

APPENDIX 4.1-1D

*Land Exchange Alternative
Energy Conservation Plan*

Prepared for
Jackson Pendo Development Company
San Diego, California

Prepared by
Ramboll Environ US Corporation
Irvine, California

Date
February 2018

Project Number
0438543B

ENERGY CONSERVATION PLAN FOR THE LAND EXCHANGE ALTERNATIVE SAN DIEGO, CALIFORNIA

CONTENTS

1.	INTRODUCTION	1
2.	FEDERAL REGULATORY FRAMEWORK	3
2.1	Massachusetts vs. EPA	3
2.2	Federal Vehicle Standards	3
2.3	Energy Independence and Security Act	4
2.4	Clean Power Plan and New Source Performance Standards for Electric Generating Units	4
3.	STATEWIDE REGULATORY FRAMEWORK	6
3.1	Executive Order S-3-05	6
3.2	Assembly Bill 32	6
3.3	Senate Bill 32	6
3.4	Building Energy-Related Regulatory Framework	7
3.4.1	Renewable Portfolio Standard (SB X1-2 (2011) and SB 350 (2015))	7
3.4.2	California Building Efficiency Standards (Title 24)	7
3.4.3	Zero Net Energy Buildings	8
3.4.4	Solar-Ready Units	8
3.5	Mobile-Related Regulatory Framework	8
3.5.1	Pavley Standards (AB 1493)	8
3.5.2	Low Carbon Fuel Standard	8
3.5.3	Advanced Clean Cars	9
3.5.4	Transportation Sector GHG Emissions (SB 375)	9
3.5.5	Executive Order B-16-2012	10
3.5.6	Electric Vehicle Plug-Ins	10
3.6	Water and Wastewater-Related Regulatory Framework	10
3.6.1	California Green Building Standards Code (Title 24, Part 11)	10
3.6.2	Water Use Reduction	10
3.7	Solid Waste-Related Regulatory Framework	11
3.7.1	California Integrated Waste Management Act of 1989	11
3.8	Construction-Related Regulatory Framework	11
3.8.1	Reduce Idling Time	11
4.	LOCAL REGULATORY FRAMEWORK	12
4.1	County of San Diego General Plan	12
4.2	County of San Diego Climate Action Plan	12
4.3	Comprehensive Renewable Energy Plan	13
4.4	Strategic Plan to Reduce Waste	13
5.	PROJECT DESIGN FEATURES	14
5.1	Energy-Related Project Design Features	14
5.1.1	Natural Gas Fireplaces	14
5.1.2	Zero Net Energy Residences	14
5.1.3	Non-Residential Energy Improvement Standards	14
5.1.4	Energy Star Appliances	14

5.1.5	Solar Water Heating	14
5.2	Mobile-Related Project Design Features	14
5.2.1	EV Charging Stations	14
5.2.2	Transportation Demand Management Program	15
5.2.2.1	Improved Design of Development	15
5.2.2.2	Bicycle Access	15
5.2.2.3	Pedestrian Access	15
5.2.2.4	Traffic Calming Measures	15
5.2.2.5	Dedicated Land for Pedestrian and Bike Trails	15
5.2.2.6	Ride-Sharing Program	16
5.2.2.7	Commute Trip Reduction Marketing	16
5.2.2.8	School Pool Program	16
5.2.2.9	Project Contributions to Transportation Infrastructure Improvement Projects	17
5.3	Water and Wastewater-Related Project Design Features	17
5.3.1	Water Conservation Plan	17
5.3.1.1	Hot Water Pipe Insulation	17
5.3.1.2	Pressure Reducing Valves	17
5.3.1.3	Water Efficient Dishwashers	17
5.3.1.4	Landscaping	17
6.	SUMMARY OF ENERGY CONSERVATION MEASURES	18

\\wcvr\fps1\projects\J\Jackson Pendo\Drafts\LEA ECP\Proctor Valley Land Exch Alt ECP_180209 Third
ScreenCheck.docx

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AB 32	2006 Global Warming Solutions Act
AB 341	Mandatory Commercial Recycling
AB 939	California Integrated Waste Management Act
AB 1493	Pavley
ACC	Advanced Clean Cars
Alternative	Land Exchange Alternative
CAA	Clean Air Act
CalRecycle	California Department of Resources Recycling and Recovery
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission's
CC&Rs	Covenants, Conditions, and Restrictions
CCR	California Code of Regulations
CH ₄	methane
CO ₂	carbon dioxide
CREP	Comprehensive Renewable Energy Plan
DOE	Department of Energy
DOT	Department of Transportation
ECP	Energy Conservation Plan
EIR	Environmental Impact Report
EO	Executive Order
EPA	Environmental Protection Agency
EV	electric vehicle
First Update	First Update to the Climate Change Scoping Plan: Building on the Framework
GHG	Greenhouse Gas
HFCs	hydrofluorocarbons
LCFS	Low Carbon Fuel Standard
MPOs	metropolitan planning organizations
mpg	miles per gallon

ACRONYMS AND ABBREVIATIONS *(Continued)*

NHTSA	National Highway Traffic Safety Administration
N ₂ O	nitrous oxide
Otay SRP	Otay Ranch General Development Plan/Otay Subregional Plan, Volume II
OWD	Otay Water District
PFCs	perfluorocarbons
SANDAG	San Diego Association of Governments
SB	Senate Bill
SCS	Sustainable Communities Strategy
SB 375	Transportation Sector GHG Emissions
Scoping Plan	Climate Change Scoping Plan: A Framework for Change
TDM	Transportation Demand Management
SF ₆	sulfur hexafluoride
VMT	Vehicle Miles Travelled
ZNE	zero net energy
ZEVs	zero-emission vehicles

1. INTRODUCTION

This Energy Conservation Plan (ECP) for the Land Exchange Alternative (Alternative) describes the various regulatory compliance measures and project design features that will reduce the Alternative's energy consumption.

