

CLIMATE ACTION PLAN



City of Rolling Hills



The City of Rolling Hills would like to thank the South Bay Cities Council of Governments and its staff for their contribution to the research, writing and production of our City's Climate Action Plan. Funding was generously provided by a grant through the Strategic Growth Council and Los Angeles County Metropolitan Transportation Authority. Additional funding for the Energy Efficiency Chapter was provided by Southern California Edison and The Gas Company



City of Rolling Hills
January 2018

CLIMATE ACTION PLAN

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SOUTH BAY CITIES
COUNCIL OF GOVERNMENTS

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Funded by:



**California Strategic
Growth Council**



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Climate action planning efforts vary in scope, size and focus. One common aim of this work is to establish greenhouse gas inventories and future forecasts. Another major component is developing the framework for selecting, evaluating, and organizing strategies that help advance local climate planning goals. For example, individual agencies may implement policies, optional or mandatory, related to land use development that operate outside the CEQA process. Within the CEQA process, a qualified CAP framework offers the ability to streamline future CEQA greenhouse gas analyses by being able to tier off the climate action plan. Depending on local factors, such as anticipated levels of development, a qualified CAP is not necessary and agencies would continue to utilize the framework for informing the selection and evaluation of climate planning strategies within the local context. The South Bay Cities Council of Governments CAP framework is unqualified, and offers cities a planning tool with optional strategies. The analysis and optional strategies in the CAP can be used in the future, by way of example, to help create a Qualified Climate Reduction Strategy under CEQA, to create GHG thresholds to be used in CEQA analysis and can be used to update the City's General Plan.

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Introduction



The City of Rolling Hills is committed to providing a more livable, equitable, and economically vibrant community and sub-region.

As a part of these efforts, the City of Rolling Hills, in cooperation with the South Bay Cities Council of Governments, has developed a Climate Action Plan (CAP) to reduce Greenhouse Gas (GHG) emissions within the city. The City's CAP serves as a guide for action by setting GHG emission reduction goals and establishing strategies and policies to achieve desired outcomes over the next 20 years.

Purpose and Need for the Climate Action Plan

Jurisdictions in California are proactively working to find innovative solutions to reduce emissions. Many communities have taken local control of the issue by developing plans or strategies that will lower GHG emissions across various sectors in a manner that is most feasible for their community. The City of Rolling Hills CAP is a valuable tool in this effort. It identifies community-wide strategies to lower GHG emissions from a range of sources within the jurisdiction, including transportation, land use, energy generation and consumption, water, and waste. Development and adoption of this CAP allows the City of Rolling Hills to:

- Understand the community GHG emissions that it now produces
- Identify strategies at the local level that will result in GHG emissions reductions
- Develop a plan to implement strategies
- Monitor and report progress toward climate change goals

For the purpose of:

- Enhancing the community and neighborhoods to help ensure a safe, healthy, and sustainable environment
- Promoting and encouraging the adoption and growth of zero emission vehicles
- Advancing strategies for housing and buildings that reduce energy and water usage
- Promoting behavior change that reduces waste
- Transforming built environments into green spaces
- Advancing strategies to encourage and support the market for renewable energy and storage

Alignment with California’s Climate Change Action Plan

Since the 1990s, the State of California has adopted a number of policies to address Climate Change, with legislation such as Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32), and the 2017 Climate Change Scoping Plan Update. All of these documents set ambitious targets for reductions in greenhouse gas emissions within the State with the most recent being a 40 percent reduction in GHG by 2030 compared to 1990 levels. Apart from setting targets, the State has also passed a variety of legislation over the past 20 years to encourage the development of renewable energy sources, apply financial disincentives for carbon emissions from business and industry, reduce energy and water usage, increase building energy efficiency, and reduce emissions from waste and mobile sources such as fossil-fuel based transportation. The CAP advances these goals and streamlines City efforts to deploy specific initiatives and programs that target the reduction of GHG emissions, while integrating these efforts with the other priorities such as economic development, regional mobility and connectivity, and improving the local air and water quality.

Table 1 summarizes the key policies and legislation to address Climate Change adopted by the State of California.

Table 1: Regulatory Setting

Bill & Year of Issuance	Title	Description	Implementing Agency
Public Law (PL) 88-206 (1963)	Clean Air Act	Federal policy to address global climate change through monitoring, reporting, and regulation of GHG emissions.	USEPA
AB 1493 (2002)	Pavley I and II	GHG emissions must be reduced from passenger vehicles, light-duty trucks, and other non-commercial vehicles for personal transportation.	California Air Resources Board (CARB)
Executive Order S-20-04 (2004)	California Green Building Initiative	Reduce energy use in state-owned buildings 20% from a 2003 baseline by 2015.	California Energy Commission (CEC)
Executive Order S-3-05 (2005)	Greenhouse Gas Initiative	Set statewide GHG emissions targets to 2000 levels by 2010; 1990 levels by 2020; and 80% below 1990 levels by 2050.	CARB
Assembly Bill (AB) 32 (2006)	Global Warming Solutions Act	State must reduce GHG emissions to 1990 levels by 2020.	CARB
SB 1368 (2006)	Emission Performance Standards	Requires the California Public Utilities Commission (CPUC) to establish a performance standard for base-load generation of GHG emissions by investor owned utilities.	CEC
Senate Bill (SB) 1078 (2006), 107 (2017), and X1-2 (2011), and Executive Order S-14-08 (2008) and S-21-09 (2011)	Renewable Portfolio Standard	California investor-owned utilities must provide at least 33% of their electricity from renewable resources by 2020.	California Public Utilities Commission
Assembly Bill 118 (Nunez, Chapter 750, 2007) (2007)	Alternative Fuels and Vehicles Technologies	The bill would create the Alternative and Renewable Fuel and Vehicle Technology Program, to be administered by the Energy Commission, to provide funding to public projects to develop and deploy innovative technologies that transform California's fuel and vehicle types to help attain the state's climate change policies.	CEC
Executive Order S-1-07 (2007)	Low Carbon Fuel Standard	The carbon intensity of transportation fuels in California must be lowered 10% by 2020.	CARB
AB 811 (2008)	Contractual Assessments: Energy Efficiency Improvements	Provides financing to allow property owners to finance renewable energy generation and energy efficiency improvements.	California cities and counties
Senate Bill 375 (Steinberg, Chapter 728, 2008) (2008)	Sustainable Communities + Climate Protection Act	Requires Air Resources Board to develop regional greenhouse gas emission reduction targets for passenger vehicles. ARB is to establish targets for 2020 and 2035 for each region covered by one of the State's 18 metropolitan planning organizations. MPOS to develop and incorporate a sustainable communities strategy which will be the land use allocation in the RTP.	Regional Planning Agencies
AB 474 (2009)	Contractual Assessments: Water Efficiency Improvements	Designed to facilitate the installation of permanent water conservation and efficiency improvements on private property through a voluntary financing program between public entities and property owners.	California cities and counties
SB X7-7 (2009)	Statewide Water Conservation	The carbon intensity of transportation fuels in California must be lowered 10% by 2020.	Department of Water Resources
AB 1092 (Levine Chapter 410, 2013) (2013)	Building Standards: Electric Vehicle Charging Infrastructure	Requires the Building Standards Commission to adopt mandatory building standards for the installation of future electric vehicle charging infrastructure for parking spaces in multifamily dwellings and nonresidential development.	California Building Standards Commission (CBSC)
California Code of Regulations (CCR) Title 24 (2016)	2013 Building Efficiency Standards	Statewide green building code that raises the minimum environmental standards for construction of new buildings in California.	CEC
Senate Bill 32 (Chapter 249) (2016)	Global Warming Solutions Act: Emissions Limit	The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The state board is required to approve a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020 and to adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective greenhouse gas emissions reductions. This bill would require the state board to ensure that statewide greenhouse gas emissions are reduced to 40% below the 1990 level by 2030.	CARB

Roles and Responsibilities: Regional Agencies and Local Governments

Regional Agencies

The State has acknowledged that local governments play an important role in helping California achieve its long-term GHG reduction goals. In Los Angeles County, the Southern California Association of Governments (SCAG), Los Angeles County Metropolitan Transportation Authority (Metro), South Coast Air Quality Management District (SCAQMD), and Cities all have sole or partial jurisdiction over a wide range of factors that affect GHG emissions. Councils of Governments can also help local governments identify funding and implement projects that reduce GHG emissions.

SCAG working with Metro developed the 2012–2035 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) for the six-county region of Los Angeles, Orange, Riverside, San Bernardino, Imperial, and Ventura counties. SCAG's efforts focus on developing regional strategies to minimize traffic congestion, promote environmental quality, and provide adequate housing. SCAG and SCAQMD developed the South Coast Air Quality Management Plan (AQMP) which is a comprehensive program designed to bring the South Coast Air Basin into compliance with all federal and State air quality standards. The AQMP places substantial emphasis on reducing motor vehicle miles traveled.

South Bay Cities Council of Governments

This Climate Action Plan is developed through the South Bay Cities Council of Governments (SBCCOG), which received funding from SCE's 2013-2014 Local Government Partnership Strategic Plan Pilots program and the Strategic Growth Council. The SBCCOG is a Joint Powers Authority of 16 cities and contiguous unincorporated areas of the County of Los Angeles. SBCCOG member cities include Carson, El Segundo, Gardena, Hawthorne, Hermosa Beach, Inglewood, Lawndale, Lomita, Manhattan Beach, Palos Verdes Estates, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Torrance, and the Harbor City/San Pedro communities of the City of Los Angeles, along with the County of Los Angeles District 2 and 4 unincorporated areas.



