SCAQMD GHG Significance Thresholds

SCAQMD has adopted a significance threshold of 10,000 $MTCO_2e$ per year for permitted (stationary) sources of GHG emissions for which SCAQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting held in September 2010 (Meeting No. 15), SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

- **Tier 1.**If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD is proposing a "bright-line" screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types or the following land-use-specific thresholds:

1,400 $MTCO_2e$ for commercial projects, 3,500 $MTCO_2e$ for residential projects, or 3,000 $MTCO_2e$ for mixed-use projects. This bright-line threshold is based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore less than cumulatively considerable impact on GHG emissions:

- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

- **Tier 4.**If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

SCAQMD has proposed an efficiency target for projects that exceed the screening threshold. The current recommended approach is per capita efficiency targets. SCAQMD is not recommending use of a percent emissions reduction target. Instead, SCAQMD proposes a 2020 efficiency target of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan level projects (e.g., program-level projects such as general plans). The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.[10] Because the Proposed Project is an update to the Adopted Area Plan, project emissions are compared to the SCAQMD's plan-level efficiency threshold. However, because the Proposed Project goes beyond year 2020, horizon year 2035 emissions are compared to the efficiency threshold of 4.0 $MTCO_2e$/year/SP and post-2035 emissions are compared to the efficiency threshold of 1.3 $MTCO_2e$/year/SP, which are based on the long-term GHG reduction target for 2050 (i.e., 80 percent below 1990 levels) interpolated from Executive Order S-03-05. If projects exceed this per capita efficiency target, GHG emissions would be considered potentially significant in the absence of mitigation measures.

AVAQMD GHG Significance Thresholds

The analysis of the Proposed Project's air quality impacts follows the guidance and methodologies recommended in AVAQMD's *CEQA and Federal Conformity Guidelines* (2011). CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. AVAQMD has established GHG thresholds of significance of 100,000 (90,718 $MTCO_2e$/year). The thresholds are applied to both construction and operational phases of the project regardless of whether they are stationary or mobile sources, resulting in a conservative estimate of GHG emissions impacts of the Proposed Project. AVAQMD also has a daily threshold of 548,000 lbs/day for multi-phased projects with phases shorter than one year. However, this is not applicable to the Proposed Project.

[10]SCAQMD took the 2020 statewide GHG reduction target for land use only GHG emissions sectors and divided it by the 2020 statewide employment for the land use sectors to derive a per capita GHG efficiency metric that coincides with the GHG reduction targets of AB 32 for year 2020.

5.7.3 Relevant Area Plan Goals and Policies

Following is a list of the goals and policies of the Proposed Project that are intended to reduce potentially significant adverse effects concerning GHG.

Land Use Element

Goal LU 5: A land use pattern that decreases greenhouse gas emissions.

- **Policy LU 5.1:** Reduce the total amount of potential development requiring vehicle trips in the unincorporated Antelope Valley.
- **Policy LU 5.2:** Encourage the continued development of rural town centers that provide for the daily needs of surrounding residents, reducing the number of vehicle trips and providing local employment opportunities.
- **Policy LU 5.3:** Preserve open space areas to provide large contiguous carbon sequestering basins.
- **Policy LU 5.4:** Ensure that there is an appropriate balance of residential uses and employment opportunities within close proximity of each other.

Mobility Element

Goal M 1: Land use patterns that promote alternatives to automobile travel.

- **Policy M 1.1:** Direct the majority of unincorporated Antelope Valley's future growth to rural town center areas, rural town areas and where appropriate to economic opportunity areas, to minimize travel time and reduce the number of vehicle trips.
- **Policy M 1.2:** Encourage the continued development of rural town center areas that provide for the daily needs of local residents, reducing the number of vehicle trips and providing local employment opportunities.
- **Policy M 1.3:** Encourage new parks, recreation areas, and public facilities to locate to rural town center areas and rural town areas.
- **Policy M 1.4:** Ensure that new developments have a balanced mix of residential uses and employment opportunities as well as park, recreation areas, and public facilities within close proximity of each other.
- **Policy M 1.5**: Promote alternatives to automobile travel in rural town center areas and rural town areas by linking these areas through pedestrian walkways, trails, and bicycle routes.

Goal M 2: Reduction of vehicle trips and emissions through effective management of travel demand, transportation systems, and parking.

- **Policy M 2.1:** Encourage the reduction of home-to-work trips through the promotion of home-based businesses, live-work units, and telecommuting.

- **Policy M 2.2:** Encourage trip reduction through promotion of carpools, vanpools, shuttles, and public transit.

- **Policy M 2.3:** In evaluating new development proposals, require trip reduction measures to relieve congestion and reduce air pollution from vehicle emissions.

- **Policy M 2.4:** Develop multi-modal transportation systems that offer alternatives to automobile travel by implementing the policies regarding regional transportation, local transit, bicycle routes, trails, and pedestrian access contained in this Mobility Element.

- **Policy M 2.5:** As residential development occurs in communities, require transportation routes, including alternatives to automotive transit, to link to important local destination points such as shopping, services, employment, and recreation.

Goal M 6: A range of transportation options to connect the Antelope Valley to other regions.

- **Policy M 6.4:** Support increases in Metrolink commuter rail service, and support the expansion of commuter rail service on underutilized rail lines where appropriate.

- **Policy M 6.5:** Support the development of the California High Speed Rail System, with a station in Palmdale to provide links to Northern California and other portions of Southern California, and encourage the participation of private enterprise and capital.

- **Policy M 6.6:** Support the development of a high-speed rail system linking Palmdale to Victorville and Las Vegas, and encourage the participation of private enterprise and capital.

- **Policy M 6.7:** Establish a regional transportation hub in Palmdale with feeder transit service to the rural areas of the unincorporated Antelope Valley.

Goal M 7: Bus service is maintained and enhanced throughout the Antelope Valley.

- **Policy M 7.1:** Maintain and increase funding to the Antelope Valley Transit Authority for bus service.

- **Policy M 7.2**: Support increases in bus service to heavily traveled areas and public facilities, such as parks and libraries.

- **Policy M 7.3:** Support increases in bus service to rural communities, linking them to a regional transportation hub in Palmdale and shopping and employment centers in Lancaster and Palmdale.

- **Policy M 7.4:** Improve access for all people, including seniors, youth, and the disabled, by maintaining off-peak service and equipping transit services for wheelchairs and bicycles.

- **Policy M 7.5:** Encourage the use of advanced technologies in the planning and operation of the transit system.

Goal M 8: Alternative transit options in areas not reached by bus service.

- **Policy M 8.1:** Support the expansion of dial-a-ride services to rural communities, linking them to a regional transportation hub in Palmdale and shopping and employment centers in Lancaster and Palmdale.

