City of
ENCINITAS

FINAL

CLIMATE ACTION PLAN IMPLEMENTATION PLAN

December 2017

City of Encinitas

Climate Action Plan Implementation Plan

PREPARED BY:

City of Encinitas

IN CONSULTATION WITH:

Ascent Environmental, Inc.

Energy Policy Initiatives Center

Prepared in partnership with the San Diego Association of Governments (SANDAG) and the Energy Roadmap Program. This Program is partially funded by California utility customers and administered by San Diego Gas & Electric Company under the auspices of the California Public Utilities Commission.

December 2017

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1. Introduction

1.1. Climate Action Plan Overview

The City of Encinitas (City) 2018 Climate Action Plan (CAP) provides a comprehensive roadmap to address the challenges of climate change and outlines actions the City will undertake to reduce its greenhouse gas (GHG) emissions. It builds upon the goals and policies of the City's prior 2011 CAP and provides an updated GHG inventory, reduction targets, and updated GHG reduction strategies for the City.

Key highlights from the 2018 CAP include:

- An updated baseline GHG inventory (2012) for municipal and community activities occurring in Encinitas. Emissions sectors evaluated include on-road transportation, electricity, natural gas, solid waste, water, off-road transportation, and wastewater.
- In 2012, municipal and community activities in the City of Encinitas emitted 483,773 metric tons of carbon dioxide equivalent ($MTCO_2e$), with the greatest emissions coming from the On-Road Transportation sector, followed by the Electricity sector.
- In consideration and support of State GHG reduction targets, the City's 2018 CAP includes GHG reduction targets of reaching 13 percent below 2012 baseline levels by 2020 and 41 percent below 2012 levels by 2030. These targets translate to annual GHG reductions of 53,232 $MTCO_2e$ by 2020 and 197,724 $MTCO_2e$ by 2030.
- To achieve 2020 and 2030 targets, the 2018 CAP includes strategies, goals, and actions, focused in seven key policy sectors (Building Efficiency, Renewable Energy, Water Use, On-Road Transportation, Off-Road Transportation, Carbon Sequestration, and Solid Waste), that focus on GHG reductions for both municipal and community activities.

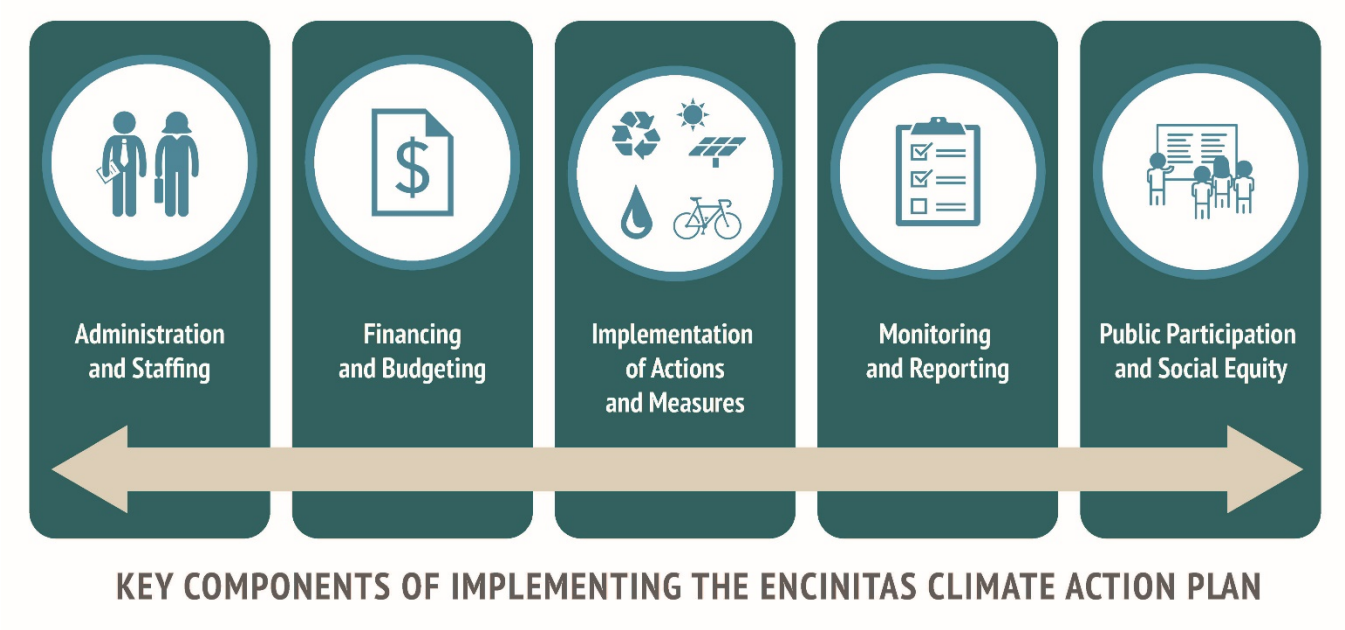
The CAP outlines strategies developed to lower community and municipal GHG emissions to the identified reduction targets. Specific actions and associated supporting measures for each strategy are outlined in detail in the CAP document. The 2018 CAP also outlines strategies for the City to improve community resiliency and to adapt to the current and future impacts of climate change.

Adaptation strategies are classified into five categories to address the climate change impacts identified in the vulnerability assessment (temperature, precipitation, flooding, wildfire, and sea-level rise). Each category includes programs and policies to support climate resiliency and adaptation, focusing on specific vulnerabilities and impacts that have the potential to impact the community's populations, functions, and structures.

1.2. Implementation Plan

Achieving the 2020 and 2030 reduction targets will require implementation of the reduction strategies, actions, and supporting measures identified in the 2018 CAP. This CAP Implementation Plan (Implementation Plan) builds upon the 2018 CAP's Implementation Chapter (Chapter 4) and outlines in more detail how the City will implement CAP actions, supporting measures and adaptation strategies, and monitor CAP progress. Implementation of certain actions and measures will require that the City develop and implement new ordinances, programs, and projects, or modify existing ones. This requires careful consideration of the operational and capital resources needed, as well as timing, phasing, and monitoring of implementation.

As the City begins to implement the 2018 CAP, the Implementation Plan will serve as a guidance document for City staff. The Implementation Plan provides detailed information for each of the City actions (actions), supporting measures, and adaptation strategies set forth in the CAP. Information on costs to the City, including staffing needs, budget, and funding sources is, included where possible for each City action, supporting measure, and adaptation strategy. The Implementation Plan also serves as initial guidance for City staff in monitoring progress towards established goals, as well as a framework for assessing the success and effectiveness of the various actions and supporting measures. Monitoring and assessment of the CAP implementation process will provide key insights into which actions, supporting measures, and adaptation strategies have been most successful in terms of implementation, and GHG reductions and will serve to inform policy and strategy development for future CAP updates.



KEY COMPONENTS OF IMPLEMENTING THE ENCINITAS CLIMATE ACTION PLAN

While estimated, high-level costs and anticipated benefits are discussed in the Implementation Plan, it is important to understand that this document does not serve as a comprehensive benefit-cost analysis. A more detailed and comprehensive benefit-cost analysis may be conducted as a future implementation action. Furthermore, this document does not serve as a mechanism for funding allocation. All funds needed to implement the CAP will be allocated through the City's routine budgeting process.

Given that the GHG reduction strategies included in the 2018 CAP span a variety of activity sectors, the CAP implementation process will be a collaborative and inter-departmental City effort

with various departments taking primary responsibility or secondary responsibility for the implementation of specific actions and measures.

1.2.1. Implementation Timeframe

The Implementation and Monitoring chapter (Chapter 4) of the 2018 CAP estimates the basic timeframe for implementation of each action. In this Implementation Plan, additional information is provided for each action, including an anticipated start year and completion year. Many actions and supporting measures will take years to fully implement; however, it is imperative that their implementation begin within the next few years to reach the GHG reduction targets of the CAP. This is especially true of City actions that require community participation after initial implementation. For example, many City actions necessitate the adoption of new building ordinances. While this requires up front resources and cost, emissions reductions are not realized until ordinances are adopted and become a part of the routine permit approval process. Once in place, implementation resources and cost are minimal, but compounding emissions reductions are realized from new and efficient building features.

The following table summarizes the timeline for the implementation of each City action. In the table, the major workload is depicted in purple. Once initiated, many actions will require some level of ongoing implementation, depicted in tan. The table demonstrates that most of the actions will be initiated within the first one to two years after the update of the Climate Action Plan with ongoing implementation occurring through 2030.

Implementation Timeline for City Actions

Implementation Timeline for City Actions

	City Action	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
BE-1	Require Energy Audits of Existing Residential Units													
BE-2	Require New Single-Family Homes to Install Solar Water Heaters													
BE-3	Adopt Higher Energy Efficiency Standards for Commercial Buildings													
BE-4	Require Commercial Buildings to Install Solar Water Heaters													
MBE-1	Continue Implementation of Energy Efficient Projects in Municipal Facilities													
RE-1	Establish a Community Choice Energy Program													
RE-2	Require New Homes to install Solar Photovoltaic Systems													
RE-3	Require Commercial Buildings to install Solar Photovoltaic Systems													
MRE-1	Supply Municipal Facilities with Onsite Renewable Energy													
WE-1	Regularly Conduct Water Rate Studies and Implement Approved Water Rates													
CET-1	Complete and Implement the Citywide Active Transportation Plan													
CET-2	Implement a Local Shuttle System													
CET-3	Improve Traffic Flow													
CET-4	Require Residential Electric Vehicle Charging Stations													
CET-5	Require Commercial Electric Vehicle Charging Stations													
MCET-1	Transition to Zero Emission Vehicle (ZEV) Municipal Fleet													
OR-1	Adopt a Leaf Blower Ordinance to Limit Use of 2-stroke Leaf Blowers													
ZW-1	Implement a Zero Waste Program													
CS-1	Develop and implement an Urban Tree Planting Program													

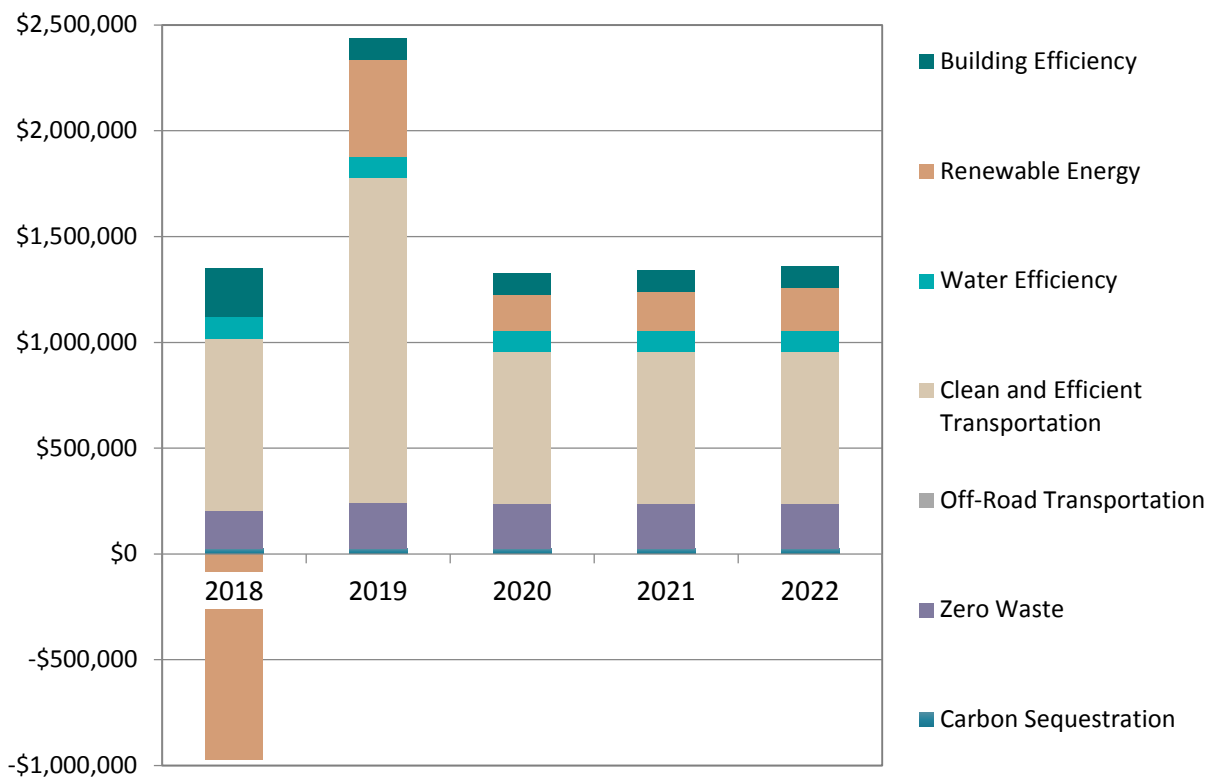
Notes:
Purple = Major work completed; Tan = Ongoing implementation; Orange = Target years
Source: City of Encinitas 2017, Ascent Environmental 2017, EPIC 2017

1.2.2. Funding, Resourcing, and Budgeting

Funding for CAP implementation will be allocated during the City's regular Operational and Capital Improvement Project (CIP) budgeting processes. The CAP Implementation Plan will serve as a staff and Councilmember resource when considering what programs and projects to include in the City's CIP budget and what staffing recourses will be needed in the Operational budget to implement the CAP. The CAP Implementation Plan will also serve as a resource for Councilmembers during the City's strategic planning process.

Estimates of funding and staff resources needed to implement each City and supporting measure were calculated and projected and are detailed in the tables in Section 2. The following charts summarize the overall funding and staff resources needed to implement the CAP City actions and meet emissions targets. In Chart 1, the overall cost to implement the City actions proposed in the CAP is summarized, annually, from 2018 to 2023. Note that the cost savings shown in the Renewable Energy category is based on an anticipated Energy Services Agreement (ESA) to install municipal solar. With an ESA, the City would receive a portion of the investment tax credits earned by installing solar.