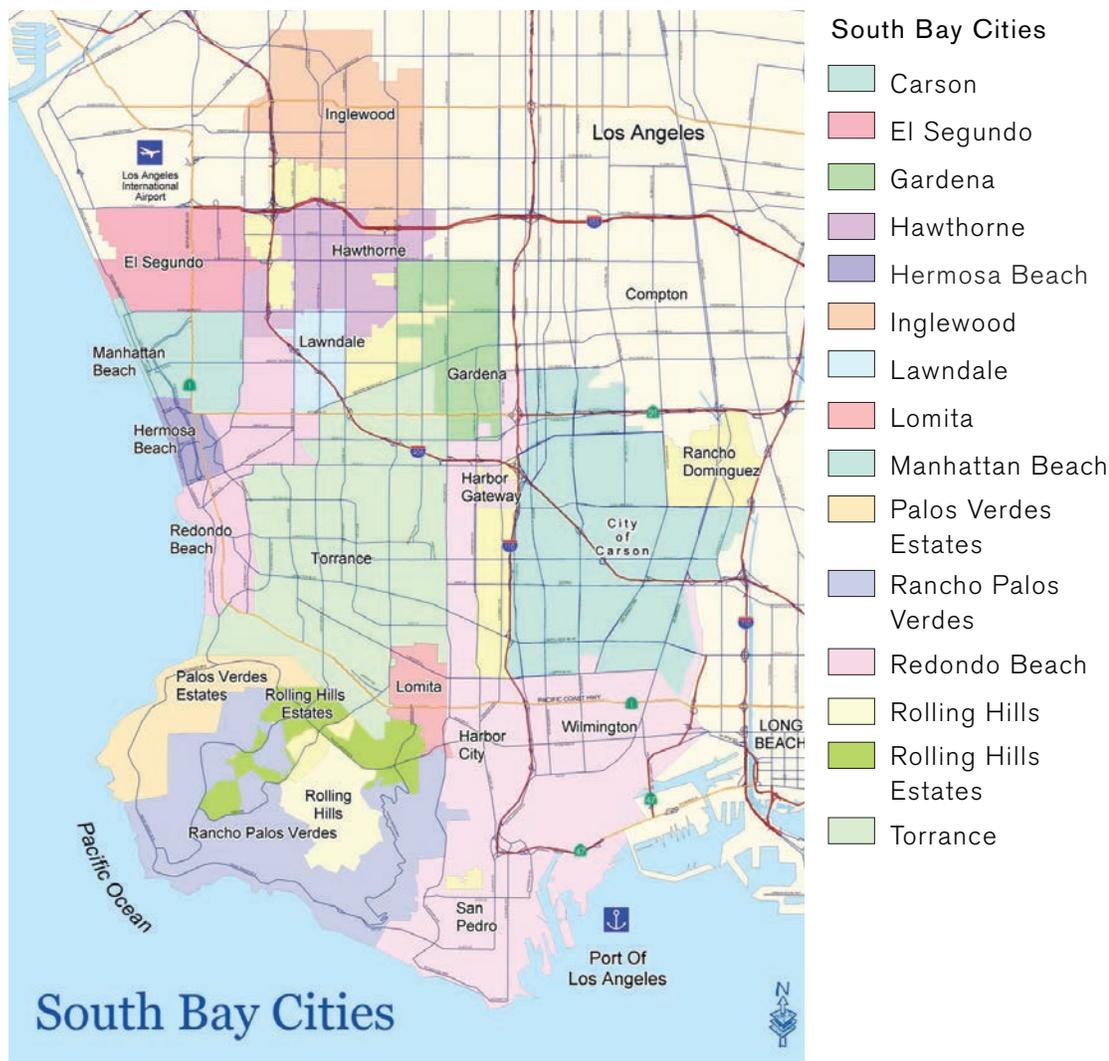


Figure 1: South Bay Member Cities; Source - South Bay Association of Realtors

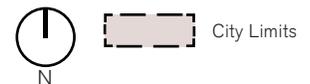
The SBCCOG has demonstrated its commitment to increasing environmental quality and awareness among its residents, local businesses, and jurisdictions while maintaining economic prosperity through effective sub-regional coordination. The effort also helps the SBCCOG meet the first goal of its Strategic Plan for Environment, Transportation and Economic Development: to facilitate, implement and/or educate members and others about environmental, transportation and economic development programs that benefit the South Bay.

SBCCOG has assisted the South Bay sub-region in related programs and policies, including many of the resources identified later in this Climate Action Plan (CAP). The SBCCOG assisted the 15 participating cities (excluding Los Angeles) to develop individual CAP's, resulting in a cost-effective process for the cities, as well as sub-regional coordination among the partner cities related to climate change goals. In addition, the SBCCOG developed a sub-regional CAP that identifies the cumulative efforts and larger strategies for the South Bay and identifies synergies that may compound the success of each city's CAP by coordinating implementation of shared strategies and positioning the sub-region for unique funding opportunities.

City Profile



Figure 2: Rolling Hills City Map; Source - Google maps imagery with overlay



The City of Rolling Hills is currently a community of under 1,900 and approximately 687 households. The City's population is about 74 percent White, 17 percent Asian, 6 percent Hispanic, 1 percent African American, and 3 percent other races/ethnicities.

	2005	2007	2010	2012	% Change 2005-2012
Population	1,912	1,876	1,867	1,880	-1.7%
Households	653	658	663	666	2.0%
Jobs	41	41	40	100	143.9%
Service Population (Population + Jobs)	1,953	1,917	1,907	1,980	1.4%

Table 2: Demographic Data corresponds to GHG inventory years and reflects estimates based on the following sources: 1) U.S. Census Bureau American Community Survey and 2) California Department of Finance

GHG Emissions Overview

Inventories

The first step towards reducing GHG emissions is estimating the baseline and future expected emissions. These estimates are categorized by sources – public facilities and residential energy, on-road transportation, solid waste, water, wastewater, and off-road sources. The City has completed inventories for 2005, 2007, 2010, and 2012. The baseline year is 2005, which means that the future emissions reductions will be measured against emissions that occurred in 2005 (Figure 3). A complete report of the City's GHG inventory can be found in Appendix A, "Energy Efficiency CAP" including Methodology, Inventory & Forecast (inventory and forecast is listed in the "Energy Efficiency CAP Appendix A").

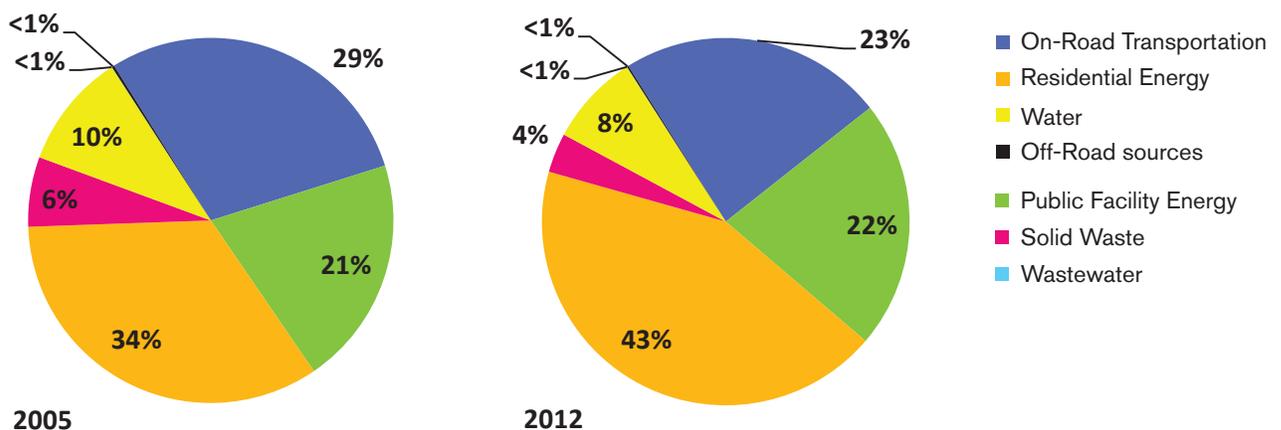


Figure 3: Rolling Hills Community-Wide GHG Emissions by Sector from 2005 and 2012; Source - Appendix A

Sector	2005 (MT CO ₂ e)	2012 (MT CO ₂ e)	% Change 2005 to 2012
Residential Energy	9,753	9,570	-1.9%
On-Road Transportation	8,331	5,159	-38.1%
Public Facility Energy	5,828	4,858	-16.6%
Water	2,937	1,793	-39.0%
Solid Waste	1,774	771	-56.5%
Off-Road Sources	64	33	-48.0%
Wastewater	7	5	-28.1%
Total	28,694	22,190	-22.7%

Table 3: Rolling Hills Community-Wide GHG Emissions by Sector from 2005 and 2012; Source - Appendix A

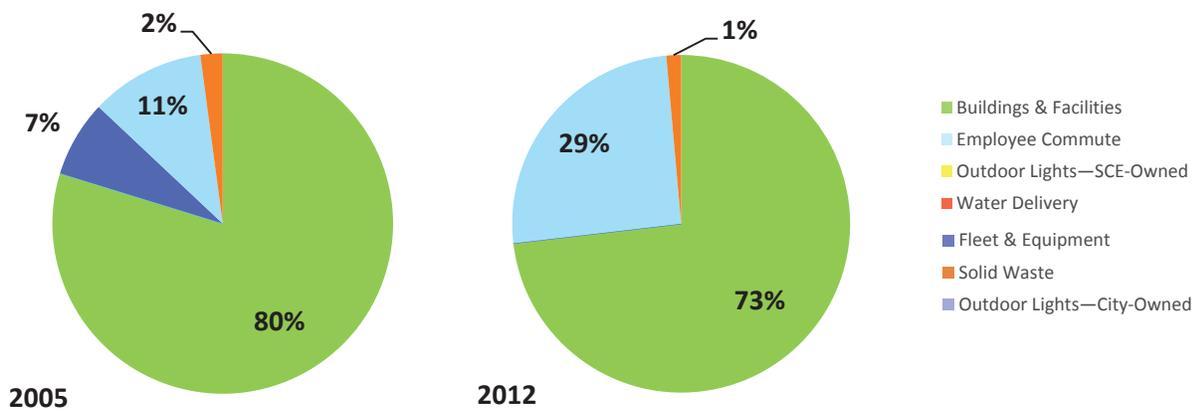


Figure 4: Rolling Hills Municipal GHG Emissions by Sector from 2005 and 2012; Source - Appendix A

Sector	2005 (MT CO ₂ e)	2012 (MT CO ₂ e)	% Change 2005 to 2012
Buildings & Facilities	22	23	5%
Fleet & Equipment	2	0	-100%
Employee Commute	3	8	167%
Solid Waste	1	<1	-24%
Total	28	31	14%

Table 4: Rolling Hills Municipal GHG Emissions by Sector from 2005 and 2012; Source - Appendix A

Forecasts and Target Setting

Emission estimates for future years are scenarios based on assumptions about the future. The 2020 Business As Usual (2020 BAU) scenario assumes that no new policies, plans, programs, or regulations designed to reduce GHG emissions will be adopted or implemented before 2020. This scenario would be the “worst case”. The 2020 and 2035 Adjusted Business As Usual (ABAU) scenarios, in comparison, do take into account the expected reduction impacts resulting from federal and state mandated laws such as higher vehicle fuel efficiency standards and increases in the percentage of renewable energy production.