- **Policy M 8.2:** Evaluate the feasibility of alternative transit options, such as community shuttle services and privately operated transit, to increase accessibility.

Goal M 9: A unified and well-maintained bicycle transportation system throughout the Antelope Valley with safe and convenient routes for commuting, recreation, and daily travel.

- **Policy M 9.1:** Implement the adopted Bikeway Plan for the Antelope Valley in cooperation with the cities of Lancaster and Palmdale. Ensure adequate funding on an ongoing basis.

- **Policy M 9.2:** Along streets and highways in rural areas, add safe bicycle routes that link to public facilities, a regional transportation hub in Palmdale, and shopping and employment centers in Lancaster and Palmdale.

- **Policy M 9.3:** Ensure that bikeways and bicycle routes connect communities and offer alternative travel modes within communities.

- **Policy M 9.4:** Encourage provision of bicycle racks and other equipment and facilities to support the use of bicycles as an alternative means of travel.

Goal M 11: A continuous, integrated system of safe and attractive pedestrian routes linking residents to rural town center areas, schools, services, transit, parks, and open space areas.

- **Policy M 11.1:** Improve existing pedestrian routes and create new pedestrian routes, where appropriate and feasible. If paving is deemed necessary, require permeable paving consistent with rural community character instead of concrete sidewalks.

- **Policy M 11.2:** Within rural town center areas, require that highways and streets provide pleasant pedestrian environments and implement traffic calming methods to increase public safety for pedestrians, bicyclists, and equestrian riders.

- **Policy M 11.3:** Within rural town center areas, promote pedestrian-oriented scale and design features, including public plazas, directional signage, and community bulletin boards.

- **Policy M 11.4:** Within rural town center areas, encourage parking to be located behind or beside structures, with primary building entries facing the street. Encourage also the provision of direct and clearly delineated pedestrian walkways from transit stops and parking areas to building entries.

- **Policy M 11.5:** Implement traffic calming methods in areas with high pedestrian usage, such as school zones.

Conservation and Open Space Element

Goal COS 2: Effective conservation measures provide an adequate supply of clean water to meet the present and future needs of humans and natural ecosystems.

- **Policy COS 2.1:** Require new landscaping to comply with applicable water efficiency requirements in the County Code.

- **Policy COS 2.2**: Require low-flow plumbing fixtures in all new developments.

- **Policy COS 2.3:** Require onsite stormwater infiltration in all new developments through the use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.

- **Policy COS 2.4:** Discourage water intensive recreational uses, such as golf courses, unless recycled water is used to sustain these uses.

- **Policy COS 2.5:** Discourage the use of potable water for washing outdoor surfaces.

- **Policy COS 2.6:** Support experiments in alternate forms of water provision and re-use, such as "air to water technology" and gray water systems.

- **Policy COS 2.7:** Limit use of groundwater sources to their safe yield limits.

- **Policy COS 2.8:** Coordinate with federal, state, regional and local agencies to develop and implement new technologies in water management.

Goal COS 7: Farming practices are sustainable, balancing economic benefits with water and biological resource management priorities, and minimize greenhouse gas emissions and water pollution.

- **Policy COS 7.1:** Promote agricultural uses which sequester carbon and fix nitrogen.

- **Policy COS 7.2:** Support the use of alternative and renewable energy systems in conjunction with agricultural activities.

Goal COS 9: Improved air quality in the Antelope Valley.

- **Policy COS 9.1:** Implement land use patterns that reduce the number of vehicle trips, reducing potential air pollution, as directed in the policies of the Land Use Element.

- **Policy COS 9.2:** Develop multi-modal transportation systems that offer alternatives to automobile travel to reduce the number of vehicle trips, including regional transportation, local transit, bicycle routes, trails, and pedestrian networks, as directed in the policies of the Mobility Element.

- **Policy COS 9.3:** In evaluating new development proposals, consider requiring trip reduction measures to relieve congestion and reduce air pollution from vehicle emissions.

- **Policy COS 9.4:** Promote recycling and composting throughout the Antelope Valley to reduce air quality impacts from waste disposal activities and landfill operations.

- **Policy COS 9.5:** Encourage use of alternative fuel vehicles throughout the Antelope Valley.

- **Policy COS 9.6:** Educate Antelope Valley industries about new, less polluting equipment, and promote incentives for industries to use such equipment.

- **Policy COS 9.7:** Encourage reforestation and the planting of trees to sequester greenhouse gas emissions.

- **Policy COS 9.8:** Coordinate with the Antelope Valley Air Quality Management District and other local, regional, state, and federal agencies to develop and implement regional air quality policies and programs.

Goal COS 10: Diverse energy systems that utilize existing renewable or waste resources to meet future energy demands.

- **Policy COS 10.3:** Encourage the safe and orderly development of biomass conversion facilities as an alternative to burning agricultural wastes.

- **Policy COS 10.4:** Promote methane recapture in landfills to generate energy and reduce greenhouse gas emissions.

- **Policy COS 10.5:** Encourage the development of emerging energy technologies, such as "solar roads."

- **Policy COS 10.6**: Encourage the development of Conversion Technologies such as anaerobic digestion and gasification for converting post recycled residual waste into renewable fuels and energy.

Goal COS 11: Energy systems for use in public facilities that reduce consumption of non-renewable resources while maintaining public safety.

- **Policy COS 11.1:** Promote energy retrofits of existing public facilities throughout the County to complement and reduce dependence upon utility-scale renewable energy production facilities, such as solar facilities, in the Antelope Valley.

- **Policy COS 11.2:** Promote the use of solar-powered lighting for highways, streets, and public facilities, including parks and trails.

- **Policy COS 11.3:** Promote the use of renewable energy systems in public facilities, such as hospitals, libraries, and schools, to ensure access to power in the case of major disasters.

Goal COS 12: Individual energy systems for onsite use that reduce consumption of non-renewable resources and dependence on utility-scale energy production facilities.

- **Policy COS 12.1:** Promote the use of individual renewable energy systems throughout the County to complement and reduce dependence upon utility-scale renewable energy facilities, such as solar facilities, in the Antelope Valley.

- **Policy COS 12.2:** Require appropriate development standards for individual renewable energy systems to minimize potential impacts to surrounding properties. Simplify the permitting process for individual renewable energy systems that meet these development standards.

Goals COS 15: Humans and wildlife enjoy beautiful dark Antelope Valley skies unimpeded by light pollution.

- **Policy COS 15.1:** Ensure that outdoor lighting, including street lighting, is provided at the lowest possible level while maintaining safety.

- **Policy COS 15.2:** Prohibit continuous all-night outdoor lighting in rural areas, unless required for land uses with unique security concerns, such as fire stations, hospitals, and prisons.

- **Policy COS 15.3:** Replace outdated, obtrusive, and inefficient light fixtures with fixtures that meet dark sky and energy efficiency objectives.