The Alternative is part of Otay Ranch, an approximately 23,000-acre master-planned community in southern San Diego County, partly within the limits of the City of Chula Vista and partly within an unincorporated area of the County of San Diego. The Alternative is located within the Proctor Valley parcel of Otay Ranch. The Land Exchange Alternative proposes 1,530 homes within a development footprint that is limited to Proctor Valley Village 14. The majority of Planning Areas 16 and 19 would be converted to Multiple Species Conservation Program (MSCP) and Otay Ranch Resource Management Plan (RMP) Preserve.

The Land Exchange Alternative includes three options for internal circulation: (1) the Proctor Valley Road North Option, (2) the Preserve Trails Option and (3) the Perimeter Trail Option. The Draft EIR Land Exchange Alternative assesses each of these options and their respective impacts. This will allow the County to select the option (or combination of options) it considers best for the Alternative and the environment. For detailed descriptions with exhibits, see the Specific Plan Section VIII. Internal Circulation Options.

Volume II of the Otay SRP requires the preparation of a Non-Renewable Energy Conservation Plan that identifies feasible methods to reduce the consumption of non-renewable energy sources, including – but not limited to – building design and use, lighting, alternative energy sources, transportation, water use and recycling. This ECP, in conjunction with the Alternative's Water Conservation Plan, fulfill the requirements of the Otay SRP. Additionally, Ramboll Environ has evaluated the three options for the Proposed Project and they are not material to the information presented in this ECP.

As provided in Appendix F – *Energy Conservation* – of the State California Environmental Quality Act Guidelines, energy conservation is achieved through:

- Decreasing overall per capita energy consumption,
- Decreasing reliance on natural gas and oil, and
- Increasing reliance on renewable energy sources.¹

Therefore, applicable federal, state, and local laws and policies addressing energy conservation, along with design features during both construction and operation of the Alternative, are described in this ECP. Notably, laws, policies and design features achieving energy conservation frequently result in co-benefits, in the form of reductions in greenhouse gas (GHG), criteria air pollutant, and toxic air contaminant emissions.

This ECP is a reflection of the guidance and knowledge currently available, which are expected to evolve in the future. The ECP highlights the current regulatory environment, and

¹ Please see Section 4.7 of the Project's Environmental Impact Report (EIR) for an assessment of impacts relating to the Alternative's consumption of and demand for natural gas, electricity and transportation fuels during the Alternative's construction and operational phases.

is organized on an energy source-by-energy source basis (i.e., energy, mobile, water, solid waste, and construction).

2. FEDERAL REGULATORY FRAMEWORK

This section describes actions taken and regulations established by the Federal Government that achieve energy conservation benefits.

2.1 Massachusetts vs. EPA

In April 2007, in *Massachusetts v. EPA*, the U.S. Supreme Court directed the Administrator of the U.S. Environmental Protection Agency (EPA) to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator was directed to follow the language of Section 202(a) of the Clean Air Act (CAA). In December 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- Elevated concentrations of GHGs—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the “endangerment finding.”
- The combined emissions of GHGs—CO₂, CH₄, N₂O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the “cause or contribute finding.”

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA. By regulating the emissions of GHGs from new motor vehicles, energy conservation benefits typically result through increased engine efficiency and the reduced consumption of petroleum-based fuels (e.g., gasoline).

2.2 Federal Vehicle Standards

In response to the *Massachusetts v. EPA* decision discussed above, in 2007, President Bush directed the EPA, the Department of Transportation (DOT), and the Department of Energy (DOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. Thereafter, in 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Obama directed the DOT, DOE, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed coordinated federal GHG and fuel economy standards for light-duty vehicles for model years 2017–2025. The standards are projected to achieve 163 grams/mile of CO₂ in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to light-duty vehicles described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty

trucks for model years 2014–2018. The standards for CO₂ emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 percent - 23 percent over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two programs related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans and all types of sizes of buses and work trucks. The final standards are expected to lower CO₂ emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.²

In summary, the federal vehicle standards conserve energy by increasing the operating efficiencies of vehicles and reducing the consumption of transportation fuels.

2.3 Energy Independence and Security Act

In December 2007, President Bush signed the Energy Independence and Security Act of 2007 into law. Among other key measures, the Act established the following:

- Increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Sets a target of 35 mpg for the combined fleet of cars and light trucks by model year 2020 and directs NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks (see discussion of “Federal Vehicle Standards” above).
- Prescribes or revises standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

2.4 Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, EPA published a final rule establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electricity Utility Generating Units (80 FR 64510-64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO₂ emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, EPA published a final rule establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661-65120). The rule prescribes CO₂ emission standards for newly constructed, modified, and

² EPA and NHTSA, 2016. Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium and Heavy-Duty Engines and Vehicles – Phase 2. Available at: <https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf>.

reconstructed affected fossil-fuel-fired electric utility generating units. Implementation of the Clean Power Plan has been stayed by the U.S. Supreme Court pending resolution of several lawsuits; additionally, in May 2017, President Donald Trump signed an executive order that calls for the EPA's review of the Clean Power Plan.