In 2015, the City set GHG emission reduction goals consistent with the State's AB 32 GHG emission reduction targets. The City's target was calculated as a 15 percent decrease from 2005 levels by 2020 as recommended in the State AB 32 Scoping Plan. A longer-term goal was established for 2035 to reduce emissions by 49% below 2005 levels. These goals put the City on a path towards helping the State meet its long-term 2050 goal to reduce emissions by 80% below 1990 levels. (Tables 5&6)

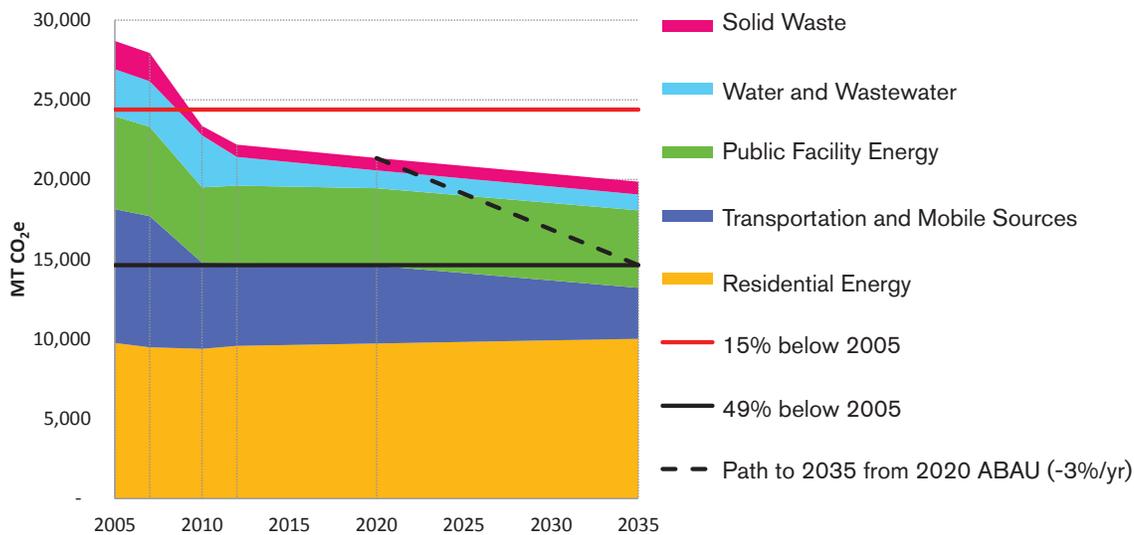


Figure 5: Rolling Hills Community Emissions Inventories, Projections and Targets; Source - Appendix A

Sector	2005	2012	2020	2035
BAU Emissions (MT CO ₂ e)	28,694	22,189	22,243	22,669
Adjusted BAU Emissions (MT CO ₂ e)	28,694	22,189	21,352	19,868
State-Aligned Target (% change from 2005)			-15%	-49%
State-Aligned Target (% change from 2012)			10%	-34%
State-Aligned Emissions Goal (MT CO ₂ e)			24,390	14,634
Reductions from Adjusted BAU needed to meet the Target (MT CO ₂ e)			Target Met	5,235

Table 5: Rolling Hills State-Aligned Community GHG Reduction Targets; Source - Appendix A

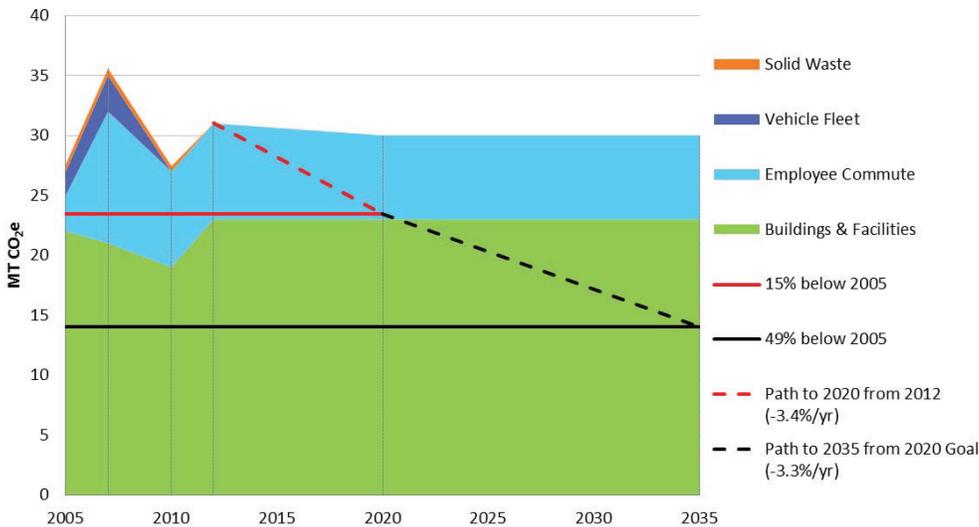


Figure 6: Rolling Hills Municipal Emissions Inventories, Projections and Targets; Source - Appendix A

Sector	2005	2012	2020	2035
BAU Emissions (MT CO ₂ e)	28	31	31	31
Adjusted BAU Emissions (MT CO ₂ e)	28	31	30	30
State-Aligned Target (% change from 2005)			-15%	-49%
State-Aligned Target (% change from 2012)			-24%	-55%
State-Aligned Emissions Goal (MT CO ₂ e)			23	14
Reductions from Adjusted BAU needed to meet the Target (MT CO ₂ e)			7	16

Table 6: Rolling Hills State-Aligned Municipal GHG Reduction Targets; Source - Appendix A

Selected Strategies

Land Use and Transportation

Facilitate pedestrian and neighborhood development and identify ways to reduce automobile emissions including supporting zero emission vehicle infrastructure, improving pedestrian, bicycle, and equestrian infrastructure, promoting public transit service, and supporting reductions in single-occupancy vehicle use.

Energy Efficiency

Emphasize energy efficiency retrofits for existing buildings, energy performance requirements for new construction, water efficient landscaping, financing programs that will allow home owners to obtain low-interest loans for implementing energy efficiency in their buildings.

Solid Waste

Focus on increasing waste diversion and encouraging participation in recycling and composting throughout the community.

Urban Greening

Contain measures that create “carbon sinks” as they store GHG emissions that are otherwise emitted into the atmosphere as well as support health of the community.

Energy Generation & Storage

Demonstrate the City’s commitment to support the implementation of clean, renewable energy while decreasing dependence on traditional, GHG emitting power sources.

Existing Sustainability Efforts



The City of Rolling Hills has a number of policies, plans, and programs that demonstrate its ongoing commitment to sustainability, energy efficiency, and GHG emissions reductions.

Land Use and Transportation Strategies

General Plan Policies

The 1990 Rolling Hills General Plan serves as a blueprint for the long-range physical planning of the City. The Plan contains community goals and policies designed to shape the long-term development of the city, as well as protect its environmental resources. The General Plan's Open Space and Conservation Element and Circulation Element contain a number of policies that reduce energy and water consumption and GHG emissions. City Council has adopted the 2014-2021 Housing Element on Feb 10, 2014, which also contains an energy efficiency policy. Table 7 summarizes these relevant policies.

Source	Element	Objective	Policy
Energy	Circulation Element	Alternative Transportation	CI - 2.1, 2.2, 2.3
	Housing Element	Green Building Method	H - 1.4
	Open Space and Conservation Element	Air Quality	C - 1.9, 1.10
	Open Space and Conservation Element	Energy Conservation	C - 1.6
Water	Open Space and Conservation Element	Water Conservation	C - 1.3

Table 7: Rolling Hills General Plan Policies Related to Energy, Water, and GHG Reductions

Energy Efficiency Strategies

Energy Leadership Partnership

Rolling Hills is a Valued Partner of the SCE's Energy Leader Partnership (ELP) program based on their energy efficiency accomplishments to date. The ELP program is a framework that offers enhanced rebates and incentives to cities that achieve measurable energy savings, reduce peak-time electricity demand and plan for energy efficiency. The program has a tiered incentive structure with threshold criteria required to trigger advancement to the next level of participation.

Property Assessed Clean Energy Financing

Property Assessed Clean Energy (PACE) is a mechanism to finance energy efficiency, renewable energy, and water conservation upgrades to residential facilities. Financing is repaid as a special assessment on their property tax, allowing the homeowner to finance improvement projects that will result in GHG reductions without needing up-front capital.

The City has joined the Home Energy Renovation Opportunity (HERO) in 2013, which is a PACE program for residential upgrades. Products eligible under the HERO program include lighting upgrades, building insulation improvements, water efficiency enhancement, renewable energy production, water heating technologies, and mechanical system upgrades.

Other

SCE Direct Install

In early 2014, the City enrolled its City Hall building in SCE's Direct Install program. Through this program, the City Hall building lighting was retrofitted in April, 2014 and involved upgrading all of the interior 32 Watt T8 fluorescent tubes to 28 Watt T8s, as well as installing occupancy sensors in several areas. The resulting energy savings is 12,050 kWh per year.

Water Efficient Landscape Ordinance (No. 316)

City Council adopted the Water Efficient Landscape Ordinance in 2010. Under the ordinance, landscaped areas for residential and institutional type projects must be designed with less than 40% turf and nonwater wise plant material. Automatic irrigation systems are also required to avoid overspray, and should employ weather-based irrigation controllers with a rain shut off sensor in order to conserve water. The City of Rolling Hills' Environmental Programs webpage includes a number of links for residents and businesses, including the following energy-related topics, programs, and policies:

- Water and landscaping
- Energy saving (including a substantial fact sheet)
- Recycling
- Green waste chipping
- Landscaping
- Electric vehicles

Outdoor Lighting Ordinance (No. 309)

City Council adopted the Outdoor Lighting Ordinance on April 28, 2009, which regulates outdoor lighting on private property throughout the City. Under the ordinance, the use of electric lighting is greatly limited, and a maximum wattage for fixture is also set: lights along walkways and driveways, exterior wall of structures cannot be over 40 watts for structures and 25 watts for walkways and driveways.



Climate Action Plan Categories & Measures

The Climate Action Plan facilitated by the South Bay Cities Council of Governments (SBCCOG) includes five broad categories - Land Use and Transportation, Energy Efficiency, Energy Generation, Solid Waste, and Urban Greening. As part of the efforts under each category, the SBCCOG, working with consultants, identified a broad menu of feasible strategies for the South Bay sub-region. The menu was then presented to the Cities to select specific measures that they would consider for implementation. Based on these selections, estimated reductions in GHG emissions for each category were calculated and compared to the City's adopted target. (Figure 7a)

As depicted in the Figure 7a, the categories included in the CAP, have the potential to reduce approximately 985.4 MT CO₂e/yr. emissions and accomplish the City's reduction target of 15% below 2005 levels by 2020; however, to meet the City's goals of 49% below 2005 levels by 2035, additional measures will be needed. The City will need to reduce approximately 3,000 additional MT CO₂e by 2035 to meet goal (3,000 MT CO₂e represent 20% of 2035 goal). As residential energy use is one of the largest contributors to GHG emissions in the City, supporting strategies that promote renewable energy could greatly move the City towards meeting their goal. Initial research indicates that there is potential for residential solar and residents have indicated some interest. The City will continue to explore this option as additional resources become available.