- **Policy COS 15.4:** Require compliance with the provisions of the Rural Outdoor Lighting District throughout the unincorporated Antelope Valley.

Goal COS 17: Buildings are sustainable, conserving energy, water, and other resources, and limiting greenhouse gas emissions.

- **Policy COS 17.1:** Require green building techniques for the construction and operation of all public and private buildings in the unincorporated Antelope Valley.

- **Policy COS 17.2:** Require that new buildings be sited and designed in a manner that maximizes efficient use of natural resources, such as air and light, to reduce energy consumption, heat profiles, and greenhouse gas emissions.

- **Policy COS 17.3:** Promote energy retrofits of existing buildings.

- **Policy COS 17.4:** Promote the use of individual renewable energy systems and require appropriate development standards for such systems to minimize potential impacts to surrounding properties. Simplify the permitting process for individual renewable energy systems that meet these development standards.

- **Policy COS 17.5:** Protect active and passive solar design elements and systems from shading by neighboring structures and trees through appropriate development standards.

- **Policy COS 17.6:** Require new landscaping to comply with applicable water efficiency requirements in the County Code.

- **Policy COS 17.7:** Require low-flow plumbing fixtures in all new developments.

- **Policy COS 17.8:** Require onsite stormwater infiltration in all new developments through use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.

- **Policy COS 17.9:** Require reduction, reuse, and recycling of construction and demolition debris.

Economic Development Element

Renewable Energy

- **Policy ED 1.10:** Promote small-scale, household based renewable energy systems to enable Antelope Valley residents to become energy independent

- **Policy ED 1.11:** Encourage the development of utility-scale renewable energy projects at appropriate locations and with appropriate standards to ensure that any negative impacts to local residents are sufficiently mitigated.

- Policy ED 1.12: Adopt regulations that ensure that local residents receive a fair share of the benefits of utility-scale renewable energy projects that are commensurate to their impacts.

- Policy ED 1.13: Ensure early discussions with Edwards Air Force Base and U.S. Air Force Plant 42 regarding new industries, such as utility-scale renewable energy production facilities, to limit potential impacts on mission capabilities.

5.7.4 Environmental Impacts

The analysis in this section is based on buildout of the proposed land use plan as modeled using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2., for the following sectors:

- **Transportation:** GHG emissions are based on the trip generation and VMT data provided by Fehr & Peers).

- **Solid Waste Disposal:** Indirect emissions from waste generation include fugitive GHG emissions associated with landfill operations and activities.

- **Water/Wastewater:** GHG emissions from electricity used to supply water, treat water, distribute water, and then treated wastewater.

- **Area Sources:** GHG emissions are from use of fireplaces and landscaping equipment used for property maintenance. The specific emissions from individual permitted facilities are not included. For purposes of this analysis, it is assumed that all residential units contain wood stoves and wood burning fireplaces.

- **Energy:** GHG emissions from use of electricity and natural gas by residential and non-residential land uses. For purposes of this analysis, existing uses are assumed to meet the 2005 Building Energy Efficiency Standards and therefore the historic energy rates in CalEEMod are applied for these uses. New buildings are assumed to comply with the 2013 Building and Energy Efficiency. Standards, which are 25 and 30 percent more energy efficient for residential and nonresidential buildings, respectively, than the 2008 standards. This analysis assumes new buildings of all land use types exceed the 2008 standards by 25 percent.

- **Agriculture:** GHG emissions are based on data provided in the CCAP.

Life cycle emissions are not included in this analysis because not enough information is available for the Proposed Project, and therefore life cycle GHG emissions would be speculative.[11]Additionally, construction emissions related to buildout of developments accommodated under the Proposed Project are also not included in the inventory.

The following impact analysis addresses thresholds of significance for which the NOP disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.7-1	Buildout of the Proposed Project would result in a substantial increase in GHG emissions compared to existing conditions and would also not meet the long-term GHG reduction goal under Executive Order S-03-05. [Threshold GHG-1]

Impact Analysis: Development under the Proposed Project would contribute to global climate change through direct and indirect emissions of GHG from land uses within the Project Area.

[11]Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analyses was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (see Final Statement of Reasons for Regulatory Action, December 2009). Because the amount of materials consumed during the operation or construction of the Proposed Project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

Proposed Area Plan

The increase in GHG emissions is based on the difference between existing land uses and land uses associated with theoretical buildout of the Proposed Project. The community-wide GHG emissions inventory for the Project Area at buildout (post-2035) compared to existing conditions is included in Table 5.7-6, *Buildout GHG Emissions Inventory Antelope Valley Area Plan*. The buildout inventory includes reductions from federal and state measures identified in CARB's Scoping Plan, including the Pavley fuel efficiency standards, and LCFS for fuel use (transportation and off-road). In addition, it is likely that new federal and state programs would be adopted, resulting in further GHG reductions post-2035.

Table 5.7-6 Buildout GHG Emissions Inventory for the Antelope Valley Area Plan

	GHG Emissions $MTCO_2e$/Year: 2035			
Source	Existing	Antelope Valley Area Plan	Net Change from Existing	Percent Change
Area[1]	37,705	161,804	124,098	329%
Energy[2]	149,682	921,747	772,065	516%
Transportation[3]	582,391	1,645,255	1,062,864	183%
Waste	34,928	151,462	116,534	334%
Water	73	219	146	200%
Agriculture[4]	28,221	20,615	-7,606	-27%
Total All Sectors	833,000	2,901,101	2,068,101	248%
Per Service Population (SP)[5]	125,328	536,761	NA	328%
Project Efficiency ($MTCO_2e$/SP)	6.65	5.40	-1.25	-19%
SCAQMD Efficiency Metric 2035 Target ($MTCO_2e$/SP)	—	4.0	—	—
Exceeds Efficiency Metric	NA	Yes	NA	NA
AVAQMD Threshold ($MTCO_2e$/Yr)	—	—	90,718	NA
Exceeds Threshold?	NA	NA	Yes	NA

Source: CalEEMod Version 2013.2.2.
1 Comprised of emissions from architectural coatings, household consumer products, and landscaping equipment.
2 For purposes of this GHG analysis, buildings on proposed land uses are assumed to comply with the 2013 Building and Energy Efficiency. Standards, which are 25 and 30 percent more energy efficient for residential and nonresidential buildings, respectively, than the 2008 standards. This analysis assumes new buildings of all land use types exceed the 2008 standards by 25 percent. Includes water efficiency improvements required under CALGreen.
3 Based on 2035 transportation emission rates.
4 Based on agricultural emissions data provided in the Final Unincorporated Los Angeles County Community Climate Action Plan 2020 (Los Angeles County 2014).
5 Service population based on:
Existing – 93,490 residents and 31,838 employees within the Proposed Project boundaries.
Future – 405,410 residents and 134,351 employees within the Proposed Project boundaries.