3. STATEWIDE REGULATORY FRAMEWORK

As described below, the State of California has a robust policy, statutory, and regulatory framework that serves to conserve energy, while also reducing GHG, criteria air pollutant and/or toxic air contaminant emissions. Additional policies, regulations and laws that influence the consumption of energy and the efficient utilization of energy-related resources are discussed in Appendix 4.1-7, Greenhouse Gas Emissions, and Section 4.7, Energy, of the Project's EIR.

3.1 Executive Order S-3-05

In 2005, Governor Schwarzenegger issued Executive Order (EO) S-3-05, which established the following statewide GHG emission reduction goals: GHG emissions should be reduced to 2000 levels by 2010; to 1990 levels by 2020; and to 80 percent below 1990 levels by 2050. This executive policy has served as the foundation for many of California's statutory and regulatory initiatives principally designed to reduce GHG emissions, with corresponding benefits in the form of energy conservation.

3.2 Assembly Bill 32

Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, was enacted in 2006 after considerable study and expert testimony before the Legislature. The heart of AB 32 is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020 (Health & Safety Code, §38550), which is one element of Executive Order S-3-05.

In 2008, the California Air Resources Board (CARB) adopted the Climate Change Scoping Plan: A Framework for Change (Scoping Plan) in accordance with Health & Safety Code Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020.

In 2014, the CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the State realizes the expected benefits of existing policy goals.

In January 2017, the CARB released the draft 2017 Climate Change Scoping Plan Update (Second Update).³ This update proposes the CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below). As of the time of this ECP's completion, the Second Update has not yet been considered by CARB's Governing Board.

3.3 Senate Bill 32

In 2016, SB 32 was enacted into law. SB 32 requires the CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030.

³ CARB, 2017. The 2017 Climate Change Scoping Plan Update - *The Proposed Strategy For Achieving California's 2030 Greenhouse Gas Target*. Available at: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf

3.4 Building Energy-Related Regulatory Framework

California's existing regulatory framework advances important energy conservation objectives associated with building energy consumption, as described below, through requirements to: (i) procure energy from renewable sources, and (ii) reduce the demand for electricity and natural gas by constructing buildings that achieve ever-increasing efficiency standards.

3.4.1 Renewable Portfolio Standard (SB X1-2 (2011) and SB 350 (2015))

SB X1-2 (2011) requires all California utilities to generate 33 percent of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 sets a three-stage compliance period: by December 31, 2013, 20 percent shall come from renewables; by December 31, 2016, 25 percent shall come from renewables; and, by December 31, 2020, 33 percent shall come from renewables.

SB 350 (2015) requires retail seller and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030, with interim goals of 40 percent by 2024 and 45 percent by 2027.

Consequently, utility energy generation from non-renewable resources is expected to be reduced based on implementation of the 33 percent RPS in 2020, and the 50 percent RPS in 2030. The Alternative's reliance on non-renewable energy sources will thus also be reduced (*see measure REG-GHG-3 in Appendix 4.1-7 of the EIR*).

3.4.2 California Building Efficiency Standards (Title 24)

Title 24, Part 6, of the California Code of Regulations (CCR) regulates the design of building shells and building components. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods, such as those relating to windows, insulation, ventilation systems and other features that reduce energy consumption in residential and non-residential buildings.

The California Energy Commission's (CEC) 2016 Building Energy Efficiency Standards (2016 Building Standards), which became effective on January 1, 2017, are the most current version of these standards. In general, single-family homes are expected to use about 28 percent less energy under the 2016 standards as compared to the prior 2013 standards, while non-residential buildings are expected to use approximately 5 percent less energy.

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the Title 24, Part 6 requirements), water conservation, material conservation, and interior air quality.⁴ CALGreen is periodically amended, and was most recently amended in 2016 and became effective on January 1, 2017.

At a minimum, the Alternative would be required to comply with 2016 Building Standards and 2016 CALGreen Standards because its building construction phase would commence

⁴ Comparisons of the requirements of Tiers 1 and 2 of CALGreen with LEED v4 indicate where CALGreen and LEED points overlap and where additional effort is required to achieve LEED points. Available at: https://www.bayren.org/sites/default/files/CGpercent202013_LEEDv4_Comparison_Detailed.pdf.

after January 1, 2017 (see measure REG-AQ-6 in Appendix 4.1-3 of the Environmental Impact Report (EIR) and REG-GHG-1 in Appendix 4.1-7 of the EIR).

3.4.3 Zero Net Energy Buildings

The California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030.⁵ All Alternative residences will be designed to achieve ZNE, as defined by the CEC in its 2015 Integrated Energy Policy Report⁶ (see *Alternative commitments in section 5.1.2 below*).