Chart 1: CAP Implementation Cost per Year



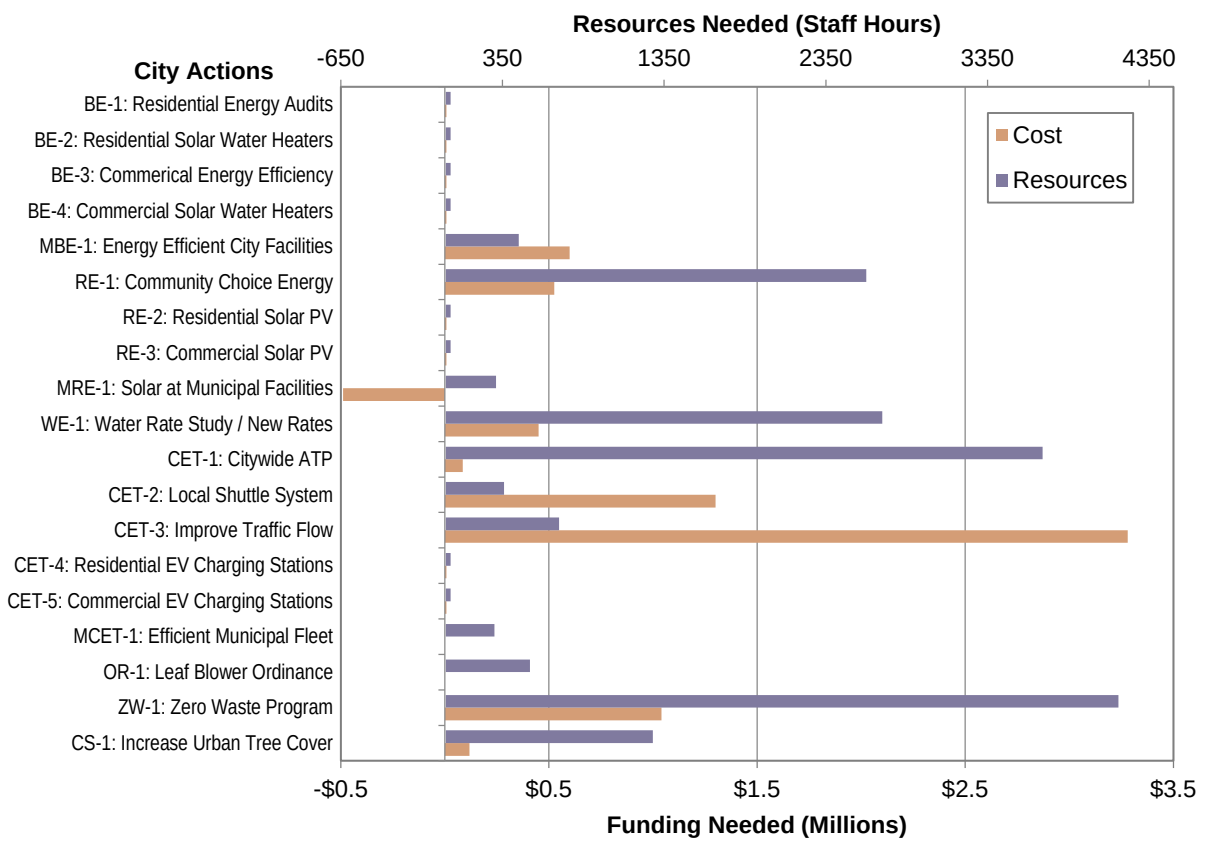
Notes: CAP = climate action plan; GHG = greenhouse gas;

Chart does not reflect cost of implementing the Active Transportation Plan. Renewable Energy cost in Year 2018 due to anticipated tax credit for municipal solar installation. Renewable energy cost does not include any potential future operational revenues from Community Choice Energy.

Source: City of Encinitas 2017, Ascent Environmental 2017

Chart 2 presents the total funding and resources needed to implement each City action in the first five years. As the chart shows, the funding and resources needed to implement each City action widely varies. Generally, the City actions which involve the development of new building ordinances require minimal funds and staff time, whereas City actions which involve operating a program or construction of capital improvements are more resource intensive.

Chart 2: Resources and Funding Needed to Implement CAP (Years 1-5)



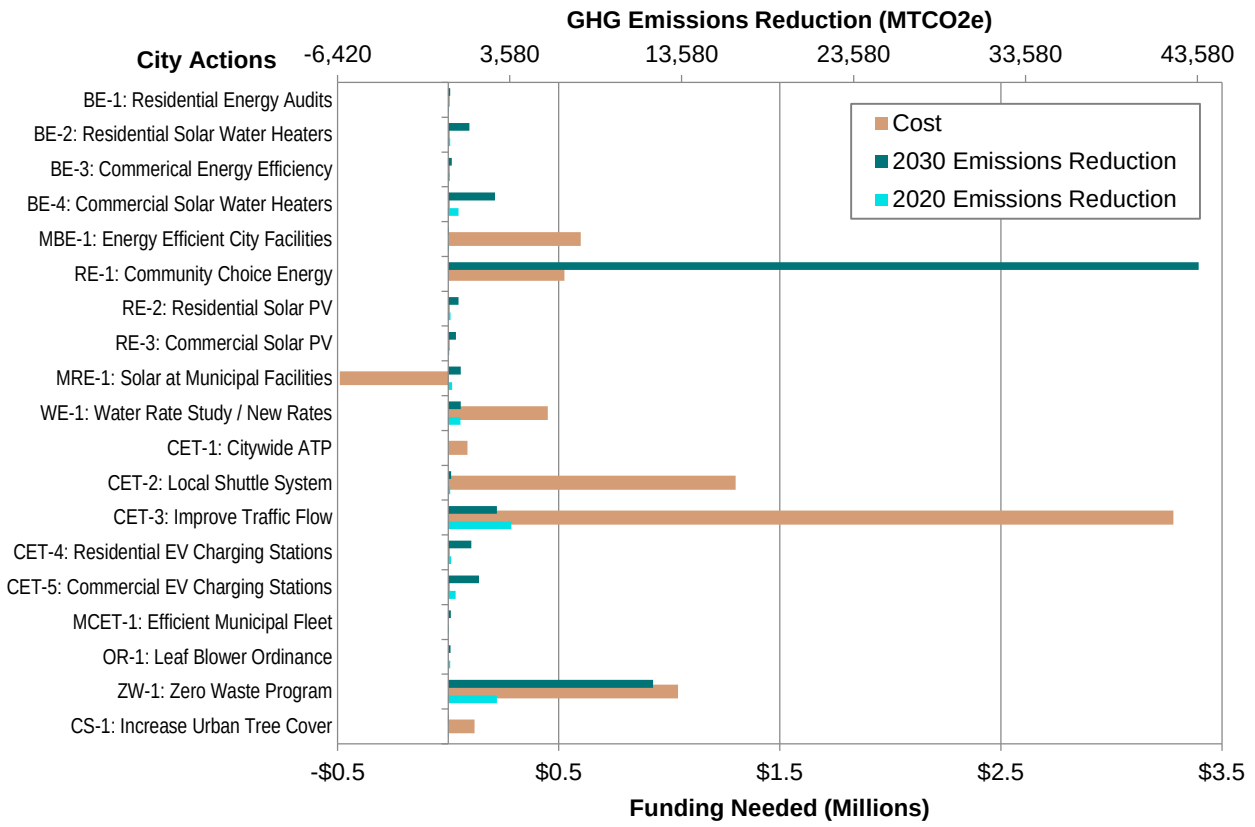
Notes: CAP = climate action plan; GHG = greenhouse gas; PV = photovoltaic; ATP = active transportation plan; EV = electric vehicle;

Chart does not include funding or staffing needed to implement the Active Transportation Plan. MRE-1 cost includes anticipated tax credit for municipal solar installation. RE-1 cost does not include any potential future operational revenues from Community Choice Energy.

Source: City of Encinitas 2017, Ascent Environmental 2017

Chart 3 compares the total estimated 5-year implementation cost to the GHG emissions reduction target in years 2020 and 2030 for each City action. This chart demonstrates that the cost to emission reduction ratio widely varies between City actions. Notes that is chart does not constitute a benefit-cost analysis which would consider direct and external costs and benefits. In addition, there are many more considerations to take into account when deciding whether or not to implement a CAP action, including: co-benefits, funding availability, data availability, public support, feasibility, etc.

Chart 3: CAP Implementation Cost (Years 1-5) and GHG Emissions Reduction Comparison



Notes: CAP = climate action plan; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent; PV = photovoltaic; ATP = active transportation plan; EV = electric vehicle;

Chart does not include funding or staffing needed to implement the Active Transportation Plan. MRE-1 cost includes anticipated tax credit for municipal solar installation. RE-1 cost does not include any potential future operational revenues from Community Choice Energy.

Source: City of Encinitas 2017, Ascent Environmental 2017

In lieu of allocating monies from departmental budgets or the City's general fund, funding and other resources may come from a variety of other sources. There are many regional, statewide and federal programs and grant opportunities that may be used to help fund and implement certain elements of the 2018 CAP. Many of these existing funding sources are cited in the detailed implementation tables in Section 2, where relevant to specific City actions, supporting measures or adaptation strategies. The following table summarizes some of the major potential funding sources and other resources available.

CAP Implementation Major Potential Funding Resources				
Resource	Description	City	Resident	Business
City Funds	Funds for project and program costs may be allocated from the City's Capital Improvement budget. Funds for staff resources may be allocated from the Operations budget. Funds may also be acquired by establishing Development Impact Fees or Special Revenue Funds.	●		
SANDAG Energy Roadmap Program	The Energy Roadmap Program is a collaboration between SANDAG and SDG&E. It is funded primarily by California utility customers under the auspices of the California Public Utilities Commission. The SANDAG Energy Roadmap Program provides free energy assessments and energy management plans, including Climate Action Plans, CAP Implementation Plans and other associated plans to SANDAG member agencies.	●		
SDG&E Programs	SDG&E offers many programs tailored to support local governments efficiently use energy and reduce greenhouse gas emissions, like the Local Government Partnerships program and the Power Your Drive Program. SDG&E also offers many customer programs that promote energy efficiency including, EcoChoice and the Comprehensive Audit Program	●	●	●
Center for Sustainable Energy	CSE is a mission-driven nonprofit organization providing clean energy program design and management and technical advisory services. Governments, regulators, utilities, businesses, property owners and consumers can utilize CSE partnerships to develop customized solutions that help lower energy costs and increase accessibility to clean energy technologies.	●	●	●
Statewide Energy Efficiency Collaborative	SEEC provides support to cities and counties to help them reduce greenhouse gas emissions and save energy. SEEC is an alliance between three statewide non-profit organizations and California's four Investor-Owned Utilities. SEEC provides the following at no cost: education and tools for climate action planning and reducing energy use; opportunities for peer-to-peer networking; and technical assistance and recognition for local agencies that that promote sustainability. Resources through SEEC include ClearPath and the CivicSpark fellowship program.	●		
Property Assessed Clean Energy Programs	PACE programs allow property owners to finance energy efficiency, water efficiency and renewable energy projects on existing and, in some cases, new residential and commercial structures through a voluntary special tax assessment on the property. PACE programs provide financing for these types of improvements without requiring a down payment or payment of the full or partial up-front capital cost of the improvement.		●	●

Solar Tax Credits	The federal solar tax credit, also known as the investment tax credit (ITC), allows residents and businesses to deduct 30 percent of the cost of installing a solar energy system from your federal taxes through 2019.		●	●
Caltrans Programs	Caltrans offers several programs and grants supporting sustainable transportation initiative, including: Low Carbon Transit Operations, Active Transportation Grant Program, Transit and Intercity Rail Capital Program, Strategic Partnership Grants, Sustainable Transportation Planning Grant.	●		
SANDAG Transportation Programs	The TransNet Extension Ordinance provides funding for two competitive grant programs that support local efforts to increase walking, biking, and transit use throughout the region: The Smart Growth Incentive Program and Active Transportation Grant Program.	●		
California Energy Commission and California Public Utilities Commission Programs	CEC and CPUC offer a variety of programs and grants for solar installation, energy efficiency upgrades, clean energy research, and alternative fuel use. There are programs specific to local government, business and residential applications.	●	●	●
California Air Resources Board Clean Vehicle Rebate Program	Administered by CSE for the California Air Resources Board, the Clean Vehicle Rebate Project offers up to $7,000 in electric vehicle rebates for the purchase or lease of new, eligible zero-emissions and plug-in hybrid light-duty vehicles.		●	

Notes: SANDAG: San Diego Association of Governments; SDG&E = San Diego Gas and Electric; CSE = Center for Sustainable Energy; PACE = Property Assessed Clean Energy; Caltrans = California Department of Transportation; CEC = California Energy Commission; CPUC = California Public Utilities Commission

Source: City of Encinitas 2017, Ascent Environmental 2017

In addition to the existing funding opportunities listed in the table above, future funding mechanisms and resources may be established through Council action or other means. This can include creation of rebate and incentive programs using revenue from Community Choice Energy; and support from local businesses and residents, including internship opportunities and business leadership programs.

1.2.3. Implementation Coordination

Implementation of the 2018 CAP will require extensive collaboration between City departments, as well as local and regional agencies. City departments that will be required to play a key role in the implementation of the CAP include, but are not limited to, the City Manager's Environmental Services Division; Development Services Department (including Planning and Engineering); Parks, Recreation and Cultural Arts Department; Public Works; and Finance.

CAP Administration

CAP Program Administrator

Considering the inter-departmental requirements and coordination that will be needed to implement the 2018 CAP, additional resources are needed to handle the administrative functions of

implementation. The City will create a permanent CAP Program Administrator position, or similar position, to ensure actions and supporting measures are implemented effectively and on time. The CAP Program Administrator would serve as the primary City staff responsible for the management of the 2018 CAP and its implementation process. He/she will also be responsible for monitoring and reporting progress towards meeting 2018 CAP goals and emission reduction targets. The CAP Program Administrator will also seek regional funding, grant funding; and other support, such as the acquisition of a CivicSpark[1] Fellow, intern, or other fellow, to assist with CAP implementation, monitoring, and updates. Upon adoption of the 2018 CAP, City staff should prioritize the CAP Program Administrator position and set up the position for success within the existing City government framework.

The CAP Program Administrator should have working knowledge and skills in general city planning principles and practices, climate action planning, community outreach strategies, and project management. Considering the inter-departmental nature of the CAP implementation process, the CAP Program Administrator position should be located within the City Manager's Office, or similar location, allowing the position access to key decision-makers from various City departments. Positioning the CAP Program Administrator within a central City department is necessary for supporting collaboration between City departments, developing an understanding of various City government functions, and identifying key departments and staff to assist in the CAP implementation process.

The following table outlines the key responsibilities of the CAP Program Administrator.

CAP Program Administrator – Key Responsibilities	
Task	Proportion of Workload
Implement key CAP City actions	40%
Oversee CAP implementation process, including coordination of inter-departmental implementation	15%
Monitor, analyze and report progress towards GHG reduction targets	15%
Manage updates to GHG inventory and CAP document	10%
Seek and acquire funding and resources for CAP implementation	10%
Community outreach and engagement	5%
Collaborate regionally with committees, stakeholders, and experts	5%
Total	100% (1 FTE)
Notes: CAP = climate action plan; GHG = greenhouse gas Source: City of Encinitas 2017, Ascent Environmental 2017	

CAP Workgroup

Implementation of the 2018 CAP will be facilitated by appointed staff leads within various City departments. These staff leads will comprise the staff level CAP Workgroup. The CAP Program Administrator will manage the CAP Workgroup, convening and managing regular meetings to facilitate coordination of CAP implementation among the various City departments and ensure progress towards GHG reduction targets.

[1] CivicSpark is an AmeriCorps program administered by the Local Government Commission to support local governments in addressing climate change

2. CAP Implementation

This section outlines a detailed plan for implementation of each City action, supporting measure, and adaptation strategy that will help the City ensure goals and targets of the 2018 CAP are achieved. Implementation of the elements of the 2018 CAP will require the City to develop new or modify existing ordinances, policies, programs, and projects. The City will incur costs to implement the 2018 CAP, including, but not limited to, initial start-up, ongoing administration, and enforcement costs. While some actions and supporting measures will only require funding from public entities, others will result in increased costs for businesses, contractors, and residents. Each action, supporting measure, and adaptation strategy is analyzed in this section with tables that summarize details for implementation. The emission reduction actions and supporting measures were evaluated to assess key costs to the City and community, timeline, staffing needs, responsible parties, and funding sources required for implementation. The level of detail varies among action, supporting measure, and adaptation strategy tables, with priority given to actions that result in quantifiable GHG reductions. For this reason, each action implementation table is more detailed and includes information on community costs, funding opportunities, and other resources. The implementation tables are meant to be updated regularly and to provide a snapshot of the implementation strategy; they are not meant to be static and do not provide a complete analysis of all considerations needed for implementation. A more detailed and comprehensive benefit-cost analysis will be needed to supplement this Implementation Plan.