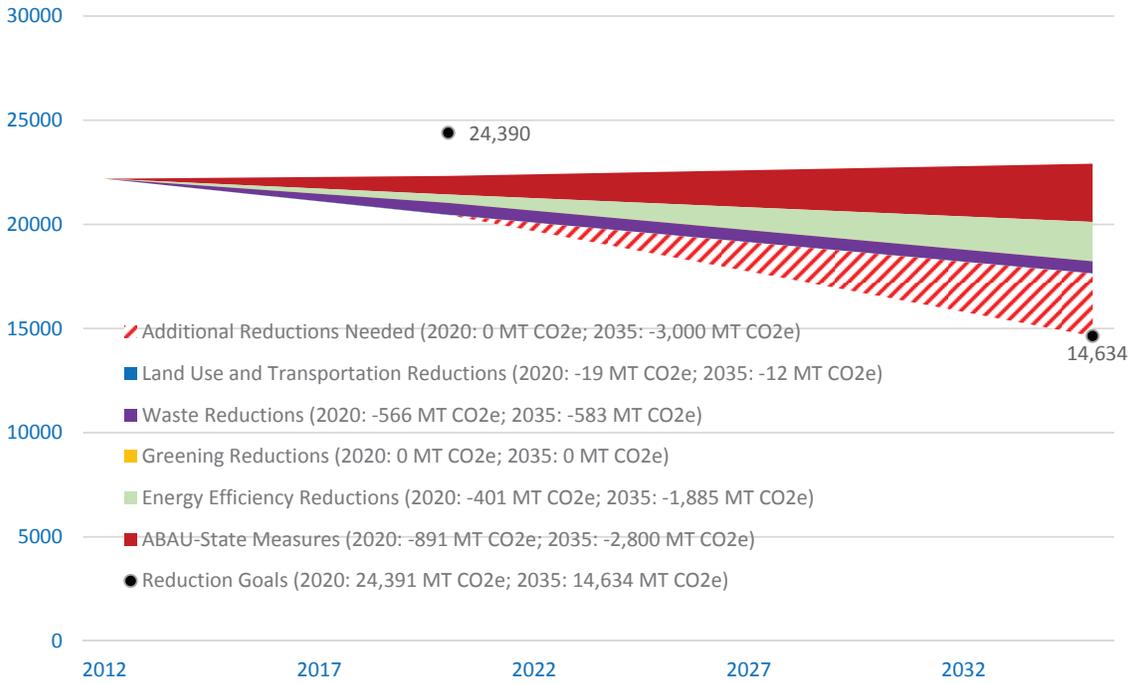


Figure 7a: City of Rolling Hills State and Local GHG Reductions Comparison with Targets 2012-2035 (the baseline year is 2005, the chart is a snapshot of the emissions from 2012 to 2035)

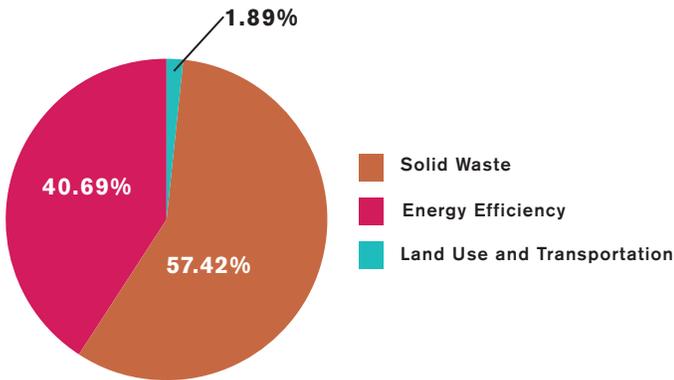


Figure 7b: Rolling Hills 2020 Potential GHG Emission Reduction Potential by Source

The following chapters summarize the measures selected by the City of Rolling Hills under each of the categories (Figure 7b, note that Urban Greening and Energy Generation & Storage are not represented in the figure as these categories either did not achieve significant 2020 emission reductions or were not quantified.) Measures are grouped together under larger goals with accompanying descriptions and associated sub-strategies as applicable. The additional economic, social, and environmental benefits that can be realized with the measures are listed as co-benefits.

How to Read the Document

GOAL LUT: A - ACCELERATE THE MARKET FOR EV VEHICLES

Goal Reference and Title
Identifies individual goals under each category.

Goal Description
Provides an overview of the broad ideas covered under the goal.

Measure Reference and Title
Individual Measures describe specific efforts that cities can undertake within each goal.

Measure Description
Identifies the intended actions for cities under each measure.

Gasoline-fueled vehicles have been one of the primary sources of GHG emissions in cities. By encouraging and helping to develop the Electric Vehicle (EV) market, cities can help consumers choose EVs when purchasing a new vehicle such as: Plug-in Hybrid Electric Vehicles (PHEVs), full Battery Electric Vehicles (BEVs), and Electric Vehicles (EVs).

MEASURE LUT: A1 - EV PARKING POLICIES

EV parking policies, such as free or reduced parking for EVs, can provide incentives to EV adoption. EV parking policies include changes to current parking policies, incentives in future parking agreements, granting new businesses lower parking minimums in exchange for EV or NEV preferential parking, and requiring smaller parking dimensions.

Within the next five years, the City will seek to adopt an ordinance to lower parking minimums for new developments with EV parking. The City will explore the actions listed in table LUT: A1

LUT: A1 Sub-strategies

LUT:A1.1	Offer free parking to EVs
LUT:A1.2	Offer reduced-price EV parking
LUT:A1.3	Lower parking minimums for developments providing EV parking

City Actions

Sub-Strategies Table
Sub-Strategies further break down Measures into action items that the City selected to implement.

Co-Benefits

Co-benefits are listed at the beginning of each chapter and describe the additional community benefits from implementing the reduction strategies. The City has identified eight areas where gains may be accrued beyond reductions in GHG emissions. For instance, increasing the usage of zero emission vehicles also result in better air quality as well as improved public health.





South Bay Land Use and Transportation^(LUT) Strategies

As part of the CAP effort, the SBCCOG has developed a unique suite of LUT strategies for the reduction of GHG emissions in the South Bay sub-region. The LUT measures referenced in this plan as selected by the City of Rolling Hills are strategies developed from two primary sources:

California Air Pollution Control Officers Association – CAPCOA

Sustainable South Bay Strategies - SSBS

-
- | | |
|--|---|
| <ul style="list-style-type: none">• Traditional CAP resource to assess emission reductions from GHG mitigation measures• Published in August 2010• Developed by experts in the field with best available data at the time• Strategies focus around Transit Oriented Development (TOD) | <ul style="list-style-type: none">• South Bay specific resource to assess emission reductions from local GHG mitigation measures• Developed over 12 years of extensive field research on mobility, zero emission vehicles and destinations• Strategies focused around Neighborhood Oriented Development |
|--|---|
-

Table 8: LUT Strategy Sources



Sustainable South Bay Strategy (SSBS)

The SSBS is different from traditional LUT measures in that it does not focus on strategies centered around Transit Oriented Development such as residential density that relies primarily on transit. The SSBS complements the South Bay area because the sub-region is housing dense and transit poor. The SSBS strategies:

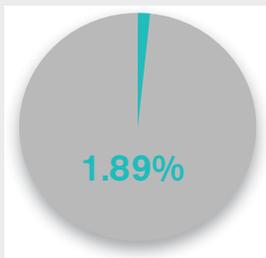
- Facilitate a variety of multi-modal mobility measures; especially walking, cycling, slow speed zero emission vehicles (ZEV) & a slow speed road network that would extend throughout the South Bay.
- Deploy every means possible to shorten trip length or eliminate trips altogether including: fostering the development of especially dense, functionally robust neighborhood centers; providing virtual presence of many destinations; implementing an aggressive sub-regional telework program and a robust fiber network.

The full SSBS report can be found in Appendix B - Sustainable South Bay Strategy.

Land Use and Transportation (LUT)

2020 GHG Reduction Potential

Community Land Use and Transportation



Reduction of 19 MT CO₂ e/yr

100% equals all CAP GHG emission reductions from all CAP strategies. LUT represents 1.89% reduction outlined in LUT Chapter.

Co-benefits



Adaptation Strategy Support



Air Quality



Economy + Jobs



Energy Conservation



Public Health



Resource Conservation



Safer Streets



Transportation System Improvement

The transportation sector produces significant portions of a city's GHG emissions, due to the reliance on fossil fuels.

LUT strategies that offer zero-emissions mobility options or those that modify transportation behaviors can help reduce the amount of carbon that is produced in the City of Rolling Hills. Combining land use and transportation strategies can lead to a broad set of co-benefits and improve the mobility of residents, employers and visitors. As part of the CAP effort, the SBCCOG has developed a unique suite of LUT strategies for the reduction of GHG emissions in the South Bay subregion. The LUT measures, referenced in this CAP, are a combination of strategies from two primary sources:

- Traditional LUT strategies referenced in a GHG emission manual developed by the California Air Pollution Control Officers Association (CAPCOA).
- Strategies developed by the SBCCOG from extensive research in the region; these strategies are known as the Sustainable South Bay Strategies (SSBS) and are suited for mature suburban areas.

A full list of LUT strategies along with their references is available in Appendix C- Land Use and Transportation (LUT) Measures and Methodology. This CAP presents the strategies Rolling Hills is interested in implementing. The City selected the following LUT Strategies in consideration of its GHG reduction targets for 2020 and 2035 in support of the State of California 2050 GHG reduction goal. GHG reduction efforts undertaken by the City since 2012 (last inventory year) were included towards GHG emissions reductions of this plan.

GOAL LUT: A - ORGANIZATIONAL STRATEGIES

Cities and other organizations within a city can implement telecommuting and alternative work schedule policies to reduce the Vehicle Miles Traveled (VMT) generated by employees. They can also expand and facilitate commute programs such as vanpooling and carpooling to reduce employee-generated VMT. Cities can also implement policies and ordinances that require or encourage private sector employers to implement programs for their employees.



MEASURE LUT: A1 - ENCOURAGE TELECOMMUTING AND ALTERNATIVE WORK SCHEDULES

Alternative work schedules take the form of staggered starting times, flexible schedules, or compressed work weeks. Alternative workplace programs are: 1) working at home-offices which eliminate a work trip entirely or 2) working at an office closer to the home which reduces part of the work trip. Cities can offer workplace programs at neighborhood centers, available space in government offices or public shared-work facilities.

The City will continue to explore the sub-strategies in table LUT: A1.

LUT: A1 Sub-strategies

LUT: A1.1	Encourage municipal telecommuting and alternative work schedules (voluntary).
LUT: A1.2	Enforce municipal telecommuting and alternative work schedules (mandatory).