3.4.4 Solar-Ready Units

Per the CEC's 2016 Residential Compliance Manual,⁷ all single-family homes constructed as part of the Alternative will be designed with pre-plumbing for solar water heaters and solar and/or wind renewable energy systems (see measure REG-AQ-7 in Appendix 4.1-3 and REG-GHG-2 in Appendix 4.1-7 of the EIR).

3.5 Mobile-Related Regulatory Framework

California's existing regulatory framework advances important energy conservation objectives associated with mobile source energy consumption, as described below, through requirements to: (i) increase the operating efficiencies of vehicles and secure the use of zero emission vehicles, and thereby reduce the consumption of transportation fuels; (ii) reduce the number of vehicle miles traveled (VMT), and thereby reduce the consumption of transportation fuels; and, (iii) reduce the carbon content of transportation fuels.

3.5.1 Pavley Standards (AB 1493)

As enacted in 2002, AB 1493 (Pavley) required the CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other non-commercial personal transportation vehicles. The bill required that the CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. The CARB adopted the standards in 2004. In 2010, the CARB Executive Officer approved revisions to the motor vehicle GHG standards to harmonize the state program with the national program for 2012–2016 model years discussed above (see measure REG-AQ-8 in Appendix 4.1-3 of the EIR and REG-GHG-5 in Appendix 4.1-7 of the EIR).

3.5.2 Low Carbon Fuel Standard

Executive Order S-1-07 (January 18, 2007)⁸ requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by the CARB

⁵ California Public Utilities Commission, California's Zero Net Energy Policies and Initiatives, 2013. Available at: <http://www.cpuc.ca.gov/NR/rdonlyres/C27FC108-A1FD-4D67-AA59-7EA82011B257/0/3.pdf>. Accessed: November 2015.

It is expected that achievement of the zero net energy goal will occur via revisions to the Title 24 standards.

⁶ For additional information on the Project's ZNE residences, please refer to ConSol's Building Analysis Report, 2017, prepared for the Alternative.

⁷ California Energy Commission, 2016 Residential Compliance Manual. Available at: http://www.energy.ca.gov/2015publications/CEC-400-2015-032/chapters/chapter_7-Solar_Ready.pdf. Accessed: March 2017.

⁸ Low Carbon Fuel Standard Program (EO S-01-07), 2007. Available at: <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>. Accessed: November 2015.

by 2020.⁹ In 2009, the CARB approved the Low Carbon Fuel Standard (LCFS) regulations, which became fully effective in April 2010. Consequently, the ECP assumes that the LCFS will remain in effect during construction and operation of the Alternative (*see measure REG-GHG-4 in Appendix 4.1-7 of the EIR*).

3.5.3 Advanced Clean Cars

In 2012, the CARB approved the Advanced Clean Cars (ACC) program,¹⁰ a new emissions-control program for model years 2017–2025. (This program is sometimes referred to as “Pavley II.”) The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHG emissions.

Implementation of the Pavley standards will reduce emissions from light-duty on-road vehicles. The ACC standards will result in approximately 3 percent more reductions from passenger vehicles than the Pavley standards by the year 2020, 12 percent by 2025, 27 percent by 2035, and 33 percent by 2050¹¹ (*see measure REG-AQ-8 in Appendix 4.1-3 and REG-GHG-5 in Appendix 4.1-7 of the EIR*).

3.5.4 Transportation Sector GHG Emissions (SB 375)

Transportation Sector GHG Emissions (SB 375) (2008) addresses GHG emissions associated with the transportation sector. Specifically, SB 375 required the CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations (MPOs) are then responsible for preparing a Sustainable Communities Strategy within their Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets.

In 2010, the CARB adopted the SB 375 targets for the regional MPOs. The targets for the San Diego Association of Governments (SANDAG) region are a 7 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035.

SANDAG completed and adopted its first Sustainable Communities Strategy (SCS) in 2011. The CARB, by resolution, accepted SANDAG’s GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB’s 2020 and 2035 GHG emission reduction targets for the region.

SANDAG adopted the next iteration of its SCS in accordance with statutorily-mandated timelines. More specifically, in 2015, SANDAG adopted San Diego Forward: The Regional Plan. Like the first SCS, the CARB determined that this planning document meets CARB’s 2020 and 2035 reduction targets for the region.

As discussed in Appendix 4.1-7 of the EIR, the Alternative is consistent with the policy objectives of SB 375 and SANDAG’s related regional planning projections. Indeed, as part of

⁹ Carbon intensity is a measure of the GHG emissions associated with the various production, distribution and use steps in the “lifecycle” of a transportation fuel.

¹⁰ California Air Resources Board, Advanced Clean Cars, 2012. Available at: http://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc.htm. Accessed: November 2015.

¹¹ CARB. Advanced Clean Cars Summary. Available at: https://www.arb.ca.gov/msprog/clean_cars/accpercent20summary-final.pdf. Accessed: June 2017.

the master-planned Otay Ranch community, the Alternative is consistent with long-term, established development projections for this portion of unincorporated San Diego County; would minimize VMT by developing a mix of on-site, resident-serving uses; and, utilizes design principles to encourage non-vehicular modes of travel.