The implementation tables consist of the following information:

City Actions (Actions)	Programs, policies, or projects the City will implement that will cause a direct and measurable reduction in GHG emissions.
Supporting Measures	Programs, policies, or projects the City will implement that could not be quantified, but will have an indirect effect on GHG emissions reductions.
Adaptation Strategies	Programs, policies, or projects that support climate resiliency and adaptation, focusing on specific vulnerabilities and impacts that have the potential to affect the community's populations, functions, and structures.
Target Year	Year corresponding to the reduction targets set by the City that are in line with State laws and guidelines. For the 2018 CAP and Implementation Plan, the City's proposed target years include 2020 and 2030. (For actions only.)
Performance Metric	Quantitative metric by which achievement of the specified goal will be measured. Each goal has two performance metrics, one for each target year (i.e., 2020 and 2030). (For actions only).
GHG Reduction Potential	Estimated reduction in local GHG emissions if the performance metric is met. The reduction is presented in $MTCO_2e$. (For actions only.)
Responsible Department	The department(s) that will primarily be responsible for planning, implementing, and tracking the action, supporting measure, or adaptation strategy referenced. Departments usually refer to those within the City structure, but also include other public agencies or utilities (e.g., Olivenhain Municipal Water District).

Supporting Department	The department(s) that will support the responsible department in planning, implementing, and tracking actions, supporting measures, or adaptation strategies. Supporting departments usually refer to those within the City structure, but also include other public agencies or utilities (e.g., San Diego Gas & Electric [SDG&E]).
Task Type	Categorizes the procedure or task associated with implementation of each action, supporting measure, and adaptation strategy.
Implementation Timeline	The estimated time frame for which the major implementation effort will occur. Can be categorized as Short-Term (will occur within the next three years), Mid-Term (will occur within the next five years), Long-Term (will occur within the next 10 years) or Ongoing (already occurring or to occur in perpetuity).
Start Year	The estimated year in which the implementation process will begin for an action, supporting measure, or adaptation strategy. If implementation has already been initiated, “ongoing” will be listed in the start year column.
Completion Year	The estimated year in which implementation of an action, supporting measure, or adaptation strategy will be complete. If implementation will continue in perpetuity after initiated, “ongoing” will be listed in the completion year column.
Co-Benefits	The additional beneficial effects that will result from implementation of actions, supporting measures, and adaptation strategies.
Basic Implementation Steps	The steps/tasks that need to be completed to accomplish the action, supporting measure, or adaptation strategy.
City Cost	Estimates the amount of City staff resources needed to complete tasks in Year 1 and Years 2-5. Also includes, where necessary, total consultant costs in Year 1 and Years 2-5. Other costs are also reported, as necessary. (For actions and supporting measures only.)
Community Cost	Provides both qualitative and quantitative costs for the community to implement actions and supporting measures. Costs, where available, can be direct user costs or costs that could be saved through incentive programs. (For actions and supporting measures only.)
Funding Opportunities	Provides links to potential funding opportunities to implement actions. (For actions only.)
Resources	Provides links to additional resources to help inform the implementation process. (For actions only.)
Relative City Cost	Categorized as low, medium, high, or very high based on the anticipated level of resources, staffing, and time required to implement each adaptation strategy. (For adaptation strategies only.)

2.1. Action Implementation

This section provides an implementation plan for each City action proposed in the 2018 CAP in a table format. The City actions presented are organized by the seven strategies identified in the 2018 CAP: Building Efficiency, Renewable Energy, Water Use, On-Road Transportation, Off-Road Transportation, Carbon Sequestration, and Solid Waste. Because implementation of each strategy's action will result in quantifiable GHG reductions, the level of detail for each City action implementation table is more thorough than the implementation plans developed for supporting measures and adaptation strategies and includes information on community costs, funding opportunities, and other resources.

2.1.1. Building Energy

BE-1 Require Energy Audits of Existing Residential Units

BE-1 Require Energy Audits of Existing Residential Units					
Starting in 2018, require all existing residential units that seek building permits for modifications, alterations, and additions to perform energy audits.					
Target Year	Performance Metric				GHG Reduction Potential ($MTCO_2e$)
2020	Reduce energy use by 15% in residential units that complete energy efficiency audits and implement energy retrofits. 80 units implement energy retrofits (reduce 85,000 kWh and 4,500 therms)				47
2030	Reduce energy use by 15% in residential units that complete energy efficiency audits and implement energy retrofits. 330 units implement energy retrofits (reduce 380,000 kWh and 20,000 therms)				122
Implementation Details					
Responsible Department	Development Services/Planning	Supporting Department	N/A	Task Type	Ordinance
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018	Completion Year	2018, then Ongoing
Co-Benefits	• Energy Savings • Energy Cost Savings				
Basic Implementation Steps	1. Identify consulting resources for development of new ordinance. 2. Research alternatives and types of ordinances. 3. Develop draft ordinance for City Council adoption. 4. Adopt ordinance. 5. Develop implementation tools (e.g., application forms, compliance tracking, voluntary renovation tracking, etc.) and integrate new ordinance requirements into building application workflow. 6. Develop process for monitoring implementation and track using ClearPath. 7. Initiate ongoing implementation and monitoring.				
City Cost	The action will require hiring a consultant to develop the ordinance, along with City staff hours to coordinate with the consultant, as well as hours to implement the ordinance once adopted. It is anticipated that one consultant may be hired to complete the ordinances required to implement actions BE-1, BE-2, BE-3, and BE-4, therefore City Staff hours and consultant costs are distributed evenly among these four actions.				

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5

BE-1 Require Energy Audits of Existing Residential Units						
	30 Hours	Negligible[1]	$7,300[2]	$0	$0	$0

- 30 hours of City staff hours in Year 1, and costs in Years 2-5 are negligible and covered in the City's existing operations budget.
- Consultant costs in the Year 1 amount to an estimated $7,300.

[1] Costs are negligible and covered under the City's existing operations budget.
[2] Assumes a consultant billing rate of $105 per hour.

Community Cost

Residents and businesses seeking building permits for modifications, alterations, and additions to a structure will be required to pay a one-time cost for the completion of an energy audit of the home or business being renovated. The applicant may benefit from reduced energy bills from any recommended improvements that are implemented following the audit.

Estimated Costs and Resources:

- The cost of an energy audit typically ranges between $300 and $500. Local incentive programs could offer qualifying free energy audits (see Funding Opportunities).
- Approximately 717 residences would be required to complete an energy audit by 2020, and 3,028 by 2030.

Estimated Costs
$300-500 (Typical Energy Audit Costs)

Funding Opportunities

PACE, Energy Upgrade California

Resources

General Energy Audit Information: ASHRAE, San Francisco Energy Audit Program, SDREP, RESNET

Notes: ASHRAE = American Society of Heating, Refrigerating and Air-Conditioning Engineers; SDREP = San Diego Regional Energy Partnership; RESNET = Residential Energy Services Network; kWh = kilowatt-hour; $MTCO_2e$ = metric tons of carbon dioxide equivalent; PACE = Property Assessed Clean Energy; N/A = Not Applicable

Source: Ascent Environmental 2017, EPIC 2017.

BE-2 Require New Single-Family Homes to Install Solar Water Heaters

BE-2 Require New Single-Family Homes to Install Solar Water Heaters					
Starting in 2018, require all new single-family homes to install solar water heaters or other efficiency technology, unless the installation is impracticable due to poor solar resources. Other efficiency technology would include installation of a renewable energy technology system that uses renewable energy as the primary energy source for water heating.					
Target Year	**Performance Metric**				**GHG Reduction Potential ($MTCO_2e$)**
2020	130 solar water heaters installed on new single-family homes (reduce 150,000 kWh and 17,000 therms)				130
2030	410 solar water heaters installed on new single-family homes (reduce 470,000 kWh and 230,000 therms)				1,241
Implementation Details					
Responsible Department	Development Services/Planning	Supporting Department	N/A	Task Type	Ordinance
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018	Completion Year	2018, then Ongoing
Co-Benefits	• Energy Savings • Cost Savings • Reduced Reliance on Fossil Fuels				

BE-2 Require New Single-Family Homes to Install Solar Water Heaters

Basic Implementation Steps

1. Identify consulting resources for development of new ordinance.
2. Research alternatives and types of ordinances.
3. Develop draft ordinance for City Council adoption.
4. Adopt ordinance.
5. Develop implementation documents and tools (e.g., application forms, compliance tracking, etc.) and integrate new ordinance requirements into building application workflow.
6. Develop process for monitoring implementation and track using ClearPath.
7. Initiate ongoing implementation and monitoring.

City Cost

The action will require hiring a consultant to develop the ordinance, along with City staff hours to coordinate with the consultant, as well as hours to implement the ordinance once adopted. It is anticipated that one consultant may be hired to complete the ordinances required to implement actions BE-1, BE-2, BE-3, and BE-4, therefore City Staff hours and consultant costs are distributed evenly among these four actions.

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
30 Hours	Negligible[1]	$7,300[2]	$0	$0	$0

- 30 hours of City staff hours in Year 1, and costs in Years 2-5 are negligible and covered in the City's existing operations budget.
- Consultant costs in Year 1 amount to an estimated $7,300.

[1] Costs are negligible and covered under the City's existing operations budget.
[2] Assumes a consultant billing rate of $105 per hour.

Community Cost

Applicants seeking to build new single-family homes will be required to include solar hot water systems in the building design process, based on established City requirements included in the building code. Applicants will benefit from reduced energy costs associated with residential hot water demand.

Estimated Costs and Resources:

- The cost of a residential solar thermal system in the San Diego Region is approximately $7,300. (CSE 2017)
- Applicants may be able to apply for rebates offered through the CSI-Thermal Program that offers an average of up to $3,300 in rebates.
- Applicants may also be able to claim a federal solar tax credit for up to 30% of the cost of a new solar water heating system.
- Approximately 130 new single-family homes will have a solar water heater by 2020, and 413 by 2030.

Estimated Costs
$7,300 (Typical Cost of a Residential Solar Thermal System)

Funding Opportunities

Federal Solar System Tax Credits, CSI Thermal Program Rebates, CSE, PACE

Resources

Solar Hot Water System Information: San Diego Regional Energy Partnership, California Solar Initiative Thermal Program, DOE Solar Hot Water Heaters

Notes: CSE = Center for Sustainable Energy; CSI = California Solar Initiative; DOE = Department of Energy, kWh = kilowatt-hour; $MTCO_2e$ = metric tons of carbon dioxide equivalent; N.A = Not Applicable; PACE = Property Assessed Clean Energy

Source: Ascent Environmental 2017, EPIC 2017.

BE-3 Adopt Higher Energy Efficiency Standards for Commercial Buildings

BE-3 Adopt Higher Energy Efficiency Standards for Commercial Buildings

Starting in 2018, require 1) all new commercial buildings, including commercial portion of mixed-use projects, and 2) commercial building modifications, alterations, and additions that require building permits with an area larger than 10,000 square feet (sq. ft.) to meet the 2016 California Green Building Standards Code Nonresidential Tier 1 Voluntary Measures.

Target Year	Performance Metric	GHG Reduction Potential ($MTCO_2e$)
2020	Reduce energy use in new commercial spaces by 6% (reduce 232,000 kWh and 7,200 therms)	98
2030	Reduce energy use in new commercial spaces by 6% (reduce 1.1 million kWh and 34,000 therms)	220

Implementation Details

Responsible Department	Development Services/Planning	Supporting Department	N/A	Task Type	Ordinance
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018	Completion Year	2018, then Ongoing

Co-Benefits

- Energy Savings
- Energy Cost Savings
- Reduced Reliance on Fossil Fuels

Basic Implementation Steps

1. Identify consulting resources for development of new ordinance.
2. Research alternatives and types of ordinances.
3. Develop draft ordinance for City Council adoption.
4. Adopt ordinance.
5. Develop implementation tools (e.g., application forms, compliance tracking, voluntary renovation tracking, etc.) and integrate new ordinance requirements into building application workflow.
6. Develop process for monitoring implementation and tracking using ClearPath.
7. Initiate ongoing implementation and monitoring.

City Cost

The action will require hiring a consultant to develop the ordinance, along with City staff hours to coordinate with the consultant, as well as hours to implement the ordinance once adopted. It is anticipated that one consultant may be hired to complete the ordinances required to implement actions BE-1, BE-2, BE-3, and BE-4, therefore City Staff hours and consultant costs are distributed evenly among these four actions.

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
30 Hours	Negligible[1]	$7,300[2]	N/A	$0	$0

- 30 hours of City staff hours in Year 1, and costs in Years 2-5 are negligible and covered in the City's existing operations budget.
- Consultant costs in Year 1 amount to an estimated $7,300.

[1] Costs are negligible and covered under the City's existing operations budget.
[2] Assumes a consultant billing rate of $105 per hour.

Community Cost

Applicants seeking to build new commercial buildings, including commercial portions of mixed-use projects, or commercial building modifications, alterations, and additions that require building permits with an area larger than 10,000 sq. ft., will be impacted by costs associated with meeting the building and equipment requirements established in the Tier 1 Green Building Code standard.

Estimated Costs
$400 - $6,500

BE-3 Adopt Higher Energy Efficiency Standards for Commercial Buildings	
	Estimated Costs and Resources: (Average Cost of Level 2 EVSE Unit) • The estimated additional cost to meet the new commercial energy efficiency standard will vary based on the types of projects. • Tier 1 standards require that a number of parking spaces be equipped for the future installation of EVSE, based on the number of parking spaces the project will provide. The average cost of a single-port EVSE unit ranges from $400-6,500 for Level 2 (DOE 2015). • These costs may be partially offset by incentives, rebates, as well as available financing. Rebate opportunities exist for businesses through SDG&E.
Funding Opportunities	PACE, Energy Upgrade California, SDG&E
Resources	SDG&E, DOE
Notes: ASHRAE = American Society of Heating, Refrigerating and Air-Conditioning Engineers; SDREP = San Diego Regional Energy Partnership; RESNET = Residential Energy Services Network; kWh = kilowatt-hour; FTE = Full Time Equivalent; $MTCO_2e$ = metric tons of carbon dioxide equivalent; PACE = Property Assessed Clean Energy; SDG&E = San Diego Gas & Electric; DOE = Department of Energy; EVSE = Electric Vehicle Service Equipment *Source: Ascent Environmental 2017, EPIC 2017.*	

BE-4 Require Commercial Buildings to Install Solar Water Heaters

BE-4 Require Commercial Buildings to Install Solar Water Heaters					
Starting in 2018, require 1) all new commercial buildings, including the commercial portion of mixed-use projects, 2) commercial building modifications, alterations, and additions that require building permits with an area larger than 10,000 sq. ft., to install solar water heaters or other efficiency technology, unless the installation is impracticable due to poor solar resources. Other efficiency technology would include installation of a renewable energy technology system that uses renewable energy as the primary energy source for water heating.					
Target Year	Performance Metric				GHG Reduction Potential ($MTCO_2e$)
2020	Reduce energy use in commercial spaces (reduce 12,000 kWh and 112,000 therms)				612
2030	Reduce energy use in commercial spaces (reduce 12,000 kWh and 112,000 therms)				2,728
Implementation Details					
Responsible Department	Development Services/Planning	Supporting Department	N/A	Task Type	Ordinance
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018	Completion Year	2018, then Ongoing
Co-Benefits	• Energy Savings • Energy Cost Savings • Reduced Reliance on Fossil Fuels				
Basic Implementation Steps	1. Identify consulting resources for development of new ordinance. 2. Research alternatives and types of ordinances. 3. Develop draft ordinance for City Council adoption. 4. Adopt ordinance. 5. Develop implementation tools (e.g., application forms, compliance tracking, etc.) and integrate new ordinance requirements into building application workflow. 6. Develop process for monitoring implementation and track using ClearPath. 7. Initiate ongoing implementation and monitoring.				