GOAL LUT: B - DIGITAL TECHNOLOGY STRATEGIES

A new concept that is unique to Neighborhood Oriented Development (NOD) is the development and deployment of digital technologies as a GHG emission reduction strategy. The central premise is that services provided by cities and those available at NODs will be delivered in part through digital technologies. Digital mediums lessen the need to travel to seek and deliver services. Providing infrastructure to support digital technology applications can be undertaken by cities and involves collaboration to construct a state-of-the-art broadband network infrastructure that will deliver network connectivity.



LUT: B1 - COLLABORATE ON AND IMPLEMENT THE SOUTH BAY DIGITAL MASTER PLAN

The City will explore the following digital technology sub-strategies in table LUT: B1.

LUT: B1 Sub-strategies

LUT: B1.1	Develop city-wide area networks to connect public facilities and other key buildings with each other and the South Bay Net.
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LUT STRATEGIES - CITY INPUTS

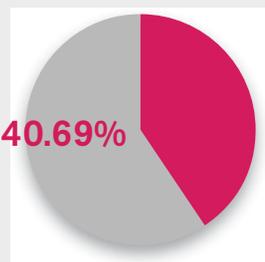
The GHG emissions reduction potential for the City of Rolling Hills from all LUT strategies combined was calculated based on the data in the table below. Cities set their own targets which were used as inputs for the calculations. The methodology for the calculations can be found in Appendix C.

Number	Sub - Strategies	Performance Indicators	Target
2B1.02	Within the City, implement a telecommuting and alternative work schedule program (mandatory)	1. Percent of employees participating: This would require knowing number of municipal employees and percent that would participate.	100 % (5 out of 5)
		2. Choose one of the following: a. 9-day/80 hour work week b. 4-day/40 hour work week and c. 1.5 days of telecommuting"	a. (actually 9/75)

Energy Efficiency (EE)

2020 GHG Reduction Potential

ENERGY EFFICIENCY



Reduction of 401 MT CO₂ e/yr

100% equals all CAP GHG emission reductions from all CAP strategies. EE represents 40.69% reduction outlined in EE Chapter.

Co-benefits



Adaptation Strategy Support



Air Quality



Economy + Jobs



Energy Conservation



Public Health



Resource Conservation



Safer Streets



Transportation System Improvement

Due to increasing electricity and natural gas demands, the built environment is a significant contributor to GHG emissions. Improving energy efficiency (EE) of new and existing buildings and infrastructure at the residential and municipal level will result in significant GHG reductions.

EE is defined as achieving the same services with less energy. Implementing EE strategies helps ensure a reliable, affordable, and sustainable energy system for the future.

The City of Rolling Hills is committed to providing a more livable, equitable, and economically vibrant community and sub-region through the implementation of energy efficiency measures and subsequent reduction of greenhouse gas (GHG) emissions. The City is undertaking various programs to enhance energy efficiency at the community and municipal levels such as: increase EE through water efficiency and decrease energy demand through reducing the urban heat island effect. The City, through its partnership with the SBCCOG, will obtain educational content, energy audit services, and assistance identifying potential funding sources to help implement strategies.

A full list of EE Strategies along with references is available in Appendix A- "Energy Efficiency CAP" including Methodology, Inventory & Forecast (inventory and forecast is listed in the "Energy Efficiency CAP Appendix A"). The City selected the following EE Strategies which were approved by the City Council in 2015 along with GHG reduction targets for 2020 and 2035 (in support of the State of California 2050 GHG reduction goal).

GOAL EE: A - INCREASE ENERGY EFFICIENCY (EE) IN EXISTING RESIDENTIAL UNITS

Residential sector carbon dioxide emissions originate primarily from the direct fuel consumption (principally, natural gas) for heating and cooking, and electricity for cooling/heating, appliances, lighting, and increasingly for televisions, computers, and other household electronic devices. Improving EE at the residential level reduces overall energy demand, which leads to a decrease in power plant emissions. It has other socio-economic benefits for the communities as well such as improved health and safety and lower utility costs.



MEASURE EE: A1 - EE TRAINING, EDUCATION, AND RECOGNITION

Opportunities for residents to improve EE in their homes range from changes to behavior that they can start today to physical modifications or improvements they can make to their homes. This measure will provide City staff with a framework to educate community members about behavioral and technological changes that can increase energy efficiency.

The City will explore the following sub-strategies in table EE: A1, to educate and train the community as the first key step towards increasing EE at the residential level.

EE: A1 Sub-strategies

EE: A1.1	Post links on website/social media and provide materials at public events.
EE: A1.2	Email list for email blasts of new information or trainings.
EE: A1.3	Establish an annual EE Fair.
EE: A1.4	Create a resource center.
EE: A1.5	Hire/Designate Energy Advocate.
EE: A1.6	Partner with SBCCOG and Utilities to obtain educational content.



MEASURE EE: A2 - INCREASE PARTICIPATION IN EXISTING EE PROGRAMS

As part of the South Bay Energy Efficiency Partnership (SB Partnership) with SCE and SCG, the City will continue outreach efforts that are largely led by SBCCOG to promote energy awareness and existing programs and incentives that are offered for energy efficiency. Some examples of programs and resources are listed below:

- Rebate programs through SCE and SCG for appliances, air conditioner alternatives, electric water heaters, light bulbs, space heaters, water heaters, pool heaters, showerheads, washers, and insulation.
- Demand Response programs through SCE that provide on-bill credits including the Summer Discount Plan and Save Power Days Program.
- Technical and financial assistance programs through SCG’s Direct Install Weatherization Program for income-qualified renters and homeowners.

Through the strategies listed in table EE: A2, the City will work to increase residents’ participation in existing energy efficiency programs that are low cost or provide a financial benefit to the resident.

EE: A2 Sub-strategies

EE: A2.1	Partner with SBCCOG and Utilities for outreach events.
EE: A2.2	Staff outreach efforts to home owner associations (HOAs) and other housing groups.

MEASURE EE: A3 - ESTABLISH, PROMOTE OR REQUIRE HOME ENERGY EVALUATIONS

Home energy evaluations are necessary to identify cost-effective opportunities for energy saving and for residents to take practical actions to achieve EE.

The City will support home energy evaluations through a variety of existing programs and the following sub-strategies listed in table EE: A3.

EE: A3 Sub-strategies

EE: A3.1	Promote home energy audits through programs such as Energy Upgrade California or other State programs.
EE: A3.2	Establish free "Energy Checkup" program with the assistance of the SBCCOG if funding can be obtained.

MEASURE EE: A4 - PROMOTE, INCENTIVIZE OR REQUIRE RESIDENTIAL HOME ENERGY RENOVATIONS

Approximately 71 percent of residential buildings in the City were built before the adoption of Title 24. Buildings built before adoption of Title 24 are not energy efficient, and renovations would achieve higher energy efficiency. Many programs and incentives across the state or country help promote home energy renovations, including city-supervised funding, permit process improvements and city ordinance.

In support of this measure, the City will explore sub-strategies in table EE: A4.

EE: A4 Sub-strategies

EE: A4.1	Promote existing incentivized programs such as Energy Upgrade California.
EE: A4.2	Promote Financing Programs such as PACE (Properly Assessed Clean Energy).
EE: A4.3	Waive or reduce permit fees to facilitate permit processing.
EE: A4.4	Establish online permitting to facilitate permit processing.

GOAL EE: B - INCREASE ENERGY EFFICIENCY IN NEW RESIDENTIAL DEVELOPMENTS

EE Standards that are set beyond Title 24, are far more stringent and effective in reducing GHG emissions. Cities that develop resources for implementing these standards for new residential development will help conserve electricity and natural gas.



MEASURE EE: B1 - ENCOURAGE OR REQUIRE EE STANDARDS EXCEEDING TITLE 24

As part of the 2010 California Green Building Standards (CALGreen), a two-tiered system was designed to allow local jurisdictions to adopt codes that go beyond state standards. The two tiers contain measures that are more stringent and achieve an increased reduction in energy usage by 15% (Tier 1) or 30% (Tier 2) beyond Title 24. It is also important that Title 24 Standards are updated so that the full GHG reduction benefit of the title can be realized. City staff that are well-informed can implement updates quickly and effectively.

The City will explore the following sub-strategies listed in table EE: B1 in support of this measure.

EE: B1 Sub-strategies

EE: B1.1	Educate City staff, developers, etc. on future Title 24 updates and the additional energy efficiency opportunities for new residential development.
EE: B1.2	Establish online permitting to facilitate permit processing.

GOAL EE: C - INCREASE ENERGY EFFICIENCY IN PUBLIC FACILITIES

Educating the community about the benefits of EE and equipping them with strategies and technologies to do so is the key for enhancing energy efficiency. Different tools such as social, digital, and print media can be used to educate stakeholders.



MEASURE EE: C1 - TRAINING AND EDUCATION

Education is at the core of attaining energy efficiency goals. Creating a specific education measure will emphasize the critical role of education in achieving energy efficiency.

The following education sub-strategies in table EE: C1 will provide City staff with a framework to interact with and educate community members about behavioral and technological changes that can increase energy efficiency.

EE: C1 Sub-strategies

EE: C1.1	Post links on website/social media and provide materials at public events.
EE: C1.2	Email list for e-mail blasts of new information or trainings.
EE: C1.3	Establish an annual EE Fair.
EE: C1.4	Create a resource center.
EE: C1.5	Hire/Designate Energy Advocate.
EE: C1.6	Partner with SBCCOG and Utilities to obtain educational content.

MEASURE EE: C2 - INCREASE PARTICIPATION IN EXISTING EE PROGRAMS

As part of the South Bay Partnership with SCE and SCG, the cities can conduct outreach efforts to promote energy awareness, existing programs, and incentives that are offered for EE. These outreach efforts are largely led by the SBCCOG. Some examples of programs and resources are listed below.

- Rebate programs through SCE and SCG for appliances, air conditioner alternatives, electric water heaters, light bulbs, space heaters, water heaters, and insulation.
- Demand Response programs through SCE that provide on-bill credits including the Summer Discount Plan and Save Power Days Program.

The City will work to increase participation in existing energy efficiency programs that are low-cost or provide a financial benefit to the business through the sub-strategies in table EE: C2.

EE: C2 Sub-Strategies

EE: C2.1	Partner with SBCCOG and Utilities for outreach events.
EE: C2.2	Staff outreach to business groups.

MEASURE EE: C3 - INCENTIVIZE OR REQUIRE NON-RESIDENTIAL ENERGY AUDITS

Public facility energy audits are necessary to identify cost-effective opportunities for energy savings and for the City to take practical actions to achieve energy efficiency. The audits can be established or promoted through various existing programs.