3.5.5 Executive Order B-16-2012

As issued by Governor Brown in March 2012, Executive Order B-16-2012 directs state entities under the Governor's direction and control to support and facilitate development and distribution of zero-emission vehicles (ZEVs). This Executive Order also sets a long-term target of reaching 1.5 million ZEVs on California's roadways by 2025. On a statewide basis, the Executive Order also establishes a GHG emissions reduction target from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on ZEVs that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

3.5.6 Electric Vehicle Plug-Ins

Pre-wiring for the installation of electric vehicle (EV) charging equipment would be implemented per the 2016 CALGreen Building Code (effective January 1, 2017) (see *measure REG-GHG-6 in Appendix 4.1-7 of the EIR*).

3.6 Water and Wastewater-Related Regulatory Framework

California's existing regulatory framework advances important energy conservation objectives associated with water-related energy consumption, as described below, through requirements to minimize the amount of potable and non-potable water utilized.

3.6.1 California Green Building Standards Code (Title 24, Part 11)

As previously discussed in *section 3.4.2* above, the California Green Building Standards Code (Part 11 of Title 24; aka, CALGreen) establishes minimum mandatory standards, as well as voluntary standards, pertaining to water conservation, among other topics. For example, CALGreen requires the use of low-flow fixtures; and, all Alternative-related plumbing products will comply with applicable CALGreen requirements (see *measure REG-GHG-8 in Appendix 4.1-7 of the EIR*).

3.6.2 Water Use Reduction

The Alternative would comply with Executive Order B-29-15, which calls for a 25 percent reduction in total water use below 2013 levels.

Additionally, Otay Water District (OWD) has adopted a 20 percent reduction in water use¹² that will be mandated for this Alternative (see *measure REG-GHG-9 in Appendix 4.1-7 of the EIR*).

Finally, through the Alternative's site plan process and, in the case of individual homeowners, the Alternative's Covenants, Conditions, and Restrictions (CC&Rs), the Water Conservation Plan will require compliance with the County's "Water Conservation in

¹² Additional information for reduction in indoor and outdoor water usage can be found in the Project's Water Conservation Plan (2017), prepared by Dexter Wilson Engineering, Inc.

Landscaping Ordinance” (aka, “Model Landscape Ordinance”)¹³ for all outdoor landscapes in the Alternative, including common areas, public spaces, parkways, medians, parking lots, parks, and all builder or homeowner installed private front and backyard landscaping (see *measure REG-GHG-10 in Appendix 4.1-7 of the EIR*).

3.7 Solid Waste-Related Regulatory Framework

California’s existing regulatory framework advances important energy conservation objectives associated with solid waste-related energy consumption, as described below, through requirements to reduce and recycle waste.

3.7.1 California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989, as modified by AB 341, requires each jurisdiction’s source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; (2) diversion of 50 percent of all solid waste on and after January 1, 2000; and (3) diversion of 75 percent of all solid waste on or after 2020, and annually thereafter. The California Department of Resources Recycling and Recovery (CalRecycle) is required to develop strategies, including source reduction, recycling, and composting activities, to achieve the 2020 goal.

CalRecycle published a discussion document, entitled *California’s New Goal: 75 Percent Recycling*, which identified concepts that would assist the State in reaching the 75 percent goal by 2020.¹⁴ Subsequently, in October 2013, CalRecycle released a revised concept list, entitled Update on AB 341 Legislative Report: Statewide Strategies to Achieve the 75 Percent Goal by 2020.¹⁵

Project-wide curbside recycling for single-family, multi-family, school, commercial, and retail land uses will be provided in accordance with the California Integrated Waste Management Act (AB 939)¹⁶ (see *measure REG-GHG-7 in Appendix 4.1-7 of the EIR*).

3.8 Construction-Related Regulatory Framework

3.8.1 Reduce Idling Time

Per the CARB’s Airborne Toxic Control Measure 13 (CCR, Title 13, Chapter 10, Section 2485),¹⁷ the Alternative will not allow construction vehicle idling time to exceed 5 minutes unless more time is required per engine manufacturers’ specifications or for safety reasons (see *measure REG-AQ-4 in Appendix 4.1-3 of the EIR*).

¹³ San Diego County, Landscape Ordinance No. 10032, 2010. Available online at: http://www.sandiegocounty.gov/content/dam/sdc/dplu/docs/POD_08-016_Landscape_Ordinance.pdf. Accessed: November 2015.

¹⁴ CalRecycle, California’s New Goal: 75 percent Recycling, 2012. Available online at <http://www.calrecycle.ca.gov/75percent/Plan.pdf>. Accessed: November 2015.

¹⁵ CalRecycle, Update on AB 341 Legislative Report: Statewide Strategies to Achieve the 75 Percent Goal by 2020, 2013. Available online at <http://www.calrecycle.ca.gov/75percent/UpdateOct13.pdf>. Accessed: November 2015.

¹⁶ CalRecycle, History of California Solid Waste Law, 1985-1989: Statutes of 1989: AB 939, 1997. Available online at: <http://www.calrecycle.ca.gov/laws/legislation/calhist/1985to1989.htm>. Accessed: November 2015.

¹⁷ California Air Resource Board, § 2485 - Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, 2003. Available at: <http://www.arb.ca.gov/regact/idling/fro1.pdf>. Accessed: November 2015.