BE-4 Require Commercial Buildings to Install Solar Water Heaters

City Cost

The action will require hiring a consultant to develop the ordinance, along with City staff hours to coordinate with the consultant, as well as hours to implement the ordinance once adopted. It is assumed that one consultant will be hired to complete the ordinances required to implement actions BE-1, BE-2, BE-3, and BE-4, so City Staff hours and consultant costs are distributed evenly among the four actions.

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
30 Hours	Negligible[1]	$7,300[2]	$0	$0	$0

- 30 hours of City staff hours in Year 1, and costs in Years 2-5 are negligible and covered in the City's existing operations budget.
- Consultant costs in Year 1 amount to an estimated $7,300.

[1] Costs are negligible and covered under the City's existing operations budget.
[2] Assumes a consultant billing rate of $105 per hour.

Community Cost

Applicants seeking to build new commercial buildings, including the commercial portion of mixed-use projects, or commercial building modifications, alterations, and additions that require building permits with an area larger than 10,000 sq. ft., will be required to include solar hot water systems in the building design process, based on established City requirements included in the building code. Applicants will benefit from reduced energy costs associated with commercial hot water demand.

Estimated Costs and Resources:

Estimated Costs
$134 / sq. ft. (Typical Cost for Commercial Domestic Hot Water Systems)

- The cost of a commercial solar hot water system varies depending on the technology used and roof space available. Typical domestic hot water systems for commercial customers in San Diego cost, on average, $134 per sq. ft. of collector installed (CSE 2017)).
- Applicants may be able to apply for rebates offered through the CSI-Thermal Program, which calculates the estimated therms or kWh that a system is expected to offset for one year. The current incentive rate is $20.19 per therm or $0.42 per kWh.
- Applicants may also be eligible for the Business Energy Tax Credit, which allows applicants to claim 30% of eligible system costs against federal taxes in the year of installation.

Funding Opportunities

Federal Solar System Tax Credits, CSI Thermal Program Rebates, CSE, PACE

Resources

Solar Hot Water System Information: San Diego Regional Energy Partnership, California Solar Initiative Thermal Program, DOE Solar Hot Water Heaters

Notes: CSE = Center for Sustainable Energy; CSI = California Solar Initiative; DOE = Department of Energy, kWh = kilowatt-hour; $MTCO_2e$ = metric tons of carbon dioxide equivalent; PACE = Property Assessed Clean Energy; N/A = Not Applicable

Source: Ascent Environmental 2017, EPIC 2017.

MBE-1 Continue Implementation of Energy Efficient Projects in Municipal Facilities

<table>
<tr><th colspan="6">MBE-1 Continue Implementation of Energy Efficient Projects in Municipal Facilities</th></tr>
<tr><td colspan="6">Reduce municipal energy use below 2012 baseline energy use. Municipal facilities include the Civic Center, libraries, Community Center, fire stations, parking lots, and more.</td></tr>
<tr><td>Target Year</td><td colspan="4">Performance Metric</td><td>GHG Reduction Potential ($MTCO_2e$)</td></tr>
<tr><td>2020</td><td colspan="4">Reduce energy use (electricity and natural gas) by 7.5% in municipal facilities (not including street lights)</td><td>54</td></tr>
<tr><td>2030</td><td colspan="4">Reduce energy use (electricity and natural gas) by 15% in municipal facilities (not including street lights)</td><td>44</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Public Works/Facilities</td><td>Supporting Department</td><td>Development Services/Planning</td><td>Task Type</td><td>Program/Project</td></tr>
<tr><td>Implementation Timeline</td><td>Mid-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2022</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings
• Energy Cost Savings
• Reduced Reliance on Fossil Fuels</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Conduct investment-grade energy audits.
2. Identify funding sources and incentive programs.
3. Develop a comprehensive list and timeline for energy efficiency upgrades for appropriate municipal facilities.
a. Year 1: conduct lighting retrofits to Community Center/Senior Center and Civic Center.
b. Years 2-5: additional energy efficiency measures could include HVAC upgrades, energy storage, and enhanced building management systems.
4. Prepare a RFP for energy efficiency upgrades, including design, construction, implementation, and monitoring.
5. Design and install upgrades.</td></tr>
<tr><td>City Cost</td><td colspan="5">The action will require City staff hours to identify funding sources and implement the program, which includes managing the RFP process for hiring consultant(s) to design and install the efficiency upgrades.
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>50 Hours</td><td>100 Hours</td><td>$0</td><td>$0</td><td>$200,000</td><td>$100,000</td></tr>
</table>
• 50 hours of City staff hours in Year 1, and an additional 100 hours per year in Years 2-5.
• Consultant costs in the first-year amount to an estimated $7,300.
• Other costs (e.g., materials, capital equipment, supplies, etc.) amount to approximately $200,000 in Year 1, and an additional $100,000 per year in Years 2-5.
• Potential savings of $50,000 annually from lighting retrofits to Community Center/Senior Center and Civic Center.</td></tr>
<tr><td>Community Cost</td><td colspan="5">The municipal energy efficiency upgrade projects will be a one-time cost per project and will be funded through a combination of incentives, grants, loans, and City budget (see Funding Opportunities). The community may be impacted by the initial cost of municipal energy efficiency upgrade projects, but both the municipal government and City residents will benefit from reduced energy costs associated with municipal operations.</td></tr>
<tr><td>Funding Opportunities</td><td colspan="5">SDG&E On-Bill Financing, CEC Low-Interest Loans, SDG&E Rebates and Incentives</td></tr>
</table>

MBE-1 Continue Implementation of Energy Efficient Projects in Municipal Facilities	
Resources	Municipal Energy Efficiency Information: San Diego Regional Energy Partnership, CEC Energy Efficiency, Statewide Energy Efficiency Collaborative

Notes: RFP = Request for Proposal; CEC = California Energy Commission; $MTCO_2e$ = metric tons of carbon dioxide equivalent; SDG&E = San Diego Gas and Electric; HVAC = Heating, Ventilation and Air Conditioning.

Source: Ascent Environmental 2017, EPIC 2017.

2.1.2. Renewable Energy

RE-1 Establish a Community Choice Energy Program

RE-1 Establish a Community Choice Energy Program					
Present to City Council for consideration a Community Choice Energy (CCE) program that increases renewable electricity supply.					
Target Year	Performance Metric				GHG Reduction Potential ($MTCO_2e$)
2020	Launch a CCE Program with renewable electricity sources as a percentage of overall energy supplies equal to or greater than the current percentage of renewable electricity provided by SDG&E and 80% customer participation.				-
2030	100% renewable electricity supply and 80% customer participation.				43,644
Implementation Details					
Responsible Department	City Manager/ Environmental Services	Supporting Department	Finance	Task Type	Program
Implementation Timeline	Mid-Term	Start Year	2018: Feasibility Study 2019: Implementation Plan 2020: Start-up	Completion Year	Ongoing
Co-Benefits	• Energy Cost Savings • Reduced Reliance on Fossil Fuels • Potential for revenue generation for CAP-related programs				
Basic Implementation Steps	1. Prepare CCE Technical Feasibility Study 2. Negotiate JPA Agreement or determine other governance for CCE. 3. Complete a CCE Implementation Plan for submittal to CPUC. Components in the plan include financing; power procurement and scheduling; regulatory compliance; customer service and billing; policy and advocacy; and general administration and programs. 4. Develop and Implement Community Outreach. 5. Adopt the Implementation Plan and begin process to start-up a CCE (i.e., secure initial energy procurement). 6. Kickoff CCE program. 7. Ramp up to 100% renewable energy offering. 8. Once revenue resources are available, begin offering customer incentives and other programs.				
City Cost	The action will require City staff hours to coordinate and oversee the planning, start-up, and implementation of a CCE. Consultant(s) will also be needed to prepare the Technical Feasibility Study, Implementation Plan, and assist with program start-up.				

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
520 Hours	520 Hours (per year)	$20,000	$300,000 (total)	$5,000	$50,000 (total)

• Approximately 520 hours of City staff hours in Year 1 to oversee the Feasibility Study and coordinate with

RE-1 Establish a Community Choice Energy Program	
	the consultant. An additional 520 hours per year in Years 2-5 to continue its implementation. • Consultant costs in the first-year amount to an estimated $20,000 to prepare the Feasibility Study, with an additional approximate cost of $300,000 to prepare the Implementation Plan and start-up. • Other costs amount to approximately $50,000 in Year 1 for 3rd party reviews and an additional $50,000 in Years 2-5 for outreach and other items.
Community Cost	City residents may be impacted by costs associated with the formation of a CCE. If deemed feasible, the formation of a CCE will likely result in an overall reduction in energy costs for City residents and businesses. The City will determine rates in the CCE Implementation Plan. Estimated Costs and Resources: • If a CCE is formed, rates will be comparable or less than SDG&E rates. Typically, CCE electric rates have been competitive, currently ranging from three to 10 percent lower than utility rates (Lean Energy U.S. 2015).
Funding Opportunities	N/A
Resources	CCE Information: California Community Choice Association, CPUC CCA Resources, CEC CCA Guidebook
Notes: kWh = kilowatt-hour; $MTCO_2e$ = metric tons of carbon dioxide equivalent; CCE = Community Choice Energy; N/A = Not Available; CPUC = California Public Utilities Commission; CEC = California Energy Commission; SDG&E = San Diego Gas and Electric *Source: Ascent Environmental 2017, EPIC 2017.*	

RE-2 Require New Homes to install Solar Photovoltaic Systems

RE-2 Require New Homes to install Solar Photovoltaic Systems					
Starting in 2018, require 1) New single-family homes to install at least 1.5 W solar per sq. ft. (e.g., 2,000 sq. ft. home = 3 kW) or minimum 2 kW per home; 2) New multi-family homes to install at least 1 W solar per sq. ft. (e.g., 1,000 sq. ft. home = 1 kW) or minimum 1 kW per unit, to install solar photovoltaic (PV) systems, unless the installation is impracticable due to poor solar resources.					
Target Year	Performance Metric				GHG Reduction Potential ($MTCO_2e$)
2020	Install 400 kW (0.4 MW) of solar PV on new homes.				141
2030	Install 1,000 kW (1 MW) of solar PV on new homes.				614
Implementation Details					
Responsible Department	Development Services/Planning	Supporting Department	N/A	Task Type	Ordinance
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018	Completion Year	2018, then Ongoing
Co-Benefits	• Energy Savings • Energy Cost Savings • Reduced Reliance on Fossil Fuels				
Basic Implementation Steps	1. Identify consulting resources for development of new ordinance. 2. Research alternatives and types of ordinances. 3. Develop draft ordinance for City Council adoption. 4. Adopt ordinance. 5. Develop implementation tools (e.g., application forms, compliance tracking, voluntary renovation tracking, etc.) and integrate new ordinance requirements into building application workflow.				

RE-2 Require New Homes to install Solar Photovoltaic Systems

	6. Develop process for monitoring implementation and track using ClearPath. 7. Initiate ongoing implementation and monitoring.
City Cost	The action will require hiring a consultant to develop the ordinance, along with City staff hours to coordinate with the consultant, as well as hours to implement the ordinance once adopted. It is assumed that one consultant will be hired to complete the ordinances required to implement actions RE-2 and RE-3, so City Staff hours and consultant costs are distributed evenly between the two actions.

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
30 Hours	Negligible[1]	$7,300[2]	$0	$0	$0

- 30 hours of City staff hours in Year 1, and costs in Years 2-5 are negligible and covered in the City's existing operations budget.
- Consultant costs in Year 1 amount to an estimated $7,300.

[1] Costs are negligible and covered under the City's existing operations budget.
[2] Assumes a consultant billing rate of $105 per hour.

Community Cost

Applicants seeking permits for construction of new residential buildings will be required to include PV solar systems of a certain size based on established City requirements included in the building code. Permitting and development review associated with PV solar system requirements will be streamlined based on guidance following AB 2188, minimizing permitting costs and time for PV solar system installation. Applicants will benefit from reduced energy costs associated electricity demand for residential buildings.

Estimated Costs and Resources:

- Most homeowners pay between $2.87 and $3.85 per watt to install solar PV (EnergySage 2017).
- In California, the average cost of a solar PV system of 6 kW ranges from $13,700 - $17,500. A 10 kW system ranges from $22,800 – $29,200 (EnergySage 2017).
- Through the federal solar tax credit, or investment tax credit, applicants can deduct 30% of the cost of installing a solar energy system from federal taxes (EnergySage 2017)

Estimated Costs
$2.87 - $3.85 (Typical Per Watt Cost to Install Residential Solar PV)

Funding Opportunities	Federal Solar System Tax Credits, PACE, CSI Financing
Resources	Residential PV System Information: San Diego Regional Energy Partnership, California Solar Initiative, California Solar Permitting Guidebook, CEC Model Energy Ordinances, City of San Mateo Green Building Code, EnergySage

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; CSI = California Solar Initiative; PACE = Property Assessed Clean Energy; MW = megawatt; PV = photovoltaics; kW = kilowatt; CEC = California Energy Commission; N/A = Not Applicable

Source: Ascent Environmental 2017, EPIC 2017.

RE-3 Require Commercial Buildings to install Solar Photovoltaic Systems

RE-3 Require Commercial Buildings to install Solar Photovoltaic Systems

Starting in 2018, require installation of at least 2 W per sq. ft. of building area (e.g., 2,000 sq. ft. = 3 kW) on 1) all new commercial buildings, including the commercial portion of mixed-use projects, 2) commercial building modifications, alterations, and additions that require building permits with square footage larger than 10,000 sq. ft., unless the installation is impracticable due to poor solar resources.

Target Year	Performance Metric	GHG Reduction Potential ($MTCO_2e$)
2020	Install 200 kW (0.2 MW) of solar PV new commercial spaces.	59
2030	Install 800 kW (0.8 MW) of solar PV on new commercial spaces.	452

Implementation Details					
Responsible Department	Development Services/ Planning	Supporting Department	N/A	Task Type	Ordinance
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018	Completion Year	2018, then Ongoing

Co-Benefits

- Energy Savings
- Energy Cost Savings
- Reduced Reliance on Fossil Fuels

Basic Implementation Steps

1. Identify consulting resources for development of new ordinance.
2. Research alternatives and types of ordinances.
3. Develop draft ordinance for City Council adoption.
4. Adopt ordinance.
5. Develop implementation tools (e.g., application forms, compliance tracking, voluntary renovation tracking, etc.) and integrate new ordinance requirements into building application workflow.
6. Develop process for monitoring implementation and track using ClearPath.
7. Initiate ongoing implementation and monitoring.

City Cost

The action will require hiring a consultant to develop the ordinance, along with City staff hours to coordinate with the consultant, as well as hours to implement the ordinance once adopted. It is assumed that one consultant will be hired to complete the ordinances required to implement actions RE-2 and RE-3, so City staff hours and consultant costs are distributed evenly between the two actions.