As shown in this table, the net increase in GHG emissions of 2,068,101 $MTCO_2e$ from Project-related operational activities would exceed SCAQMD's draft bright-line screening threshold of 3,000 $MTCO_2e$ for all land use types in addition to the AVAQMD's threshold of 90,718 $MTCO_2e$ (100,000 tons). The increase in overall land uses within the specific plan boundary is the primary factor for the increase in overall GHG emissions. Under the Proposed Project, total service population would increase by 328 percent over existing conditions. In addition to the operation phase emissions, construction of new developments accommodated by the Proposed Project would further increase the overall net emissions inventory.

Although the Proposed Project would result in a substantial increase in GHG emissions in the Project Area, it would also result in a 19 percent decrease in GHG emissions per person. The GHG emissions per capita rate would decrease from 6.65 $MTCO_2e$/year/SP to 5.40 $MTCO_2e$/year/SP. However, although implementation of the Proposed Project would result in a slight decrease in GHG emissions per capita, it would not meet the SCAQMD Year 2035 Target efficiency metric of 4.0 $MTCO_2e$/year/SP or the target identified in Executive Order S-03-05, which would equate to 1.3 $MTCO_2e$/SP by 2050. Additional state and local actions are necessary to achieve the post-2020 GHG reduction goals for the State. CARB has released an update to the 2008 Scoping Plan to identify a path for the State to achieve additional GHG reductions. However, at this time, no additional GHG reductions programs have been outlined that get the State to the post-2020 targets identified in Executive Order S-03-05, which are an 80 percent reduction in 1990 emissions by 2050. As identified by the California Council on Science and Technology, the State cannot meet the 2050 goal without major advances in technology (CCST 2012). Therefore, the Project's cumulative contribution to the long-term GHG emissions in the state would be considered substantial and potentially significant.

Impact 5.7-2 Implementation of the Proposed Project would not conflict with CARB's 2008 Scoping Plan, the CCAP, or SCAG's 2012 RTP/SCS. [Threshold GHG-2]

Impact Analysis: The following plans have been adopted or are proposed and are applicable for development in the Project Area.

CARB Scoping Plan

In accordance with AB 32, CARB developed the Scoping Plan to outline the State's strategy to achieve 1990 level emissions by year 2020. To estimate the reductions necessary, CARB projected statewide 2020 BAU GHG emissions and identified that the State as a whole would be required to reduce GHG emissions by 28.5 percent from year 2020 BAU to achieve the targets of AB 32 (CARB 2008). Since release of the 2008 Scoping Plan, CARB has updated the 2020 GHG BAU forecast to reflect GHG emissions in light of the economic downturn and measures not previously considered in the 2008 Scoping Plan baseline inventory. The revised BAU 2020 forecast shows that the State would have to reduce GHG emissions by 21.6 percent from BAU without Pavley and the 33 percent RPS or 15.7 percent from the adjusted baseline (i.e., with Pavley and 33 percent RPS) (CARB 2012c).

Since adoption of the 2008 Scoping Plan, state agencies have adopted programs identified in the plan, and the legislature has passed additional legislation to achieve the GHG reduction targets. Statewide strategies to reduce GHG emissions include the LCFS and changes in the corporate average fuel economy standards (e.g., Pavley I and 2017–2025 CAFE standards), California Appliance Energy Efficiency regulations, California Building Standards (i.e., CALGreen and the 2013 Building and Energy Efficiency Standards), and 33 percent RPS. The GHG emissions in Table5.7-7 include reductions associated with the Pavley fuel efficiency improvements (adopted in 2009) and these other statewide measures. Projects within the Project Area would be required to adhere to the following programs and regulations identified by the Scoping Plan and implemented by state, regional, and local agencies to achieve the statewide GHG reduction goals of AB 32.Therefore, growth under the Proposed Project would not conflict with the Scoping Plan and impacts would be less than significant.

CCAP

The County is in the process of drafting and adopting a CCAP along with the General Plan Update (Proposed General Plan). Although not yet adopted, the proposed CCAP identifies and evaluates feasible and effective policies to reduce GHG emissions in order to reduce energy costs, protect air quality, and improve the economy and the environment. The policies identified in the proposed CCAP represent the County's actions to achieve the GHG reduction targets of AB 32 for target year 2020 and would be applicable to future projects in the Project Area if the proposed CCAP is adopted. A consistency analysis with the goals and actions of the Proposed Project to the community actions in the proposed CCAP is shown in Table 5.7-7, *Consistency with the Unincorporated Los Angeles County Community Climate Action Plan*.

Table 5.7-7 Consistency with the Unincorporated Los Angeles County Community Climate Action Plan

#	Measure	Consistency
BE-1	Green Building Development. Promote and incentivize at least Tier 1 voluntary standards within CALGreen for all new residential and nonresidential buildings. Develop a heat island reduction plan and facilitate green building development by removing regulatory and procedural barriers.	Consistent: The 2013 Building and Energy Efficiency Standards are the current energy standards for new residential and non-residential buildings in the Project Area. The 2013 Standards are approximately 25 percent more energy efficient than the 2008 Standards for residential buildings and 30 percent more energy efficient for non-residential buildings than the 2008 Standards. The 2008 Standards are approximately 15 percent more energy efficient than the 2005 Standards. The CEC is on a path toward net-zero-energy buildings. Throughout the buildout of the Proposed Project, future cycle updates to the Building and Energy Efficiency Standards would have increasingly more stringent energy standards, such that zero energy buildings may be likely in the lifetime of the Proposed Project buildout. Sustainable practices are integrated throughout the Proposed Project, such as energy efficient design (e.g., optimizing the solar orientation of buildings to maximize passive and active solar design techniques). Applicable Proposed Project Policies: COS 12.1, COS 17.1, COS 17.2, COS 17.4, COS 17.5, and ED 1.10.
BE-2	Energy Efficiency Programs. Conduct energy efficiency retrofits for at least 25% of existing commercial buildings over 50,000 square feet and at least 5%of existing single family residential buildings.	Consistent: As identified above, the CEC is on a path toward zero-net-energy buildings for new construction in California. As a result, local programs that focus on incentives for energy retrofits for existing buildings will play an increasingly important role in local GHG reduction strategies. Several existing energy retrofit programs are available for the Project Area residents and businesses from SCE. In addition, there are several financing options for residents and business, including the Los Angeles Commercial Building Performance Partnership, the Affordable Multifamily Rental Housing Program and Home Improvement Program, and Energy Update California. The Proposed Project includes policies promoting energy efficient retrofits to public facilities and residential units. Applicable Proposed Project Policies: COS 11.1, COS 15.3, COS 17.3, and COS 17.4.