4. LOCAL REGULATORY FRAMEWORK

4.1 County of San Diego General Plan

Multiple elements of the County's General Plan (County of San Diego 2011) include a host of strategies and policies that serve to facilitate energy conservation benefits. For example, the following non-exclusive list of General Plan strategies serve to facilitate energy efficiency and smart growth:

- Strategy A-1: Reduce vehicle trips generated, gasoline/energy consumption, and greenhouse gas emissions.
- Strategy A-2: Reduce non-renewable electrical and natural gas energy consumption and generation (energy efficiency).
- Strategy A-3: Increase generation and use of renewable energy sources.
- Strategy A-4: Reduce water consumption.
- Strategy A-5: Reduce and maximize reuse of solid wastes.
- Strategy A-6: Promote carbon dioxide consuming landscapes.
- Strategy A-7: Maximize preservation of open spaces, natural areas, and agricultural lands.

The Otay SRP includes further discussion of energy conservation strategies and policies applicable to the Alternative.¹⁸ Specifically, the Otay SRP directs that Otay Ranch "wisely use and manage limited resources," as defined to include water and energy. The Otay SRP also directs that the volume of trash be reduced and recycled, and that air quality be protected through minimizing reliance on passenger vehicles.

The goal for energy conservation, as stated in the Otay SRP, is to "establish Otay Ranch as a showcase for the efficient utilization of energy resources and the use of renewable energy resources." The resulting policies include the requirement to "prepare a non-renewable energy conservation plan for each SPA [specific planning area]." This ECP has been prepared in light of that requirement.

The County's General Plan also includes Conservation and Open Space (COS) Element, which are goals and policies that are designed to reduce the emissions of criteria air pollutants, emissions of GHGs, and energy use in buildings and infrastructure, while promoting the use of renewable energy sources, conservation, and other methods of efficiency. The Alternative will comply these requirements with a focus on COS-14 (Sustainable Land Development).

4.2 County of San Diego Climate Action Plan

The County of San Diego is in the process of developing a Climate Action Plan (CAP) that will serve as a comprehensive strategy guide to reduce GHG emissions in the unincorporated communities of San Diego County. The CAP will outline specific reduction methods residents and businesses can implement to reduce GHG emissions and aid the County meeting

¹⁸ Available at: <http://www.sandiegocounty.gov/dplu/docs/OtayRanchGenDevPlanVol2.pdf>.
Accessed: November 2015.

state-mandated GHG reduction targets. The CAP will result in energy conservation co-benefits.

4.3 Comprehensive Renewable Energy Plan

The Comprehensive Renewable Energy Plan (CREP) researches and develops renewable energy options in the County of San Diego.¹⁹ This plan covers the residential, commercial, and industrial sectors of the County, with a particular focus on unincorporated areas, and presents a comprehensive approach to renewable energy and energy efficiency.

4.4 Strategic Plan to Reduce Waste

In line with CalRecycle's waste diversion goal (*see section 3.7.1 above*), the County of San Diego Strategic Plan to Reduce Waste outlines near, mid and long term programs and policies to increase the County's solid waste diversion rate to meet State targets and support other county initiatives such as the CAP.²⁰ In April of 2017, the County adopted a diversion goal of 75 percent by 2025.

¹⁹ Planning and Development Services, San Diego County. *Phase I of The Comprehensive Renewable Energy Plan (CREP) Report Prepared for the County Of San Diego*, 2015. Available at: <http://www.sandiegocounty.gov/content/dam/sdc/pds/advance/CREP/CREP-report-initial-draft.pdf>. Accessed: June 2017.

²⁰ Department of Public Works, San Diego County. *Strategic Plan to Reduce Waste*, 2017. Available at: http://www.sandiegocounty.gov/content/dam/sdc/dpw/SOLID_WASTE_PLANNING_and_RECYCLING/Files/Final_Strategic%20Plan.pdf. Accessed: June 2017.

5. PROJECT DESIGN FEATURES

5.1 Energy-Related Project Design Features

5.1.1 Natural Gas Fireplaces

Prior to the issuance of residential building permits, the Land Exchange Alternative applicant or its designee shall submit building plans illustrating that no wood burning stoves or fireplaces would be constructed. Single family residences within the Alternative only shall be allowed to include natural gas fireplaces (*see measure PDF-AQ/GHG-1 in Appendix 4.1-3 and Appendix 4.1-7 of the EIR*).

5.1.2 Zero Net Energy Residences

Prior to the issuance of residential building permits, the Land Exchange Alternative applicant or its designee shall submit building plans illustrating compliance with the zero net energy (ZNE) design standards defined by the California Energy Commission (*see measure PDF-AQ/GHG-2 in Appendix 4.1-3 and Appendix 4.1-7 of the EIR*).

5.1.3 Non-Residential Energy Improvement Standards

Prior to the issuance of non-residential building permits, the Land Exchange Alternative applicant or its designee shall submit building plans illustrating that the Land Exchange Alternative's non-residential land uses shall achieve a 10% greater building energy efficiency than required by the 2016 state energy efficiency standards in Title 24, Part 6 of the California Code of Regulations (*see measure PDF-AQ/GHG-3 in Appendix 4.1-3 and Appendix 4.1-7 of the EIR*).