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
30 Hours	Negligible[1]	$7,300[2]	$0	$0	$0

- 30 hours of City staff hours in Year 1, and costs in Years 2-5 are negligible and covered in the City's existing operations budget.
- Consultant costs in Year 1 amount to an estimated $7,300.

[1] Costs are negligible and covered under the City's existing operations budget.
[2] Assumes a consultant billing rate of $105 per hour.

Community Cost

Estimated Costs

Applicants seeking permits for construction of new non-residential buildings will be required to include PV solar systems of a certain size based on established City requirements included in the building code. Permitting and development review associated with PV solar system requirements will be streamlined based on guidance following AB 2188, minimizing permitting costs and time for PV solar system installation. Applicants will benefit from reduced energy costs associated electricity demand for non-residential buildings.

Estimated Costs and Resources:

RE-3 Require Commercial Buildings to install Solar Photovoltaic Systems	
	• The cost of a commercial solar PV system varies depending on the energy demand need, technology, used and space available. Most commercial users pay an average $3.57 per watt to install solar PV (Sunpower 2017). $3.57 (Typical Per Watt Cost to Install Commercial Solar PV) • Through the federal solar tax credit, or investment tax credit, applicants can deduct 30% of the cost of installing a solar energy system from federal taxes (EnergySage 2017)
Funding Opportunities	Federal Solar System Tax Credits, PACE, CSI Financing
Resources	Non-Residential PV System Information: San Diego Regional Energy Partnership, California Solar Initiative, California Solar Permitting Guidebook, CEC Model Energy Ordinances, City of San Mateo Green Building Code, EnergySage
Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; CSI = California Solar Initiative; PACE = Property Assessed Clean Energy; MW = megawatt; PV = photovoltaics; kW = kilowatt; CEC = California Energy Commission; N/A = Not Applicable *Source: Ascent Environmental 2017, EPIC 2017.*	

MRE-1 Supply Municipal Facilities with Onsite Renewable Energy

MRE-1 Supply Municipal Facilities with Onsite Renewable Energy					
Supply municipal facilities with onsite renewable energy to achieve "Net Zero Electricity" municipal operations. Implement "City of Encinitas Solar Assessment Report" by installing 1.3 MW of solar systems at City facilities.					
Target Year	Performance Metric				GHG Reduction Potential ($MTCO_2e$)
2020	50% of City facility electricity is supplied by onsite renewable energy generation (0.65 MW equivalent).				233
2030	100% of City facility electricity is supplied by onsite renewable energy generation (1.3 MW equivalent).				746
Implementation Details					
Responsible Department	Public Works/Facilities	Supporting Department	Development Services/Engineering	Task Type	Project
Implementation Timeline	Short-Term	Start Year	2018	Completion Year	2020
Co-Benefits	• Energy Savings • Energy Cost Savings • Reduced Reliance on Fossil Fuels • Green Jobs				
Basic Implementation Steps	1. Identify funding sources for project. 2. Complete RFP for project. 3. Secure consultant, negotiate cost, and sign cost share for project. 4. Implement the City's Solar Assessment Report. 5. Design project and solar PV systems needed to achieve "Net Zero Electricity". 6. Construct solar PV systems. 7. Initiate ongoing implementation and monitoring.				
City Cost	The action will require hiring a consultant, along with City staff hours to coordinate with the consultant, as well as				

MRE-1 Supply Municipal Facilities with Onsite Renewable Energy	
	hours to implement the ordinance once adopted. City Staff Resources: Year 1: 150 Hours; Years 2-5: 40 Hours Consultant Costs: Year 1: $0; Years 2-5: $0 Other Costs: Year 1: $(1,011,515) (surplus); Years 2-5: $ 521,570 (total) • 150 hours of City staff hours in Year 1, and an additional 40 hours per year in Years 2-5 to continue its implementation. • Other costs consist of financing for the cost of solar PV installation through an ESA with an 11-year term. • A surplus of $1,011,505 in Year 1 is anticipated if solar PV installation is financed through an ESA. The surplus includes the City's portion of the investment tax credits received upon construction and the energy cost savings of going solar. • In Years 2-5, costs would roughly be around $125,000 per year (totaling an estimated $521,570) and would vary depending on gradually decreasing payments and gradually increasing annual energy savings.
Community Cost	The community costs associated will be minimal, if any, and upon completion will provide community benefits through energy cost savings for municipal operations.
Funding Opportunities	Federal Solar System Tax Credits, CSI Thermal Program Rebates, Center for Sustainable Energy, CEC Grants
Resources	Renewable Energy Information: San Diego Regional Energy Partnership, ACEEE for Municipal Government, Local Government Sustainable Energy Coalition, Statewide Energy Efficiency Collaborative, California's Local Government Energy Efficiency Portal
Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; CSI = California Solar Initiative; MW = megawatt; PV = photovoltaics; CEC = California Energy Commission; ACEEE = American Council for an Energy-Efficient Economy; ESA = Energy Services Agreement *Source: Ascent Environmental 2017, EPIC 2017.*	

2.1.3. Water Efficiency

WE-1 Regularly Conduct Water Rate Studies and Implement Approved Water Rates

WE-1 Regularly Conduct Water Rate Studies and Implement Approved Water Rates					
SDWD and OMWD Board of Directors' approved water rate increases from 2012 to 2017.					
Target Year	Performance Metric				GHG Reduction Potential ($MTCO_2e$)
2020	Save 5 GPCD water use (258 million-gallon water saving).				712
2030	Save 5 GPCD of water use (266 million-gallon water saving).				735
Implementation Details					
Responsible Department	Public Works SDWD OMWD	Supporting Department	N/A	Task Type	Project
Implementation Timeline	Ongoing	Start Year	2018: SDWD Water Rate Study 2019: OMWD Water Rate Study	Completion Year	2018: SDWD 2020: OMWD
Co-Benefits	• Water Conservation				

<table>
<tr><th colspan="2">WE-1 Regularly Conduct Water Rate Studies and Implement Approved Water Rates</th></tr>
<tr><td></td><td>• Energy Savings</td></tr>
<tr><td>Basic Implementation Steps</td><td>1. Identify consulting resources for development of water rate studies.
2. Prepare water rate studies.
a. Data collection.
b. Data analysis.
c. Rate model development.
d. Scenario Analysis.
3. Subcommittee meetings on water rate studies.
4. Present result to Board of Directors (Board).
5. Board recommends desired plan.
6 Initiate Proposition 218 process.
7. Board adopts rate adjustment.
8. Implement rate adjustment.</td></tr>
<tr><td>City Cost</td><td>The action will require hiring a consultant to develop water rate studies, presenting studies to the Board, and implementing new water rates based on the Board's direction.
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>300[1] Hours</td><td>600[2] Hours</td><td>$49,869</td><td>$100,000</td><td>$0</td><td>$0</td></tr>
</table>
• 300 hours of SDWD staff hours in Year 1, and an additional 600 hours per year in Years 2-5.
• Consultant costs in Year 1 amount to an estimated $49,869, and an additional $100,000 per year in Years 2-5 to assist in the development of bi-annual water rate studies.
[1] Assumes 15 hours of work for 20 weeks.
[2] Assumes work on two bi-annual studies at 300 hours each.</td></tr>
<tr><td>Community Cost</td><td>SDWD and OMWD customers' water bills may be impacted based on the rate adjustment approved, however this is expected to be a moderate, incremental cost.</td></tr>
<tr><td>Funding Opportunities</td><td>N/A</td></tr>
<tr><td>Resources</td><td>N/A</td></tr>
<tr><td colspan="2">Notes: FY = Fiscal Year; GPCD = gallons per person per day; SDWD = San Dieguito Water District; $MTCO_2e$ = metric tons of carbon dioxide equivalent; OMWD = Olivenhain Municipal Water District; PACE = Property Assessed Clean Energy; N/A = Not Applicable
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

2.1.4. Clean and Efficient Transportation

CET-1 Complete and Implement the Citywide Active Transportation Plan

CET-1 Complete and Implement the Citywide Active Transportation Plan		
The Citywide Active Transportation Plan (ATP) is under development; therefore, the emissions reduction is currently not quantifiable. The ATP will integrate the existing transportation and mobility plans, including the Bike Master Plan and Pedestrian Master Plan.		
Target Year	Performance Metric	GHG Reduction Potential ($MTCO_2e$)
2020	Non-Quantified	—
2030	Non-Quantified	—

CET-1 Complete and Implement the Citywide Active Transportation Plan

Implementation Details

Responsible Department	Development Services/Planning & Engineering	Supporting Department	N/A	Task Type	Project
Implementation Timeline	Long-Term	Start Year	2018	Completion Year	2030

Co-Benefits

- Improved Local Air Quality
- Improved Community and Public Health
- Transportation Cost Savings

Basic Implementation Steps

1. Complete the ATP: research alternatives, develop draft plan, conduct public outreach, and adopt plan.
2. Acquire funding for and complete Modal Alternatives Project Implementation Plan, including design guidelines, development of prioritization criteria, prioritization of projects within each community, concept plans, and an implementation plan, including a component that will quantify the anticipated greenhouse gas emission reductions.
3. Acquire funding for, design and construct bike and pedestrian projects.
4. Update CAP targets with active transportation goals and anticipated quantified emissions reductions from bike and pedestrian projects.

The action will require at least three City staff working on the preparation of the ATP. Consultants will also be needed to assist in preparing the ATP.

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
3,043[1] Hours	648 Hours	$86,400	TBD	$0	TBD

- 3,043 hours of City staff hours to prepare the bulk of the ATP in Year 1, and an additional 648 hours to complete work on the plan in the following year. City staff hours needed to implement the ATP are to be determined.
- Consultant costs in Year 1 amount to an estimated $86,400 for aiding in the preparation of the ATP. Consultant costs to implement the ATP are to be determined in Years 2-5.

[1] Assumes time is distributed amongst 3 City staff.

Community Cost

Community costs associated with this action would be minimal, if any. If implemented successfully, the ATP has the potential to create large community benefits through increased use of active transportation modes and, in turn, improve traffic congestion, improve local air quality, and yield transportation cost savings and health benefits for residents who switch to active transportation modes.

Funding Opportunities

Caltrans Transportation Planning Grant, Caltrans Active Transportation Program, Caltrans Sustainable Transportation Planning Grant, Caltrans Local Assistance, TransNet Smart Growth and TransNet Active Transportation Grant Programs, California Bicycle Coalition Resources

Resources

Active Transportation Planning Information: SANDAG Active Transportation, National Association of City Transportation Officials, Caltrans Bicycle and Pedestrian Plan, San Diego Forward: The Regional Plan (2015)

Notes: CIP = Capital Improvement Projects; $MTCO_2e$ = metric tons of carbon dioxide equivalent; ATP = Active Transportation Plan; SANDAG = San Diego Association of Governments; TBD = to be determined

Source: Ascent Environmental 2017, EPIC 2017.

CET-2 Implement a Local Shuttle System

CET-2 Implement a Local Shuttle System

Implement service routes recommended in the Encinitas Transit Feasibility Study, using CNG buses for these routes:
• By 2020: Express Services to educational facilities - one route to Mira Costa College and one route to La Costa Canyon High School.
• By 2025: One route to Encinitas Circulator and one to Encinitas COASTER connection.

Target Year	Performance Metric	GHG Reduction Potential ($MTCO_2e$)
2020	Reduce 365,000 VMT.	130
2030	Reduce 875,000 VMT.	172

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	Development Services/Planning; Finance; Local Schools; NCTD	Task Type	Service
Implementation Timeline	Mid-Term, then Ongoing	Start Year	2019	Completion Year	Ongoing

Co-Benefits

- Improved Local Air Quality
- Improved Community and Public Health
- Transportation Cost Savings
- Increased Transit Access for students, ADA, non-drivers, and low-income populations

Basic Implementation Steps

1. Coordinate with school districts and NCTD on proposed routes. Consider schedule frequency, convenience and affordability in selecting routes, setting schedule and establishing fares.
2. Negotiate service contract for proposed new routes.
3. Conduct outreach and publicize new routes.
4. Purchase low-emission buses.
5. Initiate service.

The action will require City staff and consultant time to coordinate the implementation of the proposed routes.

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
200 Hours	40 Hours	$900,000	$75,000	$20,000	$20,000

- Approximately 200 hours of City staff hours in Year 1, and an additional 40 hours per year in Years 2-5.
- Consultant costs in Year 1 amount to an estimated $900,000, with an additional $75,000 per yr in Years 2-5.
- Other costs amount to $20,000 in Year 1 for advertising and public outreach, with a continued expense of $20,000 per year in Years 2-5.

Community Cost

Community costs associated with this action would be related to a shuttle system or transit fares for residents using transit services. If implemented effectively, the shuttle system and/or transit improvements will increase the transit commute mode share in the City, leading to individual benefits, such as transportation cost savings for drivers who switch modes, and community benefits including reduced traffic congestion, improved local air quality, and increased mobility for City residents.

Estimated Costs:

- Current COASTER round trip costs for adults are $8 for 1 Zone, $10 for 2 Zones, and $11.00 for 3 Zones (NCTD 2017). Reduced rates are also available for seniors and other eligible passengers. Day and monthly passes are also available.

Estimated Costs
$8.00 (Current COASTER Round Trip Fare for an Adult in 1 Zone)

Funding Opportunities

Caltrans Transportation Planning Grant, Caltrans Active Transportation Program, Caltrans Sustainable Transportation Planning Grant, Caltrans Local Assistance, TransNet Smart Growth and TransNet Active Transportation Grant Programs, California Bicycle Coalition Resources

CET-2 Implement a Local Shuttle System	
Resources	Active Transportation Planning Information: SANDAG Active Transportation, National Association of City Transportation Officials, Caltrans Bicycle and Pedestrian Plan, SANDAG RTP/SCS San Diego Forward: The Regional Plan (2015)

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; ATP = Active Transportation Plan; SANDAG = San Diego Association of Governments; NCTD = North County Transit District; CNG = Compressed Natural Gas; VMT = Vehicle Miles Traveled; ADA = Americans with Disabilities

Source: Ascent Environmental 2017, EPIC 2017.

CET-3 Improve Traffic Flow

CET-3 Improve Traffic Flow

Improve traffic flow by retiming traffic signals and installing roundabouts at intersections in the City.

Target Year	Performance Metric	GHG Reduction Potential ($MTCO_2e$)
2020	Retime 60 traffic signals and install 3 roundabouts.	3,671
2030	Install 4 roundabouts.	2,839

Implementation Details					
Responsible Department	Development Services/ Engineering	Supporting Department	N/A	Task Type	Project
Implementation Timeline	Mid-Term	Start Year	2018	Completion Year	2025

Co-Benefits

- Improved Local Air Quality
- Reduced Roadway Congestion

Basic Implementation Steps

Single Retiming:

1. Conduct intersection counts.
2. Complete intersection timing plans.
3. Retime signals.
4. Adjust timing as new roads and infrastructure is installed.

Roundabouts:

1. Determine location for roundabouts.
2. Design roundabouts.
3. Construct roundabouts.

The action will require City staff and consultant time to coordinate the implementation of the proposed routes.

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
300[1] Hours	100[2] Hours	$780,000[3]	$600,000[4]	$20,000	$20,000

- Approximately 300 hours of City staff hours in Year 1, and an additional 100 hours per year in Years 2-5.
- Consultant costs in Year 1 amount to an estimated $780,000 to retime signals and install roundabouts, with an additional $600,000 per year in Years 2-5 to install roundabouts.