Through the sub-strategies listed in table EE: C3 the City will explore the following options to support this measure.

EE: C3 Sub-Strategies

EE: C3.1	Promote energy audits such as through Energy upgrade California or other state programs.
EE: C3.2	Consider early adoption of AB 1103 for small buildings (5,000-10,000 square feet).

MEASURE EE: C4 - PROMOTE OR REQUIRE PUBLIC FACILITY ENERGY RETROFITS

As most public facilities were built before the adoption of Title 24, most of the facilities and equipment are not energy efficient. Therefore, retrofits are necessary to achieve higher energy efficiency. Many programs and incentives across the State or country help promote non-residential energy retrofits, including city-supervised funding, permit process improvements, and city ordinance.

In support of this measure, the City will explore sub-strategies EE: C4.

EE: C4 Sub-Strategies

EE: C4.1	Promote existing incentivized programs such as Energy Upgrade California.
EE: C4.2	Develop or promote a green building program.
EE: C4.3	Promote Financing Programs such as PACE (Properly Assessed Clean Energy).
EE: C4.4	Waive or reduce permit fees to facilitate permit processing.
EE: C4.5	Establish online permitting to facilitate permit processing.

GOAL EE: D - INCREASE ENERGY EFFICIENCY THROUGH WATER EFFICIENCY (WE)

Providing safe drinking water and wastewater disposal is an energy-intensive process. Reducing water consumption saves energy because less water needs to be treated and pumped to end users. Moreover, when energy use is reduced, water is saved because less is needed in the operation of power plants. Through water efficiency measures, cities can help to protect dry areas from drought, lower consumers' utility bills, and reduce GHG Emissions.



MEASURE EE: D1 - PROMOTE WATER EFFICIENCY THROUGH SB X7-7

The Water Conservation Act of 2009 (SB X7-7), requires all water suppliers to increase water use efficiency. The legislation set an overall goal of reducing per capita urban water consumption by 20 percent from a baseline level by 2020. The goal of the Water Conservation Act can be met by taking a variety of actions, including targeted public outreach and promoting water efficiency measures such as low-irrigation landscaping. Additional water conservation information, resource materials, education, and incentives are available through the West Basin Water District (WBMWD).

The City will take the following actions in support of the sub-strategies listed in table EE: D1.

EE: D1 Sub-strategies

EE: D1.1	Post links on websites/ social media and provide materials at public events.
EE: D1.2	Email list for e-mail blasts of new information or trainings.
EE: D1.3	Implement low-irrigation landscaping ordinance.
EE: D1.4	Partner with SBCCOG and WBMWD to obtain educational content.
EE: D1.5	Partner with SBCCOG and WBMWD for outreach events.

MEASURE EE: D2 - PROMOTING WATER EFFICIENCY STANDARDS EXCEEDING SB X7-7

In addition to SB X7-7, more actions are being studied or have been taken to exceed water efficiency standards. These efforts include education and outreach practices that could be combined with residential actions that emphasize the reuse of recycled/gray water and promote harvesting rainwater. Approximately 1,873 kWh can be saved for every acre foot (AF) of water use replaced by recycled water.

The City will take the following actions in support of the sub-strategies on table EE: D2.

EE: D2 Sub-strategies

EE: D2.1	Staff time dedicated to work with HOAs, businesses, and other groups for outreach.
EE: D2.2	Allow recycled or gray water for non-municipal uses.
EE: D2.3	Work with Water District to increase recycled water potential.
EE: D2.4	Promote rainwater harvesting rebates and demonstrations.

GOAL EE: E - DECREASE ENERGY DEMAND THROUGH REDUCING URBAN HEAT ISLAND EFFECT

As part of their urban heat island reduction efforts, many communities are exploring cool pavements- which refers to paving materials that reflect more solar energy, enhance water evaporation, or have been otherwise modified to remain cooler than conventional pavements.



MEASURE EE: E1 - INCENTIVIZE LIGHT REFLECTING SURFACES

Replacing surface areas with light-reflecting materials can decrease heat absorption and lower outside air temperature. Both roofs and pavements are ideal surfaces for taking advantage of this advanced technology.

Cool roof is built from materials with high thermal emittance and high solar reflectance—or albedo—to help reflect sunlight (and the associated energy) away from a building. These properties help roofs to absorb less heat and stay up to 50–60°F cooler than conventional materials during peak summer weather. Cool roofs may be installed on low-slope roofs or the steep-sloped roofs used in many residences and retail buildings.

Cool pavement is built from materials that reflect more solar energy, enhance water evaporation, or have been otherwise modified to remain cooler than conventional pavements. This pavement can be created with existing paving technologies as well as newer approaches such as the use of coatings, permeable paving, or grass paving. Cool pavements save energy by lowering the outside air temperature, allowing air conditioners to cool buildings with less energy, and reducing the need for electric street lighting at night.

In support of this measure, the City will explore the following sub-strategy in table EE: E1.

EE: E1 Sub-strategies

EE: E1.1 Pass an ordinance incentivizing cool pavements.

GOAL EE: F - PARTICIPATE IN EDUCATION, OUTREACH AND PLANNING FOR ENERGY EFFICIENCY

Educating stakeholders about the EE programs and providing technical assistance for implementing those strategies is crucial for achieving increased energy savings. Southern California Edison's (SCE) Energy Leadership Partnership (ELP) Program, provides a robust framework for cities to implement EE strategies.



MEASURE EE: F1 - INCREASE ENERGY SAVINGS THROUGH THE SCE ENERGY LEADER PARTNERSHIP

The Southern California Edison (SCE) Energy Leader Partnership (ELP) Program is a framework that offers enhanced rebates and incentives to cities that achieve measurable energy savings, reduces peak-time electricity demand, and plans for energy efficiency. This program also provides resources to cities to identify energy efficiency projects and technical assistance to implement them. The ELP has a tiered incentive structure with threshold criteria required to trigger advancement to the next level of participation. The City is currently at the Platinum Level.

The City will continue to participate in the ELP to help identify EE projects at municipal facilities and take advantage of incentives offered through the program.

GOAL EE: G - INCREASE ENERGY EFFICIENCY IN MUNICIPAL BUILDINGS

Energy management for municipal buildings provides a quick “win” for cities and builds long-term capacity to develop EE projects and helps monitor and control energy use. The first crucial step towards energy management in municipal buildings is, conducting comprehensive energy audit to examine energy use patterns and performance of equipment.



MEASURE EE: G1- CONDUCT MUNICIPAL ENERGY AUDIT

Knowledge of building energy use is an effective way to determine energy inefficiencies and opportunities for retrofits and upgrades. Initial energy benchmarking was conducted for the buildings and facilities within the City to provide a baseline for comparison. Annual review of energy use within each building is a best practice to see trends and determine if the energy efficiency retrofits are effective. These annual reviews of energy use can also assist in determining when calibrating HVAC equipment or other maintenance is required to keep the building at peak efficiency. Energy audits are a comprehensive review of both energy

use and key components of the building. Energy audits provide an improved understanding of energy use, reveal energy inefficiencies of the building or building energy appliances, and offer recommendations on how to improve or correct the energy inefficiencies through retrofits or upgrades.

The City will review the energy usage at their facilities and conduct an energy audit within the next 5 years.

MEASURE EE: G2 - IMPLEMENT WATER LEAK DETECTION PROGRAM

Losing water from unrepaired leaks and operating at unnecessarily high-pressure results in wasted water, energy, and GHGs. The City can avoid this waste by conducting annual water audits to detect and repair leaks, developing a pressure management strategy, and devising a long-term water loss control plan.

The City is interested in conducting assessments to detect, repair, and control water leaks.

MEASURE EE: G3 - PARTICIPATE IN DIRECT INSTALL PROGRAM

SCE offers a Direct Install Program to reduce energy costs and save money. The program is funded by the utility ratepayers and includes a free assessment of buildings by a contractor and installation of free energy-efficient replacement equipment. Examples of the energy-efficient equipment include fluorescent lighting, LED signs, window film, and programmable thermostats.

In 2014, one municipal building participated in this program and saved over \$2,400 as a result. The City will continue to explore additional opportunities to participate in direct install programs as they become available.

MEASURE EE: G4 - ADOPT A PROCUREMENT POLICY FOR EE EQUIPMENT

Energy efficient procurement policies can reduce government facility energy costs by about 5 to 10 percent. As municipal appliances are worn over time; the city would replace them with Energy Star or energy efficient equipment. Energy Star offers an appliance calculator to estimate money and energy saved by purchasing its products.

The City only operates one building (City Hall) and has already installed some energy efficient equipment through the Direct Install program, it is assumed that the reduction potential of the procurement policy would be closer to 5 percent.

MEASURE EE: G5 - INCREASE RECYCLED WATER USAGE

The West Basin Municipal Water District (WBMWD) uses its Edward C. Little Water Recycling Facility to provide its city customers with recycled water. One of its five types of "designer" or custom-made recycled water includes Tertiary Water (Title 22), used for irrigation. A new 1.25-mile recycled water pipeline was completed in 2016.

The City currently uses reclaimed water at selected recreational facilities.

MEASURE EE: G6 - RETROFIT HVAC EQUIPMENT & WATER PUMPS

Heating, ventilation, and air conditioning (HVAC) and/or water pump equipment at municipal facilities have been identified as potential retrofit opportunities and can qualify for incentives through the SCE ELP (Measure EE A1). By replacing aging equipment with newer, more efficient equipment, the City will reduce energy consumption and associated GHG emissions.

The City will consider replacing aging HVAC equipment with more efficient equipment to reduce energy consumption and associated GHG emissions as needed.

MEASURE EE: G7 - TRACK ADDITIONAL ENERGY SAVINGS

According to SBCCOG's Project Tracker database, the City has achieved additional municipal energy savings since the data for last inventory was calculated. These savings are not categorized into specific projects.

This measure allows the ability for the City to take advantage of additional energy efficiency opportunities as they arise. The various additional energy efficiency opportunities should be documented and tracked in order to allow the City to determine the effectiveness of non-categorized energy savings.

GOAL EE: H - INCREASE ENERGY EFFICIENCY IN CITY INFRASTRUCTURE

Retrofitting outdoor lighting, promoting water conserving landscaping, planting more vegetation, and reducing energy consumption in the long-term are some of the steps that are taken by the City towards making its infrastructure more energy efficient.