5.1.4 Energy Star Appliances

All appliances (washer/dryers, refrigerators, and dishwashers) that will be installed by builders in residences and commercial businesses shall be Energy Star rated or equivalent (*see measure PDF-AQ/GHG-4 in Appendix 4.1-3 and Appendix 4.1-7 of the EIR*).

5.1.5 Solar Water Heating

Prior to the issuance of private recreation center building permits, the Land Exchange Alternative applicant or its designee shall submit swimming pool heating design plans to the County of San Diego County for review and approval. The design plans shall demonstrate that swimming pools located at private recreation centers in the Project Area are designed and shall be constructed to use solar water heating or other technology with an equivalent level of energy efficiency (*see measure PDF-AQ/GHG-5 in Appendix 4.1-3 and Appendix 4.1-7 of the EIR*).

5.2 Mobile-Related Project Design Features

5.2.1 EV Charging Stations

Prior to the issuance of residential building permits, the Alternative applicant or its designee shall submit plans for the installation of one Level 2 electric vehicle (EV) charging station in the garage in half of all residential units to San Diego the County of San Diego for review and approval. Prior to the issuance of non-residential building permits, the applicant or its designee shall submit plans for the installation of 10 Level 2 EV charging stations in parking spaces located in the Village Core's commercial development area and P1 through P4 park

areas to San Diego the County of San Diego for review and approval (*see measure PDF-AQ/GHG-6 in Appendix 4.1-3 and Appendix 4.1-7 of the EIR*).

5.2.2 Transportation Demand Management Program

The Alternative applicant or its designee shall implement a Transportation Demand Management (TDM) Program to facilitate increased opportunities for transit, bicycling, and pedestrian travel, as well as provide the resources, means, and incentives for ride-sharing and carpooling (*see measure PDF-TR-1 in Appendix 4.1-9 of the EIR*). The following components will be included in the Transportation Demand Management program:

5.2.2.1 Improved Design of Development

Per California Air Pollution Control Officers Association (CAPCOA) 2010, measure #LUT-9, the Alternative will include improved design elements to enhance walkability and connectivity. Improved street network characteristics within a neighborhood include street accessibility, usually measured in terms of average block size, proportion of four-way intersections, or number of intersections per square mile. Design is also measured in terms of sidewalk coverage, building setbacks, street widths, pedestrian crossings, presence of street trees, and a host of other physical variables that differentiate pedestrian-oriented environments from auto-oriented environments.

5.2.2.2 Bicycle Access

Per CAPCOA 2010, measure #LUT-8, the Alternative will be located within 1/2 mile of an existing Class I path or Class II bike lane. The project design includes a comparable network that connects the project uses to the existing offsite facilities.

Also, per CAPCOA measure #SDT-9, the Alternative will provide for, contribute to, or dedicate land for the provision of off-site bicycle trails linking the Alternative to designated bicycle commuting routes in accordance with an adopted citywide or countywide bikeway plan.

5.2.2.3 Pedestrian Access

Per CAPCOA 2010, measure #SDT-1, the Alternative will provide a pedestrian access network that internally links all uses and connects to existing or planned external streets and pedestrian facilities contiguous with the project site. The Alternative will minimize barriers to pedestrian access and interconnectivity; and physical barriers such as walls, landscaping, and slopes that impede pedestrian circulation will be eliminated. This aspect of the Alternative design will help reduce and minimize vehicle trips.

5.2.2.4 Traffic Calming Measures

Per CAPCOA 2010, measure #SDT-2, Alternative design will include pedestrian/bicycle safety and traffic calming measures in excess of jurisdictional requirements. Roadways will be designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips with traffic calming features. Traffic calming features may include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others.

5.2.2.5 Dedicated Land for Pedestrian and Bike Trails

Per CAPCOA 2010, measure #SDT-9, the Alternative will provide for, contribute to, or dedicate land for the provision of offsite pedestrian and bicycle trails linking the Proposed

Alternative to designated bicycle commuting routes in accordance with an adopted citywide or countywide bikeway plan.

Specific details related to the planned pedestrian and bike trails include:

- A primary trail component, which is the Community Pathway located along the Proctor Valley Road. Approximately 4.6 miles of Community Pathway are proposed along the Proctor Valley Road. A “Park to Park” loop (Specialty Trail, as defined in the County Trails Master Plan, Section 7.3 – Specialty Trails) within Village 14 will connect a series of parks and recreational amenities to the Community Pathway along Proctor Valley Road; and
- Trail segments of about 3.0 miles planned within the south and central portions of the residential neighborhoods, linking the parks to the Community Pathway along the “Park to Park” loop. The Community Pathway also connects to the Chula Vista Regional Trail network to the southwest at East Lake and Rolling Hills Ranch and to trails within the National Wildlife Refuge to the north in Jamul.

5.2.2.6 Ride-Sharing Program

Per CAPCOA 2010, measure #TRT-3, the Alternative will include a ride-sharing program and a permanent transportation management association membership and funding requirement. Funding may be provided by Community Facilities, District, or County Service Area, or other non-revocable funding mechanism. The project will promote ride-sharing programs through a multi-faceted approach such as:

- Designating a certain percentage of parking spaces for ride sharing vehicles,
- Designating adequate passenger loading/unloading and waiting areas for ride-sharing vehicles, and
- Providing a web site or message board for coordinating rides.