[1] Assumes approximately 100 City staff hours to work on roundabouts, and 200 hours to work on signal retiming.
[2] Assumes all hours will be dedicated to installing roundabouts.
[3] Assumes the installation of roundabouts will amount to $600,000 and that each signal retiming would cost $3,000.
[4] Assumes all costs will be associated with installing roundabouts.

CET-3 Improve Traffic Flow	
Community Cost	Community costs associated with this action would be related to transportation and traffic impacts due to roadway improvements. The action will reduce roadway congestion within the City, as well as lead to co-benefits including improved local air quality, improved travel times, and increases in roadway safety for all users.
Funding Opportunities	FHA Surface Transportation Block Grants, Caltrans Local Assistance,
Resources	Signal Retiming and Roundabouts: TRB Traffic Signal Operation Best Practices, FHA Traffic Signal Improvement Best Practices, Caltrans Roundabout Resources, TRB Roundabout Practices

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; FHA = Federal Highway Administration; TRB = Transportation Research Board; N/A = Not Applicable

Source: Ascent Environmental 2017, EPIC 2017.

CET-4 Require Residential Electric Vehicle Charging Stations

CET-4 Require Residential Electric Vehicle Charging Stations

Starting in 2018, require new residential units to install EV charging stations. For 1) Single-Family: Install complete 40-Amp electrical circuit (EV Ready) 2) Multi-Family: Install EVCS equipment at 5% of the total number of parking spaces.

Target Year	Performance Metric	GHG Reduction Potential ($MTCO_2e$)
2020	Install 65 EV charging stations.	185
2030	Install 490 EV charging stations.	1,357

Implementation Details					
Responsible Department	Development Services/ Planning	Supporting Department	N/A	Task Type	Ordinance
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018	Completion Year	2018, then Ongoing

Co-Benefits

- Improved Local Air Quality
- Clean and Efficient Transportation

Basic Implementation Steps

1. Identify consulting resources for development of new ordinance.
2. Research alternatives and types of ordinances.
3. Develop draft ordinance for City Council adoption.
4. Adopt ordinance.
5. Develop implementation tools (e.g., application forms, compliance tracking, etc.) and integrate new ordinance requirements into building application workflow.
6. Develop process for monitoring implementation and track using ClearPath.
7. Initiate ongoing implementation and monitoring. Verify through building plan check process that plans for new residential homes are set up for EV charging stations.

The action will require hiring a consultant to develop the ordinance, along with City staff hours to coordinate with the consultant, as well as hours to implement the ordinance once adopted. It is assumed that one consultant will be hired to complete the ordinances required to implement actions CET-4 and CET-5, so City Staff hours and consultant costs are distributed evenly among the four actions.

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
30 Hours	Negligible[1]	$7,300	$0	$0	$0

CET-4 Require Residential Electric Vehicle Charging Stations	
	• 30 hours of City staff hours in Year 1, and costs in Years 2-5 are negligible and covered in the City's existing operations budget. • Consultant costs in Year 1 amount to an estimated $7,300. [1] Costs are negligible and covered under the City's existing operations budget.
Community Cost	Community costs associated with an EV ordinance will include installation and maintenance costs. Estimated Costs and Resources: • The average cost for installation of a residential Level 2 EV charging unit (including permit fees and service upgrades, but excluding charger costs) was $1,354 (EV Project 2015) • EV chargers range from $400-$800 (PluginCars 2017). • These costs may be partially offset by incentives and rebates, as well as available financing. Estimated Costs: $1,354 (Average Cost for Installation of a Residential Level 2 EVSE Unit)
Funding Opportunities	SDG&E Power Your Drive Program, CEC Funding Opportunities, CSE Charging Network Project
Resources	EVSE Information: California ZEV Action Plan, California Plug-in Electric Vehicle Collaborative, Drive Clean CA, CSE, Plug-in SD

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; EVSE = Electric Vehicle Service Equipment; CEC = California Energy Commission, CSE = Center for Sustainable Energy; ZEV = Zero Emission Vehicle; N/A = Not Applicable; SDG&E = San Diego Gas and Electric; EV = Electric Vehicle

Source: Ascent Environmental 2017, EPIC 2017.

CET-5 Require Commercial Electric Vehicle Charging Stations

CET-5 Require Commercial Electric Vehicle Charging Stations					
Starting in 2018, require installation of EVCS at 8% of the total number of parking spaces. For 1) all new commercial buildings, including the commercial portion of mixed-use projects, 2) commercial building modifications, alterations, and additions that require building permits with square footage larger than 10,000 sq. ft.					
Target Year	Performance Metric				GHG Reduction Potential ($MTCO_2e$)
2020	Install 150 EVCS.				440
2030	Install 490 EVCS.				1,789
Implementation Details					
Responsible Department	Development Services/ Planning	Supporting Department	N/A	Task Type	Ordinance
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018	Completion Year	2018, then Ongoing
Co-Benefits	• Improved Local Air Quality • Clean and Efficient Transportation				
Basic Implementation Steps	1. Identify consulting resources for development of new ordinance. 2. Research alternatives and types of ordinances. 3. Develop draft ordinance for City Council adoption. 4. Adopt ordinance. 5. Develop implementation tools (e.g., application forms, compliance tracking, etc.) and integrate new				

<table>
<tr><th colspan="2">CET-5 Require Commercial Electric Vehicle Charging Stations</th></tr>
<tr><td></td><td>ordinance requirements into building application workflow.
6. Develop process for monitoring implementation and track using ClearPath.
7. Initiate ongoing implementation and monitoring. Verify through building plan check process that plans for new commercial buildings are setup for EVCSs.</td></tr>
<tr><td></td><td>The action will require hiring a consultant to develop the ordinance, along with City staff hours to coordinate with the consultant, as well as hours to implement the ordinance once adopted. It is assumed that one consultant will be hired to complete the ordinances required to implement actions CET-4 and CET-5, so City staff hours and consultant costs are distributed evenly among the four actions.
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>30 Hours</td><td>Negligible[1]</td><td>$7,300</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 30 hours of City staff hours in Year 1, and costs in Years 2-5 are negligible and covered in the City's existing operations budget.
• Consultant costs in Year 1 amount to an estimated $7,300.
[1] Costs are negligible and covered under the City's existing operations budget.</td></tr>
<tr><td>Community Cost</td><td>Community costs associated with EV ordinance with be related EVSE installation and maintenance costs for applicants for commercial buildings in the City.
Estimated Costs and Resources:
• The average cost of a single port EVSE unit ranges from $400-6,500 for Level 2 (DOE 2015).
• These costs may be partially offset by incentives, rebates, as well as available financing. Rebate opportunities exist for businesses through SDG&E.
<table>
<tr><th>Estimated Costs</th></tr>
<tr><td>$400 - $6,500
(Average Cost of Level 2 EVSE Unit)</td></tr>
</table></td></tr>
<tr><td>Funding Opportunities</td><td>SDG&E Power Your Drive Program, CEC Funding Opportunities, CSE Charging Network Project,</td></tr>
<tr><td>Resources</td><td>EVSE Information: California ZEV Action Plan, California Plug-in Electric Vehicle Collaborative, Drive Clean CA, CSE; Plug-in SD</td></tr>
<tr><td colspan="2">Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; EVSE = Electric Vehicle Service Equipment; CEC = California Energy Commission, CSE = Center for Sustainable Energy; ZEV = Zero Emission Vehicle; N/A = Not Applicable; SDG&E = San Diego Gas and Electric; EV = electric vehicle
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

MCET-1 Transition to Zero Emission Vehicle (ZEV) Municipal Fleet

<table>
<tr><th colspan="6">MCET-1 Transition to Efficient Municipal Fleet</th></tr>
<tr><td colspan="6">Develop a municipal fleet replacement plan to 1) convert gasoline-fueled cars and light-duty trucks to Zero Emission Vehicles, including all-electric vehicles or other ZEV technology by 2030. 2) convert to renewable diesel for all diesel-fueled heavy-duty trucks by 2020.</td></tr>
<tr><th>Target Year</th><th colspan="4">Performance Metric</th><th>GHG Reduction Potential ($MTCO_2e$)</th></tr>
<tr><td>2020</td><td colspan="4">Reduce City fleet fossil fuel use (gasoline and diesel) by 10%.</td><td>55</td></tr>
<tr><td>2030</td><td colspan="4">Reduce City fleet fossil fuel use (diesel) by 30% and convert gasoline-fueled cars and light duty trucks to ZEV.</td><td>370</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Public Works/Fleet</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Policy/Program</td></tr>
</table>

<table>
<tr><th colspan="6">MCET-1 Transition to Efficient Municipal Fleet</th></tr>
<tr><td>Implementation Timeline</td><td>Short-Term, then Ongoing</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Local Air Quality
• Reduced Reliance on Fossil Fuels</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Assess needs of City departments when purchasing vehicles.
2. Purchase alternative fueled vehicles, where possible.
3. Transition to recycled diesel.</td></tr>
<tr><td>City Cost</td><td colspan="5">The action will require City staff hours to assess, coordinate, and implement program changes.
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>120 Hours</td><td>60 Hours</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 120 hours of City staff hours in Year 1, and an additional 60 hours per year in Years 2-5.</td></tr>
<tr><td>Community Cost</td><td colspan="5">There are no community costs associated with this action.</td></tr>
<tr><td>Funding Opportunities</td><td colspan="5">San Diego Clean Cities Coalition, CARB Clean Vehicle Rebate Program, CEC Grants and Funding, SDG&E Power Your Drive</td></tr>
<tr><td>Resources</td><td colspan="5">Clean Vehicle Fleet Information: San Diego Clean Cities Coalition, CSE Fleet Services, SANDAG</td></tr>
<tr><td colspan="6">Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; CARB = California Air Resources Board; CEC = California Energy Commission; SANDAG = San Diego Association of Governments; EV = electric vehicle; SDG&E = San Diego Gas and Electric; CSE = Center for Sustainable Energy; N/A = Not Applicable
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

2.1.5. Off-Road Transportation

OR-1 Adopt a Leaf Blower Ordinance to Limit Use of 2-stroke Leaf Blowers

<table>
<tr><th colspan="6">OR-1 Adopt a Leaf Blower Ordinance to Limit Use of 2-stroke Leaf Blowers</th></tr>
<tr><td colspan="6">Starting in 2018, prohibit 2-stroke leaf blowers and implement the phase-out of leaf blower emissions.</td></tr>
<tr><th>Target Year</th><th colspan="4">Performance Metric</th><th>GHG Reduction Potential ($MTCO_2e$)</th></tr>
<tr><td>2020</td><td colspan="4">Reduce all emissions from 2-stroke leaf blower use.</td><td>128</td></tr>
<tr><td>2030</td><td colspan="4">Reduce all emissions from 2-stroke leaf blower use.</td><td>142</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Development Services/Engineering</td><td>Supporting Department</td><td>Development Services/Planning</td><td>Task Type</td><td>Ordinance</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term, then Ongoing</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2018, then Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Reduced Noise
• Energy Savings
• Improved Local Air Quality</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Develop draft ordinance for City Council adoption.
2. Conduct public review of ordinance and outreach.
3. Adopt ordinance.</td></tr>
</table>

<table>
<tr><th colspan="7">OR-1 Adopt a Leaf Blower Ordinance to Limit Use of 2-stroke Leaf Blowers</th></tr>
<tr><td></td><td colspan="6">4. Develop implementation tools (e.g., application forms, compliance tracking, etc.).
5. Develop process for monitoring implementation and track using ClearPath.
6. Initiate ongoing implementation, monitoring, and enforcement.</td></tr>
<tr><td>City Cost</td><td colspan="6">The action will require City staff hours to coordinate and draft the ordinance, along with implementation and monitoring.
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>520 Hours</td><td>0 Hours</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 520 hours of City staff hours in Year 1.</td></tr>
<tr><td>Community Cost</td><td colspan="6">Community costs associated with the leaf blower ordinance would be related to any leaf blower replacements with allowable technologies specified in the ordinance. This cost could be offset by incentives and/or rebates for leaf blower replacements provided by the City.
Estimated Costs and Resources:
• The cost of an electric leaf blower varies and can cost anywhere from $40-$200 (ConsumerSearch 2017)
<table>
<tr><th>Estimated Costs</th></tr>
<tr><td>$40-$200
(Cost Range of Electric Leaf Blowers)</td></tr>
</table></td></tr>
<tr><td>Funding Opportunities</td><td colspan="6">SDAPCD Lawn Equipment</td></tr>
<tr><td>Resources</td><td colspan="6">Off-Road Equipment Information: Electric Leaf Blower Reviews, SDAPCD Lawn Equipment, ZAPLA</td></tr>
<tr><td colspan="7">Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; ZAPLA = Zero Air Pollution Los Angeles; SDAPCD = San Diego Air Pollution Control District
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

2.1.6. Solid Waste

ZW-1 Implement a Zero Waste Program

<table>
<tr><th colspan="6">ZW-1 Implement a Zero Waste Program</th></tr>
<tr><td colspan="6">Implement a Zero Waste Program to reduce waste disposal from residents and businesses in the community.</td></tr>
<tr><th>Target Year</th><th colspan="4">Performance Metric</th><th>GHG Reduction Potential ($MTCO_2e$)</th></tr>
<tr><td>2020</td><td colspan="4">Divert 65% of total solid waste generated (equivalent to 5.3 pounds per capita per day waste disposal).</td><td>2,830</td></tr>
<tr><td>2030</td><td colspan="4">Divert 80% of total solid waste generated (equivalent to 3 pounds per capita per day waste disposal).</td><td>11,921</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>Development Services/Planning; Parks & Recreation</td><td>Task Type</td><td>Education/ Ordinance/ Programs</td></tr>
<tr><td>Implementation Timeline</td><td>Mid-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Air Quality
• Landfill Diversion
• Improved Water Quality
• Improved Public Health</td></tr>
</table>

<table>
<tr><th colspan="7">ZW-1 Implement a Zero Waste Program</th></tr>
<tr><td></td><td colspan="6">• Resource Conservation • Cost Savings</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="6">1. Identify current/future markets for recyclables and food scrap compost.
2. Coordinate EDCO new recycling facility development.
3. Promote waste composition studies.
4. Review Construction & Demolition activities and actions.
5. Review and update City recycling practices at facilities and parks.
6. Monitor and implement statewide mandates.</td></tr>
<tr><td>City Cost</td><td colspan="6">The action will require City staff hours for research, coordination, monitoring, and implementation of educational outreach, facility development, programs, and ordinance development. Consultants will also be needed on a yearly basis for Years 1-5.
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>832 Hours</td><td>832 Hours</td><td>$165,000</td><td>$200,000</td><td>$15,000</td><td>$15,000</td></tr>
</table>
• 832 hours of City staff hours in Year 1 and an additional 832 hours per year in Years 2-5.
• Consultant costs in Year 1 amount to an estimated $165,000, and an additional $200,000 per year in Years 2-5.
• Other costs (e.g., materials, capital equipment, supplies, etc.) amount to approximately $15,000 in Year 1, and an additional $15,000 per year in Years 2-5.</td></tr>
<tr><td>Community Cost</td><td colspan="6">Community costs associated with implementation of a Zero Waste Program would be minimal, if any. Costs could include residential waste disposal equipment required for the Zero Waste Program, which could be subsidized though incentives and rebates included in the Zero Waste Program.</td></tr>
<tr><td>Funding Opportunities</td><td colspan="6">CalRecycle Funding Opportunities</td></tr>
<tr><td>Resources</td><td colspan="6">Solid Waste Information: CalRecycle Zero Waste Program, U.S. Zero Waste Business Council, Existing Encinitas Resources, CalRecycle Organics Material Management Page, Institute for Local Government</td></tr>
<tr><td colspan="7">Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