MEASURE EE: H1 - UPGRADE OR INCORPORATE WATER-CONSERVING LANDSCAPE

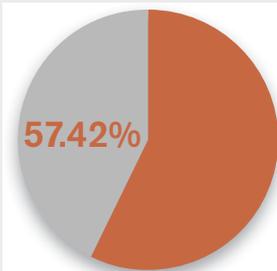
The majority of California's current water sources require high-energy inputs. Pumping, treating, transporting, and heating water currently represents nearly 20% of the energy used across the state. Much of this energy use is the result of a heavy reliance on "imported" water, because the majority of California's water users are concentrated far from major water sources. One consequence of the energy used to transport water is high GHG emissions. Transporting water via California's State Water Project alone is 2% to 3% of the state's total energy and results in roughly 4 million tons of GHG emissions per year. Furthermore, water scarcity is going to be exacerbated with climate change. This underscores the importance of water conservation. Developing drought tolerant landscapes and encouraging the use of recycled water are two ways to improve the resiliency of water supply and hence reducing GHG emissions.

The City adopted a water efficient landscaping ordinance in 2010 and is expected to replace approximately 8,000 sq. ft. of landscaping with drought tolerant plants in the future. The City will explore participating in SoCal WaterSmart's Public Agency Landscape (PAL) program to receive a no-cost landscape irrigation audit and incentives to replace older landscape equipment with new, water-efficient models.

Solid Waste_(SW)

2020 GHG Reduction Potential

SOLID WASTE



Reduction of
565.86 MT CO₂ e/yr

100% equals all CAP GHG emission reductions from all CAP strategies. SW represents 57.42% reduction outlined in SW Chapter.

Co-benefits



Public Health



Resource
Conservation

Waste prevention and recycling - jointly referred to as waste reduction - help to better manage solid waste and reduce GHG emissions. Together, waste prevention and recycling:

- Reduce emissions from energy consumption: Manufacturing goods from recycled materials typically requires less energy than producing goods from virgin materials. When people reuse things or when products are made with less material, less energy is needed to extract, transport, and process raw materials and to manufacture products. Reduced energy demands lead to less combustion of fossil fuels and associated carbon dioxide (CO₂) emissions.
- Reduce emissions from incinerators: Waste prevention and Recycling allow some materials to be diverted from incinerators and thus reduce GHG emissions from the combustion of waste.
- Reduce methane emissions from landfills: Waste prevention and recycling (including composting) divert organic wastes from landfills, reducing the methane released when these materials decompose.
- Increase storage of carbon in trees: Trees absorb carbon dioxide from the atmosphere and store it in wood, in a process called "carbon sequestration." Waste prevention and recycling of paper products allow more trees to remain standing in the forest, where they can continue to remove CO₂ from the atmosphere.

A full list of SW Strategies along with references is available in Appendix D- Solid Waste Measures and Methodology. This CAP presents the strategies Rolling Hills is interested in implementing. The City selected the following SW Strategies in consideration of its GHG reduction targets for 2020 and 2035 in support of the State of California 2050 GHG reduction goal. SW GHG reduction efforts undertaken by the City since 2012 (last inventory year) were included towards GHG emissions reductions of this plan.

GOAL SW: A - INCREASE DIVERSION AND REDUCTION OF RESIDENTIAL WASTE

Educating local communities about waste reduction is a key step for managing waste at the residential level. Better waste management practices lead to reduced energy consumption associated with waste removal and processing and associated GHG emissions.



MEASURE SW: A1 - EDUCATION AND OUTREACH TO THE RESIDENTS

Providing education and outreach to residents about opportunities to divert their waste away from the landfill will increase awareness of solid waste programs, encourage waste-reducing behaviors, and inspire participation in further environmental activities.

The City plans to implement several strategies for educating the public about methods and benefits for waste reduction and diversion including the sub-strategy in table SW: A1.

SW: A1 Sub-strategies

SW: A1.1 Educate residents about waste reduction and diversion – Provide information to residents about recycling, composting, and source reduction opportunities on the website, newsletters, or flyers.

MEASURE SW A2 - IMPLEMENT RESIDENTIAL COLLECTION PROGRAMS TO INCREASE DIVERSION OF WASTE

Implementing collection programs for residents will divert waste from going to the landfill by providing opportunities for more recycling, composting, and source reduction.

The City will explore the expansion of the services for residential waste collection programs for residents including the sub-strategy in table SW: A2.

SW: A2 Sub-strategies

SW: A2.1 Implement collection of green waste for residents – Provide a green waste collection service for residents.

GOAL SW: B - INCREASE DIVERSION AND REDUCTION OF COMMUNITY WASTE

Education and providing better waste management options and tools to the community will lead to a reduction in GHG emissions associated with processing and disposing of community wastes.



MEASURE SW: B1 - SET A COMMUNITY GOAL TO DIVERT WASTE FROM LANDFILLS

Setting a goal to divert a specified percentage of waste will show the City's commitment to reducing the greenhouse gases emitted from the landfill.

The City will undertake the sub-strategy identified in table SW: B1 to support this measure.

SW: B1 Sub-strategies

-
- SW: B1.1** Set a goal of diverting waste from landfill by 75% – Develop a comprehensive Waste Plan to achieve 75% diversion of waste from landfills, including strategies to divert waste and tools to track progress.
-

GOAL SW: C - REDUCE AND DIVERT MUNICIPAL WASTE

Increasing awareness through implementing education strategies are key to achieving waste reductions and diversion. Like the residential sector and public facilities, the municipal sector will also benefit from implementing capacity building programs to educate employees about benefits and methods of waste reducing behaviors.



MEASURE SW: C1 - EDUCATION AND PROGRAM FOR MUNICIPAL EMPLOYEES/ FACILITIES

Education to employees will increase awareness of solid waste programs, encourage waste-reducing behaviors, and inspire participation in further environmental activities. Some of these strategies are also very visible and will set an example for the community to follow. Reducing municipal waste will help the City lead by example and demonstrate to the community that the City is committed to diverting waste from landfills.

The City will implement several programs to educate employees about waste reduction and will provide them with tools to conserve resources at the facilities. In addition, the City of Rolling Hills will consider the following sub-strategies in table SW: C1.

SW: C1 Sub-strategies

SW: C1.1	Implement a Recycle at Work program – Continue a program, Recycle at Work, to educate employees about the benefits of waste reduction and recycling in the work place.
SW: C1.2	Reduce paper in municipal facilities – Adopt a policy to encourage paper reduction through various activities such as: Reduce margins and logos on templates, letterheads, and memos; Upload bid documents using online resources instead of printing for contractors; Require fewer or smaller-sized copies of project plans; Use electronic devices for meetings; Require double sided printing when feasible.
SW: C1.3	Reuse materials at municipal facilities – Adopt a policy to reuse, repair, or refurbish office furniture and equipment at a cost savings compared to purchasing new materials; And if not cost saving, reuse or redistribute office items such as supplies, computers, and furniture to community non-profit groups in order to divert from landfill.
SW: C1.4	Provide additional recycling in public places – Install additional recycling containers in public places.
SW: C1.5	Adopt a Municipal Purchasing Policy – Investigate creating a purchasing policy for municipal facilities to reduce purchase of disposable items, and require environmentally preferable products to be purchased when possible and reasonable.



Urban Greening (UG)

Co-benefits



Adaptation Strategy Support



Air Quality



Economy + Jobs



Energy Conservation



Public Health



Resource Conservation

Urban greening includes spaces such as parks, forests, green roofs, local agriculture, street trees, and community gardens. These spaces are “carbon sinks” as they store greenhouse gas emissions that are otherwise emitted into the atmosphere.

Other benefits of urban greening include providing critical ecosystem services, promoting physical activities, improving the psychological well being of community, and reducing vehicle miles traveled.

At the city level, the amount of actual GHG emission reductions achieved through Urban Greening are negligible; however, it is important to note that this does not diminish the importance of urban greening as a strategy to reduce GHG emissions for the City, due to its multiple co-benefits. The following chapter provides a list of goals, measures, and sub-strategies to encourage urban greening policies and practices within the City.

A full list of UG Strategies along with references is available in Appendix E - Urban Greening Measures and Methodology. This CAP presents the strategies Rolling Hills is interested in implementing. The City selected the following UG Strategies in consideration of its GHG reduction targets for 2020 and 2035 in support of the State of California 2050 GHG reduction goal. UG GHG reduction efforts undertaken by the City since 2012 (last inventory year) were included towards GHG emissions reductions of this plan.

GOAL UG: A - INCREASE AND MAINTAIN URBAN GREENING IN THE COMMUNITY

The expansion of green spaces in Urban areas, is a pathway for reducing the CO2 emissions and energy use. The urban vegetation reduces the CO2 concentration from the atmosphere via photosynthesis and by carbon sequestration through plant growth. It also reduces the energy use and CO2 emissions associated with water delivery by providing a medium for wastewater recycling and increased storm water retention.



MEASURE UG: A1 - SUPPORT LOCAL FARMS

Local farmers' markets reduce GHG emissions by providing the community with a more local source of food, potentially resulting in a reduction in the number of trips and vehicle miles traveled by both the food delivery service and the consumers traveling to grocery stores. If the food sold at the local farmers' market is produced organically, it can also contribute to GHG reductions by displacing carbon-intensive food production practices.

The City will explore implementing sub-strategy listed in Table UG: A1 to support local farms in the community.

UG: A1 Sub-strategies

UG: A1.1	Promote farmers' market – Promote farmers' market to the community through website, newsletters, or flyers
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MEASURE UG: A2 - PRESERVATION OF LANDSCAPES AND NATURAL OPEN SPACE

Maintenance is necessary to prevent the increase of emissions. If the urban forest is not maintained in the community, the decomposition of trees is a source of emissions. Urban and community forests broadly include urban parks, street trees, landscaped boulevards, public gardens, river and coastal promenades, greenways, wetlands, nature preserves, natural areas and shelter belts of trees.

The City will follow the sub-strategy listed in table UG: A2 in support of this measure.

UG: A2 Sub-strategies

UG: A2.1	Maintain standards for permitted limitations to preserve landscapes and open spaces – Maintain standards for permitted limitations regarding lot disturbance, coverage with structures/ impervious surfaces, and grading activities.
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GOAL UG: B - INCREASE AND MAINTAIN URBAN GREENING IN MUNICIPAL FACILITIES

Implementing urban greening strategies in municipal facilities will reduce greenhouse gas emissions while demonstrating to the community the City’s commitment to improving the environment. Cities are also responsible for maintaining urban forest on municipal properties such as parks. Maintaining the urban forest reduces GHG emissions from decomposition of plant material.



MEASURE UG: B1 - RESTORATION/PRESERVATION OF LANDSCAPES

Urban and community forests broadly include urban parks, street trees, landscaped boulevards, public gardens, river and coastal promenades, greenways, wetlands, nature preserves, natural areas and shelter belts of trees. Maintenance of landscapes is necessary to prevent the increase of emissions. If the urban forest is not maintained in the community, the decomposition of trees is a source of emissions.

The City will implement urban greening strategies in municipal facilities including the one listed in Table UG: B1.