Table 5.7-7 Consistency with the Unincorporated Los Angeles County Community Climate Action Plan

BE-3	Solar Installations. Promote and incentivize solar installations for new and existing homes, commercial buildings, carports and parking areas, water heaters, and warehouses.	Consistent: The current Building and Energy Efficiency Standards do not mandate that new homes have solar panels. Solar power is only viable as an energy alternative in areas where there is sufficient solar reflection (e.g., enough sunlight). While the current Building Standards do not require solar panels be installed, they require that new buildings be constructed to accommodate the rooftop load and wiring necessary to support solar panels. A list of solar installations in the County can be found at the following website: http://solarmap.lacounty.gov/. The Proposed Project includes multiple policies that promote solar installations. Applicable Proposed Plan Policies: COS 10.5, COS 11.2, COS 11.3, COS 12.1, COS 12.2, COS 17.4, and COS 17.5
BE-4	Alternative Renewable Energy Programs. Implement pilot projects for currently feasible wind, geothermal, and other forms of alternative renewable energy.	Consistent: The Proposed Project includes various goals and policies that promote installation of alternative renewable energy such as creation of biomass conversion facilities as an alternative to burning agricultural waste and development of utility-scale renewable energy projects. Additionally, the County of Los Angeles is a participant in the Statewide Renewable Energy Transmission Initiative (RETI), which identifies sites that are suitable for various types of renewable energy sources, including geothermal, solar, wind and biomass. Applicable Proposed Project Policies: COS 7.2, COS 10.3, COS 10.4, COS 10.5, COS 10.6, COS 11.1, COS 11.3, COS 12.1, COS 12.2, COS 17.4, ED 1.10, and ED 1.11.
BE-5	Wastewater Treatment Plant. Biogas. Encourage renewable biogas projects.	Consistent: Various rules and regulations require wastewater treatment plant operators to capture the biogas generated from the treatment of wastewater. The captured methane is routinely used to offset non-renewable energy use by installing biogas to energy projects when economically feasible. For example, the Sanitation Districts, which are not County departments, have installed a 250-kilowatt microturbine at the Lancaster Water Reclamation Plant fueled by digester gas. Sanitation Districts also operate a 35-megawatt biogas turbine combined-cycle power-generating facility at the Joint Water Pollution Control Plant in Carson. The system provides 95 percent of plant power needs, reducing GHG emissions. The County supports ongoing biogas projects by the Sanitation Districts. Applicable Proposed Project Policies: None.
BE-6	Energy Efficiency Retrofits of Wastewater Equipment. Encourage the upgrade and replacement of wastewater treatment and pumping equipment.	Consistent: Replacement of equipment slated for retirement with more energy-efficient equipment, as well as utilization of best management practices would reduce equipment energy consumption. The Sanitation Districts are actively engaged in pursuing energy efficiency projects at regional wastewater treatment facilities throughout the County. Applicable Proposed Project Policies: COS 11.1

Table 5.7-7 Consistency with the Unincorporated Los Angeles County Community Climate Action Plan

BE-7	Landfill Biogas. Partner with the owners and operators of landfills with at least 250,000 tons of waste-in-place to identify incentives to capture and clean landfill gas to beneficially use the biogas to generate electricity, produce biofuels, or otherwise offset natural gas or other fossil fuels.	Consistent: Waste generated within the Project Area is disposed of in landfills operated by the Sanitation Districts. Currently, all landfills serving the Project Area with at least 250,000 tons of waste-in-place have installed methane capture systems. Methane captured by these systems can be used to generate electricity. For example, Puente Hills Landfill Gas-to-Energy Facility provides enough electricity to power about 70,000 homes in the County. Similar facilities have also been implemented by the Sanitation Districts at the Calabasas Landfill and Spadra Landfill. Additionally, a gas-to-energy facility is operational at the Chiquita Canyon Landfill, and construction of such a facility is underway at the Sunshine Canyon Landfill. Under Policy COS 10.4 and COS 10.6, the County would coordinate with the Sanitation Districts to further this goal. Applicable Proposed General Plan Update Policies: COS 10.4 and COS 10.6
LUT-1	Bicycle Programs and Supporting Facilities. Construct and improve bicycle infrastructure to increase biking and bicyclist access to transit and transit stations/hubs. Increase bicycle parking and "end-of-trip" facilities offered through the unincorporated County.	Consistent: The Proposed Project contains various policies that promote the bicycle use such as implementation of the adopted Bikeway Plan for Antelope Valley and through the creation of linkages between rural town center areas and rural towns. Applicable Proposed Project Policies: M 1.5, M 2.4, M 2.5, M 7.4, M 9.1, M 9.2, M 9.3, M 9.4, and COS 9.2.
LUT-2	Pedestrian Network. Construct and improve pedestrian infrastructure to increase walking and pedestrian access to transit and transit stations/hubs. Program the construction of pedestrian projects toward the goal of completing 15,000 linear feet of pedestrian improvements/amenities per year.	Consistent: The Proposed Project includes a various policies in improving the pedestrian network such as the creation of more pedestrian routes linking residential land uses to rural town center areas, schools, services, transit, and other amenities and implementation of traffic calming designs for areas of high pedestrian usage to increase safety. Applicable Proposed Project Policies: M 1.5, M 2.4, M 11.1, M 11.2, M 11.3, M 11.4, M 11.5, and COS 9.2.
LUT-3	Transit Expansion. Collaborate with the Los Angeles County Metropolitan Transportation Authority (Metro) on a transit program that prioritizes transit by creating bus priority lanes, improving transit facilities, reducing transit-passenger time, and providing bicycle parking near transit stations. Construct and improve bicycle, pedestrian and transit infrastructure to increase bicyclist and pedestrian access to transit and transit stations/hubs.	Consistent: The Project Area is served by the Metrolink Antelope Valley Line which provides connection to the rest of the greater Los Angeles area. The local bus service is provided by the Antelope Valley Transit Authority. The Proposed Project includes various policies in improving and increasing access to public transit such as increase bus service to rural areas and linking those areas to a regional transportation hub in the City of Palmdale. Applicable Proposed Project Policies: M 6.4, M 7.1 through 7.5, M 9.1 through 9.4, and M 11.1 through 11.5.
LUT-4	Travel Demand Management. Encourage ride- and bike-sharing programs and employer sponsored vanpools and shuttles. Encourage market-based bike sharing programs that support bicycle use around and between transit stations/hubs. Implement marketing strategies to publicize these programs and reduce commute trips.	Consistent: The Proposed Project includes policies to increase transit availability, car and van pooling, reduction of parking requirements, and telecommuting. Applicable Proposed Project Policies: M 1.1, M 1.2, M 1.3, M 1.4, M 1.5, M 2.1, M 2.2, M 2.3, M 2.4, M 2.5, and M 2.6.
LUT-5	Car-Sharing Program. Implement a car-sharing program to allow people to have on demand access to a shared fleet of vehicles.	Consistent: The Proposed Project promotes creation of carpooling, vanpooling, and shuttle programs. Applicable Proposed Project Policies: M 2.2 and M 8.2