2.1.7. Carbon Sequestration

CS-1 Develop and implement an Urban Tree Planting Program

<table>
<tr><th colspan="6">CS-1 Develop and implement an Urban Tree Planting Program</th></tr>
<tr><td colspan="6">Starting in 2018, develop and implement an Urban Tree Planting Program, including standards to right-size trees and minimize pruning and irrigation needs, to promote increased carbon sequestration by trees within the community</td></tr>
<tr><th>Target Year</th><th colspan="4">Performance Metric</th><th>GHG Reduction Potential ($MTCO_2e$)</th></tr>
<tr><td>2020</td><td colspan="4">150 net new trees planted.</td><td>5</td></tr>
<tr><td>2030</td><td colspan="4">650 net new trees planted.</td><td>23</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Parks & Recreation</td><td>Supporting Department</td><td>Public Works</td><td>Task Type</td><td>Program/ Ordinance</td></tr>
<tr><td>Implementation</td><td>Short-Term, then Ongoing</td><td>Start Year</td><td>2018</td><td>Completion</td><td>Ongoing</td></tr>
</table>

<table>
<tr><th colspan="6">CS-1 Develop and implement an Urban Tree Planting Program</th></tr>
<tr><td>Timeline</td><td colspan="2"></td><td colspan="2"></td><td>Year</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Air Quality
• Improved Water Quality
• Improved Biological Resources
• Improved Community and Public Health
• Cooling Benefits
• Energy Conservation
• Water Savings
• Increased Property Value</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Identify appropriate tree planting vacancies throughout the City, through the City's Tree Wellness Program.
2. Update the City's Planting Plan and Street Tree Selection Guide (City Arborist and San Diego Botanical Garden).
3. Update current tree ordinance and City tree policies, as needed.
4. Coordinate with Public Works and Parks and Recreation to determine tree planting location and tree species.
5. Plant trees, considering permaculture principles.
6. Monitor health of planted trees.</td></tr>
<tr><td>City Cost</td><td colspan="5">The action will require City staff hours to coordinate with other City departments to update related plans, ordinances, and policies, as needed to determine when, where, and how trees will be planted throughout the City. Consultant costs include labor costs for planting the trees, and other costs consider the price of an average tree to be planted.
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>80 Hours</td><td>300 Hours</td><td>$21,375[1]</td><td>$21,375[2]</td><td>$2,500[3]</td><td>$2,500[4]</td></tr>
</table>
• 80 hours of City staff hours in Year 1, and an additional 300 hours per year in Years 2-5.
• Consultant costs in Year 1 amount to an estimated $21,375 to plant 50 trees, and a total of $85,500 for Years 2-5 to plant 200 trees ($21,375 per year).
• Other costs amount to $2,500 in Year 1 for 50 trees, and a total of $10,000 for Years 2-5 for 200 trees ($2,500 per year).
[1] Assumes 50 trees planted a year, with a 3-man crew working for 1.5 hours per tree, at a rate of $95 an hour.
[2] Assumes 50 trees planted a year, with a 3-man crew working for 1.5 hours per tree, at a rate of $95 an hour.
[3] Assumes an average cost for a 15-gallon plant is $50.
[4] Assumes an average cost for a 15-gallon plan is $50.</td></tr>
<tr><td>Community Cost</td><td colspan="5">Community costs associated with Urban Tree Planting Program would be minimal, if any.</td></tr>
<tr><td>Funding Opportunities</td><td colspan="5">Urban and Community Forestry Program GGRF Grants, California ReLeaf Grants</td></tr>
<tr><td>Resources</td><td colspan="5">Urban Tree Program Information: Society for Municipal Arborists, Urban Forest Program Funding, California Urban Forest Council</td></tr>
<tr><td colspan="6">Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; GGRF = Greenhouse Gas Reduction Fund; N/A = Not Applicable
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

2.2. Supporting Measure Implementation

This section assesses the implementation needs for each supporting measure identified in the 2018 CAP, organized by Strategy and then Goal. Additional resources are needed to identify community costs, funding opportunities, and other resources. Prioritization will be based on how significant and substantial implementation of these supporting measures will require in terms of overall process, costs, and resources needed. Because supporting measures do not contribute to the calculated GHG emissions reductions in the 2018 CAP, priority will be given to implementation of City Actions detailed in Section 2.1.

2.2.1. Building Energy

Goal 1.1: Reduce building energy consumption

<table>
<tr><th colspan="6">Goal 1.1: Reduce Building Energy Consumption</th></tr>
<tr><td colspan="6">Supporting Measure 1: Facilitate homeowner and business owner financing of energy efficiency measures by expanding PACE financing options.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>Development Services/Planning</td><td>Task Type</td><td>Program</td></tr>
<tr><td>Implementation Timeline</td><td>Ongoing</td><td>Start Year</td><td>Ongoing</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings
• Energy Cost Savings</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Provide information about current PACE programs to prospective homeowners and business owners.
2. Refer residents and businesses to PACE providers for detailed information.
3. Join any additional PACE programs as available.
4. Stay aware of current PACE regulations.</td></tr>
<tr><td>City Cost</td><td colspan="5">The action will require City staff hours to coordinate and implement the program.
Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>20 Hours</td><td>20 Hours</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 20 hours of City staff hours in Year 1, and an additional 20 hours per year in Years 2-5.</td></tr>
<tr><td colspan="6">Supporting Measure 2: Expand and implement a Green Building Incentive Program to promote energy retrofits at homes and businesses.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Development Services/Planning</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Program</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2019</td><td>Completion Year</td><td>2019</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Research alternatives and draft amendments to the program.</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings
• Energy Cost Savings</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>25 Hours</td><td>N/A</td><td>$7,300</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 25 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $7,300.</td></tr>
</table>

Goal 1.1: Reduce Building Energy Consumption

Supporting Measure 3: Educate homeowners about the energy audit process and any applicable incentives and streamline the process of identifying energy auditing contractors.

Implementation Details

Responsible Department	Development Services/Planning	Supporting Department	City Manager/ Environmental Services	Task Type	Education
Implementation Timeline	Short-Term, then Ongoing	Start Year	2019	Completion Year	Ongoing
Basic Implementation Steps	1. Develop educational materials for distribution.				
Co-Benefits	• Energy Savings • Energy Cost Savings • Increased Number of Residential Participants				

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
25 Hours	N/A	$7,300	$0	$0	$0

- 25 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $7,300.

Supporting Measure 4: Educate homeowners and businesses about incentive programs offered by SDG&E, CSE, and others in the region.

Implementation Details

Responsible Department	Development Services/Planning	Supporting Department	City Manager/ Environmental Services	Task Type	Education
Implementation Timeline	Short-Term, then Ongoing	Start Year	2019	Completion Year	Ongoing
Basic Implementation Steps	1. Research available incentive programs and prepare an all-in-one educational handout for distribution.				
Co-Benefits	• Energy Savings • Energy Cost Savings • Increased Number of Residential Participants				

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
25 Hours	N/A	$7,300	$0	$0	$0

- 25 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $7,300.

Supporting Measure 5: Promote pool pump conversions to variable speed pumps.

Implementation Details

Responsible Department	Development Services/ Planning	Supporting Department	City Manager/ Environmental Services	Task Type	Education
Implementation Timeline	Short-Term; then Ongoing	Start Year	2018	Completion Year	Ongoing
Basic Implementation	1. Research and develop educational materials for distribution.				

<table>
<tr><th colspan="6">Goal 1.1: Reduce Building Energy Consumption</th></tr>
<tr><td>Steps</td><td colspan="5"></td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings
• Energy Cost Savings
• Increased Number of Residential Participants</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>25 Hours</td><td>N/A</td><td>$5,200</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 25 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $5,200.</td></tr>
<tr><td colspan="6">Supporting Measure 6: Continue energy efficiency permit fee waiver program.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Development Services/ Planning</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Program</td></tr>
<tr><td>Implementation Timeline</td><td>Ongoing</td><td>Start Year</td><td>Ongoing</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Waive fee input during building permit processing.</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings
• Energy Cost Savings</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>Negligible[1]</td><td>Negligible[2]</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• City staff hours are negligible and are covered in the City's existing operations budget.
[1] Costs are negligible and covered under the City's existing operations budget.
[2] Costs are negligible and covered under the City's existing operations budget.</td></tr>
<tr><td colspan="6">Notes: PACE = Property Assessed Clean Energy; N/A = Not Applicable
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

Goal 1.2: Reduce Municipal Operation Energy Consumption

<table>
<tr><th colspan="6">Goal 1.2: Reduce Municipal Operation Energy Consumption</th></tr>
<tr><td colspan="6">Supporting Measure 1: Conduct audits to quantify energy use and to identify and quantify energy efficiency and conservations opportunities.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Project</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2018</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings</td></tr>
</table>

Goal 1.2: Reduce Municipal Operation Energy Consumption

	• Energy Cost Savings
Basic Implementation Steps	1. Coordinate with SDG&E and consultant to conduct audit, in line with the SANDAG Energy Roadmap Program. 2. Conduct audit and Identify potential energy efficiency upgrades. 3. Prioritize upgrades based on cost and effectiveness.
City Cost	Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
50 Hours	N/A	$50,000	$0	$0	$0

- 50 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $50,000.
- SDG&E may be able to fund the audits.

Supporting Measure 2: Identify grants, rebate and incentive programs, and financing opportunities for municipal energy efficiency programs.

Implementation Details					
Responsible Department	City Manager/ Environmental Services	Supporting Department	Development Services/ Planning	Task Type	Project
Implementation Timeline	Short-term	Start Year	2018	Completion Year	2018
Co-Benefits	• Energy Savings • Energy Cost Savings				
Basic Implementation Steps	1. To be completed concurrent with energy audit measure.				
City Cost	Estimated Costs:				

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
50 Hours	N/A	$10,000	$0	$0	$0

- 50 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $10,000.

Supporting Measure 3: Adopt a policy that new municipal buildings will be ZNE buildings.

Implementation Details					
Responsible Department	City Manager/ Environmental Services	Supporting Department	Development Services/ /Engineering; Parks & Recreation; Fire	Task Type	Policy
Implementation Timeline	Mid-Term	Start Year	2020	Completion Year	Ongoing
Co-Benefits	• Energy Savings • Energy Cost Savings				
Basic Implementation Steps	1. Evaluate existing policies. 2. Update existing policy or create new policy. 3. Implement policy when new buildings are designed and constructed based upon City's facility needs				
City Cost	Estimated Costs:				

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5

Goal 1.2: Reduce Municipal Operation Energy Consumption

200 Hours	N/A	$0	$0	$0	$0

- 200 hours of City staff hours in Year 1. Hours N/A for Years 2-5.

Supporting Measure 4: Convert City streetlights, traffic signals, and outdoor lighting to LED or other efficient lighting technology and monitor with energy management system.

Implementation Details

Responsible Department	Development Services/ Engineering	Supporting Department	Parks & Recreation	Task Type	Project
Implementation Timeline	Short-term	Start Year	2018	Completion Year	2019

Co-Benefits

- Energy Savings
- Energy Cost Savings

Basic Implementation Steps

1. Determine plan for LED conversion.
2. Implement plan for LED conversion.
3. Monitor conversions with energy management system.

City Cost

Estimated Costs

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
158 Hours	100 Hours	$50,000	$0	$200,000	$510,500

- 158 hours of City staff hours in Year 1, with an additional 100 hours per year for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $50,000.
- Other costs amount to approximately $200,000 in Year 1 and an additional $510,500 in Years 2-5.

[1] Costs show funding to convert 339 streetlights. The cost to convert the remaining City-owned streetlights is approximately $600,000.

Supporting Measure 5: Implement the Environmentally Preferable Purchase Policy.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	Finance; Information Technology	Task Type	Policy
Implementation Timeline	Short-Term	Start Year	2019	Completion Year	2020

Co-Benefits

- Reduced Use of Resources
- Reduced Use of Landfill
- Energy Efficiency
- Water Efficiency

Basic Implementation Steps

1. Review policy and update, as needed.
2. Develop a system to manage and track implementation.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
100 Hours	20 Hours	$0	$0	$0	$0

- 100 hours of City staff hours in Year 1, with an additional 20 hours per year in Years 2-5.

Supporting Measure 6: Continue to track State legislation and lobby for change were proposals align with City goals and vision.

Implementation Details

Responsible	City Manager	Supporting	City Manager/Environmental	Task Type	Program

<table>
<tr><th colspan="6">Goal 1.2: Reduce Municipal Operation Energy Consumption</th></tr>
<tr><td>Department</td><td></td><td>Department</td><td>Services</td><td></td><td></td></tr>
<tr><td>Implementation Timeline</td><td>Ongoing</td><td>Start Year</td><td>Ongoing</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Follow State legislation.
2. Consult with City's lobbyist.
3. Prepare Support/Opposition letters and take other action as necessary.</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings
• Energy Cost Savings</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>50 Hours</td><td>50 Hours</td><td>$5,000</td><td>$5,000</td><td>$0</td><td>$0</td></tr>
</table>
• 50 hours of City staff hours in Year 1, with an additional 50 hours per year in Years 2-5.
• Consultant costs in Year 1 amount to an estimated $5,000, with an additional $5,000 per year in Years 2-5.</td></tr>
<tr><td colspan="6">Notes: SDG&E = San Diego Gas and Electric; N/A = Not Applicable
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

2.2.2. Renewable Energy

Goal 2.1: Achieve 100% Renewable Electricity Supply in Homes and Businesses

<table>
<tr><th colspan="6">Goal 2.1: Achieve 100% Renewable Electricity Supply in Homes and Businesses</th></tr>
<tr><td colspan="6">Supporting Measure 1: Develop RFP and allocate funds for CCE Technical Feasibility Study.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>City Manager/Finance</td><td>Task Type</td><td>Program</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2018</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings
• Energy Cost Savings</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Develop RFP for CCE Technical Feasibility Study.
2. Allocate funding for Feasibility Study.
3. Conduct Feasibility Study.</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>200 Hours</td><td>N/A</td><td>$50,000</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 200 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $50,000.</td></tr>
</table>

Goal 2.1: Achieve 100% Renewable Electricity Supply in Homes and Businesses

Supporting Measure 2: Expand and implement a Green Building Incentive Program to increase the installation of solar PV, solar water heating at homes and businesses.

Implementation Details

Responsible Department	Development Services/ Planning	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Short-Term	Start Year	2019	Completion Year	2019

Co-Benefits

- Energy Savings
- Energy Cost Savings

Basic Implementation Steps

1. Research alternatives and draft amendments to the program.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
25 Hours	N/A	$7,300	$0	$0	$0

- 25 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $7,300.

Supporting Measure 3: Facilitate homeowner and business owner financing of renewable energy systems by expanding PACE financing options.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	Development Services/ Planning	Task Type	Program
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing

Co-Benefits

- Energy Savings
- Energy Cost Savings

Basic Implementation Steps

1. Provide information about current PACE programs to prospective homeowners and business owners.
2. Refer residents and businesses to PACE providers for detailed information.
3. Join any additional PACE programs as available.
4. Stay aware of current PACE regulations.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
20 Hours	20 Hours	$0	$0	$0	$0

- 20 hours of City staff hours in Year 1, and an additional 20 hours per year in Years 2-5.