UG: B1 Sub-strategies

UG: B1.1	Landscape/open space and tree maintenance – Develop a program to conserve open spaces and trees and promote the ability of such resources to remove carbon from the atmosphere.
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ENERGY GENERATION AND STORAGE (EGS)

Co-benefits



Adaptation Strategy Support



Air Quality



Economy + Jobs



Energy Conservation



Public Health



Resource Conservation



Transportation System Improvement

Energy generation and storage (EGS) strategies involve supporting clean renewable energy, and decreasing dependence on traditional, GHG-emitting power sources.

Renewable energy technologies such as wind, solar, geothermal, hydroelectric, and biomass - provide substantial benefits for the climate, human health, and economy. Some renewable energy technologies such as wind and solar have variable outputs which can cause them to generate power inconsistently. Storage technologies have the potential for smoothing out the electricity supply from these sources and ensuring that the supply of generation matches the demand. Different energy storage technologies such as thermal storage, compressed air, hydrogen, pumped hydroelectric storage, flywheels, and batteries contribute to electricity stability by working at various stages of the grid -- from generation to consumer end-use. The City recognizes the importance of energy generation and storage and will continue to explore how some of these technologies can be used locally. Because these strategies are exploratory, the GHG reductions were not be quantified for this CAP. As the City identifies and implements strategies in the future the associated GHG reductions will be quantified.

A full list of EGS Strategies along with references is available in Appendix F - Energy Generation & Storage Measures and Methodology.

GOAL EGS: A - SUPPORT ENERGY GENERATION AND STORAGE IN THE COMMUNITY

To expand the usage of renewable energy generation and storage technologies, it is critical to implement the right policy tools and educate the public about the benefits of these technologies.



MEASURE EGS: A1 - COMMUNITY CHOICE AGGREGATION

Community Choice Aggregation (CCA) allows cities and counties, to combine the electricity demand of customers in their jurisdictions and procure electricity for these customers through their own generation or through the market. Benefits of aggregation include increased local control over electricity rates, possible savings to the customer, and the option to use more renewable energy.

The City plans to explore Community Choice Aggregation as a tool to enhance the usage of Energy Generation technologies as listed in sub-strategy table EGS A1.

EGS: A1 Sub-strategies

EGS: A1.1 Investigate the feasibility of Community Choice Aggregation.

MEASURE EGS: A2 - SITING AND PERMITTING

To accelerate the implementation of renewable energy technologies, regulatory barriers need to be addressed to help ensure smooth deployment. Streamlining the siting and permitting process and reducing administrative burden to developers will help speed up the process of bringing these projects to reality.

The City will identify and explore developing measures to accelerate siting and permitting of renewable energy technologies including the sub-strategies listed in table EGS: A2.

EGS: A2 Sub-strategies

EGS: A2.1 Accelerate implementation of renewable and alternative energy-based technologies through permitting process (e.g. streamlined permit approval process.).

EGS: A2.2 Encourage and support on-site installation and use of renewable and alternative energy generation systems for residential and public facilities.

MEASURE EGS: A3 - EDUCATION AND OUTREACH

Educating communities about the renewable energy generation sources and energy conservation is important to cause change in society towards a cleaner and greener future. Education and outreach strategies need to be catered to different stakeholder groups to address some of the key challenges facing the implementation of these technologies at the local level.

The City will work with different stakeholders and utilize different tools to create awareness towards renewable energy generation and storage including sub-strategies listed in table EGS: A3.

EGS: A3 Sub-strategies

EGS: A3.1 Update the City's website to include links to information for renewable and alternative energy rebates, incentives, and case studies.

EGS: A3.2 Promote community awareness to conserve energy in conjunction with using renewable and alternative energy.

MEASURE EGS: A4 - EXPLORE TECHNOLOGIES IN MUNICIPAL FACILITIES

Cities that utilize renewable energy and storage technologies in municipal facilities can help to increase energy capacity for municipal operations. These activities can also set an example for the community.

The City will explore renewable energy generation and storage options for municipal operations including the sub-strategy found in table EGS: A4.

EGS: A4 Sub-strategies

EGS: A4.1 Explore renewable and alternative energy technologies including solar photovoltaics (PV), to increase capacity for municipal operated and owned facilities and properties and evaluate their suitability.



Implementation and Monitoring

The City CAP is a policy-level document that guides the implementation of the climate action plan's GHG reduction measures. This chapter describes the implementation and monitoring steps for cities to reach or exceed their GHG reduction goals. Successful implementation and monitoring will depend on cooperation, innovation, and participation by the city, residents, businesses, utilities, and other local government agencies. The following sections outline key steps that the City could follow for the implementation and monitoring of its CAP:

Step 1 - Administration and Staffing

To help ensure success, the City would implement internal administration and staffing to:

- Create a Climate Action Team whether formal or informal to support and guide the City's efforts to conserve energy and reduce emissions.
- Designate an Implementation Coordinator to oversee, direct, and coordinate implementation of the CAP as well as monitoring and reporting of GHG reduction efforts.

The Climate Action Team would be responsible for the implementation of the CAP, coordinating among all involved city departments, and recommending modifications and changes to the CAP over time.

Step 2 - Financing

Financing, whether through public sources or private investment, is key to implementing many of the CAP measures. A review of current (Nov. 2017) and potential funding sources was completed for the different strategies identified in this CAP. The inclusion of a discussion of any of these funding sources or approaches does not imply eligibility or specific funding for any individual project. The City, however, alone or in partnership and collaboration with the SBCCOG or other local, regional, state, and federal agencies or utility, is encouraged to use the funding sources (listed in table 9) as a starting point to implement their selected sustainability measures.

Table 9: Funding Sources

Strategy	Federal Sources	State Sources	Local Sources
Accelerate the Market for Electric Vehicles	<ul style="list-style-type: none"> Recreational Trails Program (for NEVs) Economic Development Administration (EDA) Grant Surface Transportation Block Grant Program (STBGP) (multi-modal complete streets) Transportation Investment Generating Economic Recovery (TIGER) Grant 	<ul style="list-style-type: none"> Infrastructure and Economic Development Bank - Infrastructure Revolving Fund Program Gasoline Taxes/Operations and Maintenance California Air Resource Board (CARB) California Energy Commission (CEC) 	<ul style="list-style-type: none"> Transportation/Mobility Improvement Programs (Measure M) Southern California Edison Charge Ready Program South Coast Air Quality Management District (SCAQMD) Programs
Adopt Active Transportation	<ul style="list-style-type: none"> Surface Transportation Block Grant Program (STBGP) Economic Development Administration (EDA) Grant Recreational Trails Program (RTP) Safe Routes To School Program (SRTS) 	<ul style="list-style-type: none"> Infrastructure Revolving Fund Program Gasoline Taxes/Operations and Maintenance Caltrans ATP Grant 	<ul style="list-style-type: none"> Transportation/Mobility Improvement Programs (Measure M) Rule 20A Utility Set-asides Local Return on Measure M and Previous Initiatives Enhanced Infrastructure Financing District (EIFDs) Development impact fees
Integrate NOD	<ul style="list-style-type: none"> Surface Transportation Block Grant Program (STBGP) Community Development Block Grant (CDBG) Program Economic Development Administration (EDA) Grant 	<ul style="list-style-type: none"> Infrastructure Revolving Fund Program Statewide Community Infrastructure Program Strategic Growth Council (SGC) Grant 	<ul style="list-style-type: none"> Transportation/Mobility Improvement Programs (Measure M) Rule 20A Utility Set-asides Community Facilities Districts (CFDs) Community Revitalization and Investment Areas (CRIAs) Local Return on Measure M and Previous Initiatives Landscape and lighting districts (LLDs)
Transit Network Infrastructure	<ul style="list-style-type: none"> Surface Transportation Block Grant Program (STBGP) 	<ul style="list-style-type: none"> Low Carbon Transit Operations Program 	<ul style="list-style-type: none"> Los Angeles County Metropolitan Transportation Authority (Metro) Transportation/Mobility Improvement Programs (Measure M) Local Return on Measure M and Previous Initiatives Property and Business Improvement Districts (BIDs)
Land Use Element and Zoning Update (Affordable Housing)	<ul style="list-style-type: none"> Community Development Block Grant (CDBG) Program 	<ul style="list-style-type: none"> Strategic Growth Council Transformative Climate Communities (TCC) Affordable Housing and Sustainable Communities (AHSC) Program 	<ul style="list-style-type: none"> Property and Business Improvement Districts (BIDs)
Energy Efficiency	<ul style="list-style-type: none"> Solar America Cities Program Clean Cities program 	<ul style="list-style-type: none"> Property Assessed Clean Energy Financing California Solar Initiative Financing Authority for Resource Efficiency in California Self Generation Incentive Program 	<ul style="list-style-type: none"> Landscape and lighting districts (LLDs)
Waste, Greening, Energy Generation	<ul style="list-style-type: none"> EPA's Water Finance Clearinghouse Economic Development Administration (EDA) Grant 	<ul style="list-style-type: none"> Low Carbon Transit Operations Program Reuse Assistance Grant Program 	<ul style="list-style-type: none"> Community Facilities Districts (CFDs) Development impact fees

Step 3 - Measure Implementation

Implementation involves incorporating GHG reduction measures into ongoing policy development, planning activities, and City operations. The first step will be to develop an implementation schedule for the reduction measures. As part of this process, City staff will focus on those reduction measures that are already underway or planned and have clear funding direction or strategies in place. Prioritizing for remaining measures will be based on the following factors:

- Availability of Funding
- Cost Effectiveness
- GHG Reduction Efficiency
- Level of City Control
- Time to Implement

Step 4 - Public Participation

Integral to the process of effective implementation is the engagement and education of city residents and businesses. Their involvement is essential to help the City reach its reduction goals as much of the CAP depends on a combination of state and local government efforts, public and private sources of finance as well as voluntary commitment, creativity and participation of the community. Educational programs are an example of how the City can be a catalyst for public participation.

Step 5 - Monitoring

On-going monitoring and reporting of GHG reduction impacts and their cost effectiveness will enable City staff to make regular adjustments to the CAP. The monitoring and implementation process should anticipate the possible need to adjust to unforeseen circumstances, incorporated innovative new technologies, and evolve with the advancing science of climate change. Measure-Tracking tools are ways for the City to monitor the reductions that result from the implementation of GHG reduction actions. The Climate Action Implementation Coordinator or the City Climate Action Team could be tasked to maintain records of reduction measure implementation; additionally, as funding is available, they could insure that periodic updates to the emissions inventory are completed as a way to quantify GHG reductions. Conducting future inventories also allows the City to better assess their GHG emissions as better data and new methods for calculating reductions become available.

Additionally, the City can continue to receive assistance from the SBCCOG for their implementation and monitoring efforts.