Table 5.7-7 Consistency with the Unincorporated Los Angeles County Community Climate Action Plan

LUT-6	Land Use Design and Density. Promote sustainability in land use design, including diversity of urban and suburban developments.	Consistent: The Proposed Project includes policies directing growth within the Project Area to the rural town center areas and rural towns ensuring the development of a mix of land uses and services that meet the needs of the local populace. Applicable Proposed Project Policies: All policies within Goals LU 1, LU 2, LU 4, LU 5, and LU 6; Policies M 1.1, M 1.2, M 1.4, and M 1.5
LUT-7	Transportation Signal Synchronization Program. Improve the network of traffic signals on the major streets throughout Los Angeles County.	Consistent: The Transportation Signal Synchronization Program (TSSP) implements innovative, low-cost operational improvements to the network of traffic signals on the major streets throughout Los Angeles County. Upgrading traffic signals improves mobility on congested roadways and reduces GHG emissions through reduced vehicle idle time. The County would continue implementation of its TSSP with a goal of completing 38 additional routes (16 new and 22 to be redone) between 2010 and 2020, which may include major streets within the Project Area. A policy included in the Proposed Project calls for implementation of highway improvements when necessitated by increased traffic or new development. Future traffic studies would determine the necessity of traffic signalization. Applicable Proposed Project Policies: M 3.3 and M 3.5
LUT-8	Electric Vehicle Infrastructure. Install 500 electric vehicle (EV) charging facilities at County owned public venues (e.g., hospitals, beaches, stand-alone parking facilities, cultural institutions, and other facilities) and ensure that at least one-third of these charging stations will be available for visitor use.	Consistent: The County has established a goal to install 500 electric vehicle (EV) charging facilities at County -o venues (e.g., hospitals, beaches, stand -alone cultural institutions, and other facilities) and ensure that at least one would be available for visitor use. Expanding the number of EV charging opportunities for the public would help the County meet and exceed future projections for anticipated plug The electric v County encourages the use of sustainable transportation facilities and infrastructure technologies, such as liquid and compressed natural gas, and hydrogen gas stations, Intelligent Transportation Systems (ITS), and electric car plug-in ports. Applicable Proposed Project Policies: COS 9.5
LUT-9	Idling Reduction Goal. Encourage idling limits of 3 minutes for heavy-duty construction equipment, as feasible within manufacturer's specifications.	Consistent: The current idling limit adopted by CARB and local air district regulations is 5 minutes. The Proposed Project includes a policy that calls for coordination with the AVAQMD and other agencies such as SCAQMD in developing and implementing regional air quality policies and programs. Coordination between the County and these agencies can include creation of a program or rule reducing the idling duration of heavy-duty construction equipment to three minutes or less. Applicable Proposed Project Policies: COS 9.8

Table 5.7-7 Consistency with the Unincorporated Los Angeles County Community Climate Action Plan

LUT-10	Efficient Goods Movement. Support regional efforts to maximize the efficiency of the goods movement system throughout the unincorporated areas.	Consistent: While this measure is not directly applicable to the Antelope Valley Area Plan, the ports of Long Beach and Los Angeles are heavily investing in infrastructure to handle a projected doubling of container volumes. However, the ports have also been identified as one of the largest sources of air pollution in the region. In addition, terminal operations and supporting infrastructure are consumptive land uses and are often characterized as having heavily polluting activities. The ports have created a Clean Air Action Plan in conjunction with the EPA, CARB, and SCAQMD to reduce emissions related to port operations. SCAG's 2012 RTP/SCS also includes strategies to address goods movement, including the Regional Clean Freight Corridor System, East-West Freight Corridor, and bottleneck relief strategies for trucks on the freeway/ramps. The County supports these regional efforts. Applicable Proposed Project Policies: M 5.1, M 5.2, M 6.2, M 6.3, ED 1.4 and ED 1.6
LUT-11	Sustainable Pavements Program. Reduce energy consumption and waste generation associated with pavement maintenance and rehabilitation.	Consistent: The Sustainable Pavements Program maintains and rehabilitates aging roadways throughout the County. The program uses a three-pronged sustainable approach where 1) roads in good condition are actively maintained, 2) recycled materials are used in treatment selections, and 3) existing materials are reutilized for reconstruction projects. These actions reduce GHG emissions through vehicle fuel savings and materials reduction. The Proposed Project includes a policy that requires designated truck routes to be designed and constructed in a manner to prevent excessive pavement deterioration from truck use. Applicable Proposed Project Policies: M 5.3
LUT-12	Electrify Construction and Landscaping Equipment. Utilize electric equipment wherever feasible for construction projects. Reduce the use of gas-powered landscaping equipment.	Consistent: Pursuant to the California Building Code (Title 24), buildings are now required to include electrical outlets on the exterior of buildings to support the use of electric landscaping equipment. SCAQMD also implements a lawnmower exchange program so that residents in Los Angeles County can exchange gas lawnmowers for electric lawnmowers. The Proposed Project includes a policy in educating industries within the Project Area about new, less-polluting equipment and creation of incentives for use of such equipment. Applicable Proposed Project Policies: COS 9.6
WAW-1	Per Capita Water Use Reduction Goal. Meet the State established per capita water use reduction goal, as identified by SB X7-7 for 2020.	Consistent: The County Board of Supervisors adopted a Countywide Water Supply and Conservation Alert resolution (2008), which urges residents, businesses, and water purveyors to intensify water conservation efforts and directs all County departments to implement measures to achieve a 15 to 20 percent reduction in overall water demand. The Proposed Project include policies that would contribute in conservation of water such as requiring compliance with water efficiency requirements in the County Code and discouraging water intensive recreational uses (e.g., golf courses). Applicable Proposed Project Policies: COS 2.1 through 2.8, COS 17.7

Table 5.7-7 Consistency with the Unincorporated Los Angeles County Community Climate Action Plan