5.2.2.7 Commute Trip Reduction Marketing

Per CAPCOA 2010, measure #TRT-7, the Alternative will implement marketing strategies to reduce commute trips. Information-sharing and marketing are important components to successful commute-trip reduction strategies. Implementing commute-trip reduction strategies without a complementary marketing strategy will result in lower VMT reductions. Marketing strategies may include the following:

- New employee orientation of trip reduction and alternative mode options,
- Event promotions, and
- Publications.

5.2.2.8 School Pool Program

Per CAPCOA 2010, measure #TRT-10, this project will create a ridesharing program for school children. Most school districts provide busing services to public schools only. School Pool will help match parents to transport students to private schools, or to schools where students cannot walk or bike but do not meet the requirements for busing.

5.2.2.9 Project Contributions to Transportation Infrastructure Improvement Projects

The Alternative should contribute to traffic-flow improvements or other multi-modal infrastructure projects that reduce emissions and are not considered substantially growth-inducing. The local transportation agency should be consulted for specific needs.

5.3 Water and Wastewater-Related Project Design Features

5.3.1 Water Conservation Plan

The Alternative will implement non-mandated water conservation measures as part of its Water Conservation Plan.²¹ Specifically, the Project will implement the following water reduction measures to reduce potable water consumption.

5.3.1.1 Hot Water Pipe Insulation

All hot water pipes in residential and non-residential development shall be insulated and hot and cold water piping shall be separated (*see measure PDF-UT-1 in Appendix 4.1-1F of the EIR*).

5.3.1.2 Pressure Reducing Valves

The maximum service pressure in all residential and non-residential development shall be set to 60 pounds per square inch to reduce potential leakage and prevent excessive flow of water from all appliances and fixtures (*see measure PDF-UT-2 in Appendix 4.1-1F of the EIR*).

5.3.1.3 Water Efficient Dishwashers

In line with the residential and commercial appliances installed by the Project's builders (*section 5.1.3 above*), water efficient dishwashers that carry the ENERGYSTAR label shall be installed in all residential units and commercial uses where appropriate (*see measure PDF-UT-3 in Appendix 4.1-1F of the EIR*).

5.3.1.4 Landscaping

All Project landscaping shall comply with the Model Water Efficient Landscape Ordinance, California Code of Regulations Title 23, Division 2, Chapter 2.7 (Section 490 et seq.) (*see measure PDF-UT-4 in Appendix 4.1-1F of the EIR*).

In addition, where feasible, the Alternative will provide graywater systems and rainwater harvesting for residential units and will contribute toward water supply offsets in the event OWD declares a Drought Level 3 emergency. At buildout of the Land Exchange Alternative, implementation of water conservation measures would result in an estimated water savings of 57,394 gallons per day for the residential component of the Alternative. These savings represent approximately 6.4 percent of the total project water use and will help lower per capita water use within OWD.

²¹ Otay Ranch Village 14 and Planning Areas 16/19 – Land Exchange EIR Alternative Water Conservation Plan, 2017. Prepared by: Dexter Wilson Engineering, Inc.

6. SUMMARY OF ENERGY CONSERVATION MEASURES

Table 1 below summarizes the regulatory compliance measures and the Project-specific design features that would be implemented to reduce the Proposed Alternative's energy consumption.

Table 1. Summary of Energy Conservation Measures		
ECP Section	Description	Measure/Feature Number
Renewable Energy Procurement		
3.4.1	Renewable Portfolio Standards	REG-GHG-3
Building Energy		
3.4.2	California Building Efficiency Standards (Title 24, Parts 6 and 11)	REG-AQ-6 and REG-GHG-1
3.4.4	Solar-Ready Units	REG-AQ-7 and REG-GHG-2
5.1.1	Natural Gas Fireplaces	PDF-AQ/GHG-1
5.1.2	Zero Net Energy Residences	PDF-AQ/GHG-2
5.1.3	Non-Residential Energy Improvement Standards	PDF-AQ/GHG-3
5.1.4	Energy Star Appliances	PDF-AQ/GHG-4
5.1.5	Solar Water Heating	PDF-AQ/GHG-5
Mobile		
3.5.1	Pavley Standards	REG-AQ-8 and REG-GHG-5
3.5.2	Low Carbon Fuel Standard	REG-GHG-4
3.5.3	Advanced Clean Cars	REG-AQ-8 and REG-GHG-5
3.5.6	EV Plug-Ins	REG-GHG-6
5.2.1	EV Charging Stations	PDF-AQ/GHG-6
5.2.2	TDM Program	PDF-TR-1
Water		
3.6.1	California Green Building Standards Code (Title 24, Part 11)	REG-GHG-8
3.6.2	Water Use Reduction	REG-GHG-9 and REG-GHG-10
5.3.1.1	Hot Water Pipe Insulation	PDF-UT-1
5.3.1.2	Pressure Reducing Valves	PDF-UT-2

Table 1. Summary of Energy Conservation Measures		
ECP Section	Description	Measure/Feature Number
5.3.1.3	Water Efficient Dishwashers	PDF-UT-3
5.3.1.4	Water Efficient Residential Landscaping	PDF-UT-4
Solid Waste		
3.7.1	Solid Waste Management	REG-GHG-7
Construction		
3.8.1	Reduce Idling Time During Construction	REG-AQ-4