WAW-2	Recycled Water Use, Water Supply Improvement Programs, and Storm Water Runoff. Promote the use of wastewater and gray water to be used for agricultural, industrial, and irrigation purposes. Manage stormwater, reduce potential treatment, and protect local groundwater supplies.	Consistent: The Proposed Project includes policies that promote use of recycled water for agricultural and industrial uses, renewable energy production facilities, and water intensive recreation uses such as golf courses. In addition, the Proposed Project also includes polices that limits the amount of potential development in groundwater recharge areas. Applicable Proposed Project Policies: COS 1.3, 1.4, COS 2.3, COS 2.6, COS 2.7, COS 3.1, COS 3.2, COS 3.3, COS 3.5, COS 4.4, COS 7.4, COS 13.4, and COS 17.8
SW-1	Waste Diversion Goal. For the County's unincorporated areas, adopt a waste diversion goal to comply with all state mandates associated with diverting from landfill disposal at least 75% of the waste by 2020.	Consistent: The County has the largest solid waste management system in the country. There are seven major solid waste landfills, four minor solid waste landfills, and two waste-to-energy facilities. The County's Department of Public Works is responsible for preparing and administering an integrated waste management plan that achieves the statewide waste diversion goals of Assembly Bill 939. The County's comprehensive waste collection and recycling system is designed to reduce the amount of trash that is sent to regional landfills. This system incorporates a variety of programs that collectively divert over 50 percent of the waste generated in Los Angeles County. Applicable Proposed Project Policies: COS 17.9
LC-1	Develop Urban Forests. Support and expand urban forest programs within the unincorporated areas.	Consistent: The land uses developed under the Proposed Project would be consistent with the current rural character of the Project Area. However, aimed at improving air quality, the Proposed Project includes a policy encouraging reforestation and planting of trees. Applicable Proposed Project Policies: COS 9.7
LC-2	Create New Vegetated Open Space. Restore and re-vegetate previously disturbed land and/or unused urban and suburban areas.	Consistent: The Proposed Project includes a policy that encourages reforestation and planting of trees to sequester GHG emissions. Applicable Proposed Project Policies: COS 9.7
LC-3	Promote the Sale of Locally Grown Foods and/or Products. Establish local farmers markets and support locally grown food.	Consistent: The Proposed Project includes policies to support farmers markets, farm stands, and community-supported agriculture. Applicable Proposed Project Policies: COS 6.3, COS 6.4, and COS 6.5
LC-4	Protect Conservation Areas. Encourage the protection of existing land conservation areas.	Consistent: Forested, oak woodland, hillsides, ridgelines, wetland areas, and some community parks and open spaces can provide carbon sink benefits by sequestering atmospheric CO_2. Conservation areas can also provide a diverse suite of community benefits, including recreation, economic, and aesthetics. The Proposed Project includes policies that promote conservation of these types of areas within its boundaries. Applicable Proposed Project Policies: LU 5.3, All policies within Goals COS 4

Source: County of Los Angeles, 2014.

As identified in the table above, the Proposed Project would include goals and policies that are overall consistent with the CCAP. Therefore, the Proposed Project would not conflict with the CCAP and impacts are considered less than significant.

SCAG's 2012 RTP/SCS

SCAG adopted its 2012 RTP/SCS on April 4, 2012, pursuant to the requirements of SB 375. SCAG's RTP/SCS is a regional growth management strategy that targets per capita GHG reduction from passenger vehicles and light duty trucks in the Southern California region. The 2012 RTP/SCS also incorporates local land use projections and circulation networks in the cities' and counties' general plans. The projected regional development pattern—including the location of land uses and residential densities in local general plans—when integrated with the proposed regional transportation network in the 2012 RTP/SCS, would reduce per capita vehicular travel-related GHG emissions and achieve the subregional GHG reduction per capita targets for the SCAG region, which are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035.

The Proposed Project contains various goals and policies to reduce vehicle trips and vehicle miles traveled. Under the Proposed Project, overall growth would be directed towards rural town center areas and rural towns (see Policies LU 1.1, 5.1, 5.2, and 5.4). Development of a balanced mix of uses and services that would accommodate the local populace would be emphasized. In addition, the Proposed Project includes policies that focus on improving the pedestrian and biking networks (e.g., Policies M 9.1 through M 9.4 and M 11.1 through M 11.4) in addition to providing better and increased access to public transit options (e.g., Policies M 6.4, M 7.1, and M 7.3). Section 5.10, *Land Use and Planning*, includes a consistency analysis with SCAG's RTP/SCS (see Table 5.10-2, *Consistency with SCAG's 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy Goals*). As identified in Table 5.10-2, the Proposed Project would be consistent with applicable RTP/SCS goals and impacts are considered less than significant.

5.7.5 Cumulative Impacts

Climate change is a global phenomenon that is cumulative by nature, as it is the result of combined worldwide contributions of GHGs to the atmosphere over many years. Therefore, significant direct impacts associated with the Proposed Project, as discussed above, also serve as the Proposed Project's cumulative impact.

The recommended mitigation measures would ensure that GHG emissions from buildout of the Proposed Project would be minimized. However, additional statewide measures would be necessary to reduce GHG emissions under the Proposed Project to meet the long-term GHG reduction goals under Executive Order S-03-05, which identified a goal to reduce GHG emissions to 80 percent of 1990 levels by 2050. Based on SCAQMD's 2020 efficiency target, this would equate to 1.3 $MTCO_2e$/SP by 2050. The buildout GHG emissions inventory for the Proposed Project would generate 5.4 $MTCO_2e$/SP and would exceed this long-term goal by 4.1 $MTCO_2e$/SP. At this time, there is no plan past 2020 that achieves the long-term GHG reduction goal established under S-03-05. As identified by the California Council on Science and Technology, the State cannot meet the 2050 goal without major advances in technology (CCST 2012). Since no additional statewide measures are currently available, cumulative GHG emissions impacts would remain significant and unavoidable.

5.7.6 Existing Regulations and Standard Conditions

State

- California Global Warming Solutions Act (AB 32)
- Sustainable Communities and Climate Protection Act (SB 375)
- Greenhouse Gas Emission Reduction Targets (Executive Order S-3-05)
- Clean Car Standards – Pavley (AB 1493)
- Renewable Portfolio Standards (SB 1078)
- California Integrated Waste Management Act of 1989 (AB 939)
- California Mandatory Commercial Recycling Law (AB 341)
- California Advanced Clean Cars CARB (Title 13 CCR)
- Low-Emission Vehicle Program – LEV III (Title 13 CCR)
- Heavy-Duty Vehicle Greenhouse Gas Emissions Reduction Measure (Title 17 CCR)
- Low Carbon Fuel Standard (Title 17 CCR)
- California Water Conservation in Landscaping Act of 2006 (AB 1881)
- California Water Conservation Act of 2009 (SBX7-7)
- Statewide Retail Provider Emissions Performance Standards (SB 1368).
- Airborne Toxics Control Measure to Limit School Bus Idling and Idling at Schools (13 CCR 2480)
- Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling (13 CCR 2485)
- In-Use Off-Road Diesel Idling Restriction (13 CCR 2449)
- Building Energy Efficiency Standards (Title 24, Part 6)
- California Green Building Code (Title 24, Part 11)
- Appliance Energy Efficiency Standards (Title 20)

Local

- Low Impact Development Standards (County Code Chapter 12.84)
- Construction and Demolition Debris Recycling and Reuse (County Code Chapter 20.87)
- Carryout Bags (County Code Chapter 12.85)
- Green Building Standards Code (County Code Chapter 31)

5.7.7 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impact would be less than significant: 5.7-2.

Without mitigation, the following impact would be **potentially significant**:

- **Impact 5.7-1** Buildout of the Proposed Project would result in a substantial increase in GHG emissions compared to existing conditions and would also not meet the long-term GHG reduction goal under Executive Order S-03-05.

5.7.8 Mitigation Measures

Impact 5.7-1

GHG-1 The County of Los Angeles shall include the following implementation actions, consistent with the CCAP measures drafted in the Final Unincorporated Los Angeles County Community Climate Action Plan 2020, in the Antelope Valley Area Plan Implementation Plan (Chapter 8) to ensure progress toward meeting the long-term GHG reduction goals of Executive Order S-03-05:

- Require new residential and now residential buildings within the Antelope Valley Area Plan to achieve the Tier 1 energy standards within California Green Building Standards Code (Title 24, Part 11). The voluntary Tier 1 CALGreen requires a 15 percent increase in energy efficiency compared to the Building and Energy Efficiency Standards (Title 24, Part 6). Architectural building plans shall be submitted to the County that identify features that achieve the Tier 1 energy standards (corresponding CCAP Measure BE-1).
- Require that new residential and non-residential building be constructed to accommodate roof-top solar installation. Architectural building plans shall be submitted to the County shall identify this requirement (corresponding CCAP Measure BE-3).
- Prior to issuance of building permits for new construction of non-residential development of 100,000 building square feet or more within the Antelope Valley Area Plan, the applicant shall identify bicycle end-trip facilities, including bike parking and lockers. The location of the bicycle storage shall be specified on site plans and verified by Department of Regional Planning prior to building permit issuance (corresponding CCAP Measure LUT-1).
- Require installation of Level 2 (240 volt) electric vehicle (EV) charging facilities at County-owned public venues (e.g., hospitals, beaches, stand-alone parking facilities, cultural institutions, and other facilities) within the Antelope Valley Area Plan and ensure that at least one-third of these charging stations will be available for visitor use (corresponding CCAP Measure LUT-8).

GHG-2 The County of Los Angeles shall include the following additional implementation actions in the Antelope Valley Area Plan Implementation Plan (Chapter 8) to ensure progress toward meeting the long-term GHG reduction goals of Executive Order S-03-05:

- Prior to issuance of building permits for new construction of residential development, the property owner/developer shall indicate on plans that garage and/or car port parking are electrically wired to accommodate a Level 2 (240 volt) EV charging. The

location of the electrical outlets shall be specified on building plans, and proper installation shall be verified by Department of Public Works prior to issuance of a Certificate of Occupancy.

- Prior to issuance of building permits for new construction of non-residential development of 100,000 building square feet or more within the Antelope Valley Area Plan, the applicant shall indicate on plans that Level 2 EV vehicle charging stations will be provided for public use. The location of the EV station(s) shall be specified on building plans, and proper installation shall be verified by the Department of Public Works prior to issuance of a Certificate of Occupancy.

5.7.9 Level of Significance After Mitigation

Impact 5.7-1

The goals and policies of the Proposed Project in addition to Mitigation Measures GHG-1 and GHG-2 would ensure that GHG emissions from buildout of the Proposed Project would be minimized. However, additional statewide measures would be necessary to reduce GHG emissions under the Proposed Project to meet the long-term GHG reduction goals under Executive Order S-03-05, which identified a goal to reduce GHG emissions to 80 percent below 1990 levels by 2050. CARB is currently updating the Scoping Plan to identify additional measures to achieve the long-term GHG reduction targets. At this time, there is no plan past 2020 that achieves the long-term GHG reduction goal established under S-03-05. As identified by the California Council on Science and Technology, the state cannot meet the 2050 goal without major advancements in technology (CCST 2012). Since no additional statewide measures are currently available, Impact 5.7-1 would remain significant and unavoidable.

5.7.10 References

Antelope Valley Air Quality Management District (AVAQMD). 2011, August. California Environmental Quality Act (CEQA) and Federal Conformity Guidelines.

California Air Resources Board (CARB). 2014a, May 15. Proposed First Update to the Climate Change Scoping Plan: Building on the Framework, http://www.arb.ca.gov/cc/scopingplan/2013_update/draft_proposed_first_update.pdf.

———. 2014b, March 24. California Greenhouse Gas Inventory for 2000–2009: By Category as Defined by the Scoping Plan.

———. 2012a, April. California Greenhouse Gas Inventory for 2000–2009: By Category as Defined by the Scoping Plan.

———. 2012b, Status of Scoping Plan Recommended Measures, http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf.

———. 2010, August. Staff Report Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.

———. 2008, October. Climate Change Proposed Scoping Plan, a Framework for Change.

California Climate Action Team. 2006, March. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

California Energy Commission. 2008. The Future Is Now: An Update on Climate Change Science, Impacts, and Response Options for California. CEC-500-2008-0077.

———. 2006a. Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004. Report CEC-600-2006-013-SF. December.

———. 2006b. Our Changing Climate: Assessing the Risks to California.2006 Biennial Report, California Climate Change Center.CEC-500-2006-077.

———. 2005. Climate Change Emissions Estimates from Bemis, Gerry and Jennifer Allen, Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2002 Update. California Energy Commission Staff Paper CEC-600-2005-025. Sacramento, California. June.

California Public Utilities Commission (CPUC). California Renewables Portfolio Standard (RPS), Accessed February 2014, http://www.cpuc.ca.gov/PUC/energy/Renewables/.

Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press.

———.2001. Third Assessment Report: Climate Change 2001. New York: Cambridge University Press.

Los Angeles, County of. 2014, July. Final Unincorporated Los Angeles County Community Climate Action Plan 2020.

South Coast Air Quality Management District (SCAQMD). 2010, September 28. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting 15.http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-%28ghg%29-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf?sfvrsn=2.

Southern California Association of Governments (SCAG).2012, April.2012-2035 Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS). http://rtpscs.scag.ca.gov/Pages/default.aspx.

United States Energy Information Administration (USEIA). 2011. Rankings: Total Carbon Dioxide Emissions 2011. http://www.eia.gov/state/rankings/#/series/226

U.S. Environmental Protection Agency (USEPA). 2012. Greenhouse Gas Emissions. http://www.epa.gov/climatechange/ghgemissions/gases.html.

———. 2009, December. USEPA: Greenhouse Gases Threaten Public Health and the Environment, Science overwhelmingly shows greenhouse gas concentrations at unprecedented levels due to human activity. http://yosemite.epa.gov/opa/admpress.nsf/0/08D11A451131BCA585257685005BF252.

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