Supporting Measure 4: Educate homeowners and businesses about incentive programs offered by SDG&E, CSE, and others in the region.

Implementation Details

Responsible Department	Development Services/ Planning	Supporting Department	City Manager/ Environmental Services	Task Type	Education
Implementation Timeline	Short-Term	Start Year	2019	Completion Year	Ongoing

Co-Benefits

- Energy Savings

Goal 2.1: Achieve 100% Renewable Electricity Supply in Homes and Businesses						
	• Energy Cost Savings • Increased Number of Residential Participants					
Basic Implementation Steps	1. Research available incentive programs and prepare an all-in-one educational handout for distribution.					
City Cost	Estimated Costs:					
	City Staff Resources		Consultant Costs		Other Costs	
	Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
	25 Hours	N/A	$7,300	$0	$0	$0
	• 25 hours of City staff hours in Year 1. Hours N/A for Years 2-5. • Consultant costs in Year 1 amount to an estimated $7,300.					
Supporting Measure 5: Consider the purchase of Renewable Energy Credits (RECs), if needed, to achieve to achieve 100% renewable electricity supply in 2030.						
Implementation Details						
Responsible Department	City Manager/ Environmental Services	Supporting Department	City Manager/Finance	Task Type	Administration	
Implementation Timeline	Long-Term	Start Year	2029	Completion Year	2030	
Co-Benefits	• Energy Savings • Energy Cost Savings					
Basic Implementation Steps	1. Evaluate the need for RECs. 2. Determine the type of RECs to purchase, as needed. 3. Allocate funding. 4. Purchase RECs.					
City Cost	Estimated Costs:					
	City Staff Resources		Consultant Costs		Other Costs	
	Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
	0 Hours	0 Hours	$0	$0	$0	$0
	• There are no City staff resources, nor consultant and other costs assigned because this supporting measure is not expected to be implemented until 2029.					
Notes: CCE = Community Choice Energy; RFP = Request for Proposal; SDG&E = San Diego Gas and Electric; N/A = Not Applicable; CSE = Center for Sustainable Energy; RECs = Renewable Energy Credits; PV = Photovoltaics; PACE = Property Assessed Clean Energy *Source: Ascent Environmental 2017, EPIC 2017.*						

Goal 2.2: Increase Renewable Electricity Supply in Municipal Operations

Goal 2.2: Increase Renewable Electricity Supply in Municipal Operations					
Supporting Measure 1: Conduct audits to quantify energy use and to identify and quantify energy efficiency and conservations opportunities.					
Implementation Details					
Responsible Department	City Manager/ Environmental Services	Supporting Department	N/A	Task Type	Project

<table>
<tr><th colspan="6">Goal 2.2: Increase Renewable Electricity Supply in Municipal Operations</th></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2018</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings
• Energy Cost Savings</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Coordinate with SDG&E and consultant to conduct audit.
2. Conduct audit and Identify potential energy efficiency upgrades.
3. Prioritize upgrades based on cost and effectiveness.</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>50 Hours</td><td>N/A</td><td>$50,000</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 50 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $50,000.
• SDG&E may be able to fund the audits.</td></tr>
<tr><th colspan="6">Supporting Measure 2: Identify grants, rebate and incentive programs, and financing opportunities for municipal energy efficiency and renewable energy programs.</th></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/Environmental Services / Planning</td><td>Supporting Department</td><td>Development Services/Planning</td><td>Task Type</td><td>Project</td></tr>
<tr><td>Implementation Timeline</td><td>Short-term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2018</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Energy Savings
• Energy Cost Savings</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. To be completed concurrent with energy audit measure.</td></tr>
<tr><td>City Cost</td><td colspan="5">The action will require City staff hours to identify and research funding opportunities, along with a consultant.
Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>50 Hours</td><td>N/A</td><td>$10,000</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 50 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $10,000.</td></tr>
<tr><th colspan="6">Supporting Measure 3: Implement the Environmentally Preferable Purchase Policy.</th></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>City Manager/Finance & Information Technology</td><td>Task Type</td><td>Policy</td></tr>
<tr><td>Implementation Timeline</td><td>Mid-Term</td><td>Start Year</td><td>2019</td><td>Completion Year</td><td>2020</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Reduced Use of Resources
• Reduced Use of Landfill
• Energy Efficiency
• Water Efficiency</td></tr>
<tr><td>Basic Implementation</td><td colspan="5">1. Review policy and update, as needed.</td></tr>
</table>

Goal 2.2: Increase Renewable Electricity Supply in Municipal Operations						
Steps	2. Develop a system to manage and track implementation.					
City Cost	Estimated Costs:					
	City Staff Resources		Consultant Costs		Other Costs	
	Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
	100 Hours	20 Hours	$0	$0	$0	$0
	• 100 hours of City staff hours in Year 1, with an additional 20 hours per year in Years 2-5.					
Notes: SDG&E = San Diego Gas and Electric; N/A = Not Applicable; IT = Information Technology						
Source: Ascent Environmental 2017, EPIC 2017.						

2.2.3. Water Efficiency

Goal 3.1: Reduce City-wide Potable Water Consumption

Goal 3.1: Reduce City-wide Potable Water Consumption					
Supporting Measure 1: Facilitate homeowner and business owner financing of water efficiency measures by expanding PACE financing options.					
Implementation Details					
Responsible Department	City Manager/ Environmental Services	Supporting Department	Development Services/Planning	Task Type	Program
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing
Co-Benefits	• Cost Savings • Water Efficiency and Conservation				
Basic Implementation Steps	1. Provide information about current PACE programs to prospective homeowners and business owners. 2. Refer residents and businesses to PACE providers for detailed information. 3. Join any additional PACE programs as available. 4. Stay aware of current PACE regulations.				
City Cost	Estimated Costs:				
	City Staff Resources		Consultant Costs		Other Costs
	Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
	20 Hours	20 Hours	$0	$0	$0	$0
	• 20 hours of City staff hours in Year 1, and an additional 20 hours per year in Years 2-5.					
Supporting Measure 2: Educate homeowners and business owners about water efficiency rebate and incentive programs offered to SDWD and OMWD customers.					
Implementation Details					
Responsible Department	SDWD; OMWD	Supporting Department	Development Services/Planning; SDCWA; MWD of Southern California	Task Type	Education
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing
Co-Benefits	• Improved Community • Water Efficiency and Savings				

Goal 3.1: Reduce City-wide Potable Water Consumption

	• Customer Savings • Improved Stormwater Quality
Basic Implementation Steps	1. Continue education through brochures, newsletters, website information, workshops, and events. websites outlets
City Cost	Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
4,160 Hours[1]	4,160 Hours[2]	$0	$0	$0	$0

- The supporting measure requires one FT Water Conservation Specialist at SDWD and one FTE Education and Conservation Coordinator at OMWD per year for Years 1-5.

[1] Assumes 2 FT/FTE staff working full-time for a year at 2,080 hours.
[2] Assumes 2 FT/FTE staff working full-time per year at 2,080 hours.

Supporting Measure 3: Evaluate key challenges that were identified in the 2016 SDWD Potable Reuse Feasibility Study.

Implementation Details					
Responsible Department	SDWD	Supporting Department	SFID; San Elijo JPA	Task Type	Administration/ Project
Implementation Timeline	Mid-Term	Start Year	2023	Completion Year	2025
Co-Benefits	• Water Conservation				
Basic Implementation Steps	1. Review 2016 Potable Reuse Feasibility Study. 2. Evaluate key challenges that were identified.				
City Cost	Estimated Costs:				

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
80 Hours	80 Hours	$100,000	$100,000	$0	$0

- 80 hours of City staff hours in Year 1, with an additional 80 hours per year for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $100,000, with an additional $100,000 per year for Years 2-5.

Supporting Measure 4: Conduct audits and retrofit all municipal facilities with water-efficient features to reduce potable water use at municipal facilities.

Implementation Details					
Responsible Department	City Manager/ Environmental Services	Supporting Department	N/A	Task Type	Project
Implementation Timeline	Short-Term	Start Year	2018	Completion Year	2018
Co-Benefits	• Water Conservation				
Basic Implementation Steps	1. Identify facilities to be audited (e.g., Civic Center audit completed during the sewer rehabilitation project). 2. Coordinate with water district and consultant. 3. Review and evaluate report.				
City Cost	Estimated Costs:				

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
100 Hours	N/A	$0	$0	$25,000	$0

Goal 3.1: Reduce City-wide Potable Water Consumption

- 200 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
- There are no consultant costs associated with this supporting measure, because free audits are available through the water district.
- Other costs (e.g. materials, capital equipment, supplies, etc.) amount to $25,000 in Year 1.

Supporting Measure 5: Convert all current municipal landscape adjacent to recycled water pipelines to recycled water. Look for opportunities to work with the San Elijo Joint Powers Authority to extend recycled water pipelines to additional municipal facilities, when economically viable.

Implementation Details

Responsible Department	Parks & Recreation	Supporting Department	Development Services/Planning & Engineering; San Elijo JPA; OMWD	Task Type	Policy/Project
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing
Co-Benefits	• Water Conservation				
Basic Implementation Steps	1. Establish/revise policy. 2. Work with San Elijo JPA to prioritize recycled water locations and seek opportunities for new locations. 3. Seek funding to extend lines (San Elijo JPA). 4. Connect adjacent properties.				

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
1,000 Hours	3,000 Hours	$50,000	$0	$0	$0

- 1,000 hours of City staff hours in Year 1, with a total of $3,000 hours for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $50,000.

Supporting Measure 6: Evaluate lowering the landscape area thresholds for projects to meet the Encinitas Water-Efficient Landscape Regulations.

Implementation Details

Responsible Department	Development Services/Planning	Supporting Department	N/A	Task Type	Ordinance
Implementation Timeline	Short-Term	Start Year	2019	Completion Year	2019
Co-Benefits	• Water Efficiency and Conservation				
Basic Implementation Steps	1. Research alternatives and draft ordinance.				

City Cost

The action will require City staff hours to develop and implement the policy.

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
25 Hours	N/A	$7,300	$0	$0	$0

- 25 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $7,300.

Goal 3.1: Reduce City-wide Potable Water Consumption

Supporting Measure 7: The City's Clean Water Program will continue to be actively involved in the Carlsbad Watershed Water Quality Improvement Plan development and implementation.

Implementation Details

Responsible Department	Development Services/Engineering	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing
Co-Benefits	• Improved Stormwater Quality • Improved Water Quality				
Basic Implementation Steps	1. Develop programs. 2. Resource appropriately (i.e. in-house or outsource). 3. Implement program.				

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
1,040 Hours	520 Hours	$50,000	$0	$0	$0

- 1,040 hours of City staff hours in Year 1, with an additional 520 hours per year for Years 2-5.

Supporting Measure 8: Implement a Low Impact Development Outreach and Incentive Program for residents and businesses.

Implementation Details

Responsible Department	Development Services/Engineering	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Mid-Term	Start Year	2020	Completion Year	2025
Co-Benefits	• Cost Savings • Water Efficiency and Conservation • Improved Stormwater Quality				
Basic Implementation Steps	1. Develop programs. 2. Resource appropriately (i.e. in-house or outsource). 3. Implement program.				

City Cost

The action will require City staff hours to develop and implement the policy.

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
1,040 Hours	520 Hours	$0	$0	$0	$0

- 1,040 hours of City staff hours in Year 1, with an additional 520 hours per year for Years 2-5.

Supporting Measure 9: Work with developers to implement Low Impact Development and other stormwater features on new and redevelopment projects.

Implementation Details

Responsible Department	Development Services/Engineering	Supporting Department	Development Services/Planning	Task Type	Policy
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing
Co-Benefits	• Cost Savings				

<table>
<tr><th colspan="7">Goal 3.1: Reduce City-wide Potable Water Consumption</th></tr>
<tr><td></td><td colspan="6">• Water Efficiency and Conservation
• Improved Stormwater Quality</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="6">1. Apply existing development standards based on the City's BMP Design Manual.</td></tr>
<tr><td>City Cost</td><td colspan="6">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>2,080 Hours</td><td>2,080 Hours</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 2,080 hours of City staff hours in Year 1, with an additional 2,080 hours per year for Years 2-5.</td></tr>
<tr><th colspan="7">Supporting Measure 10: Source water from least-cost sources first, whenever possible.</th></tr>
<tr><td colspan="7">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>SDWD; OMWD</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td colspan="2">Policy</td></tr>
<tr><td>Implementation Timeline</td><td>Ongoing</td><td>Start Year</td><td>Ongoing</td><td>Completion Year</td><td colspan="2">Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="6">• Cost Savings</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="6">1. When sourcing potable water, select the least-cost source first, whenever possible.</td></tr>
<tr><td>City Cost</td><td colspan="6">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>Negligible[1]</td><td>Negligible[2]</td><td>$50,000</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• Costs in Years 1-5 are negligible and covered in operating costs.
[1] Costs are negligible and covered under operating costs.
[2] Costs are negligible and covered under operating costs.</td></tr>
<tr><td colspan="7">Notes: PACE = Property Assessed Clean Energy; SDWD = San Dieguito Water District; OMWD = Olivenhain Municipal Water District; SDCWA = San Diego County Water Authority; FT= Full-Time; FTE = Full-Time Equivalent; SFID = Santa Fe Irrigation District; JPA = Joint Powers Authority; BMP = Best Management Practices; CIP = Capital Improvement Projects; RFP = Request for Proposal; N/A = Not Applicable

Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

2.2.4. Clean and Efficient Transportation

Goal 4.1: Reduce Vehicle Miles Traveled

<table>
<tr><th colspan="6">Goal 4.1: Reduce Vehicle Miles Traveled</th></tr>
<tr><th colspan="6">Supporting Measure 1: Develop and implement a complete streets policy.</th></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Development Services/Planning & Engineering</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Policy</td></tr>
<tr><td>Implementation Timeline</td><td>Ongoing</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>Ongoing</td></tr>
</table>

Goal 4.1: Reduce Vehicle Miles Traveled

Co-Benefits

- Improved Local Air Quality
- Improved Community and Public Health
- Increased Safety
- Reduced Reliance on Fossil Fuels
- Alleviates Traffic Congestion

Basic Implementation Steps

1. Research similar complete streets policies.
2. Adopt a complete streets policy.
3. Implement complete streets policy.

City Cost

The action will require City staff hours to coordinate and implement the audits, along with a consultant.

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
208 Hours[1]	312[1]	$50,000	$0	$30,000	$200,000

- 208 hours of City staff hours in Year 1, with an additional 100 hours per year for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $50,000.
- Other costs (e.g., materials, capital equipment, supplies, etc.) amount to $30,000 in Year 1, with a total of $200,000 for Years 2-5.

[1] Based on full-time staff working 10 percent of the time on this supporting measure.
[2] Based on full-time staff working 15 percent of the time on this supporting measure.

Supporting Measure 2: Develop program to support car sharing and bike sharing for the community.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	Other North County Cities	Task Type	Program
Implementation Timeline	Mid-Term	Start Year	2018	Completion Year	2022

Co-Benefits

- Improved Local Air Quality
- Reduced Reliance on Fossil Fuels
- Improved Community and Public Health
- Alleviates Traffic Congestion

Basic Implementation Steps

1. Research car sharing and bike sharing programs.
2. Develop program to support car sharing and bike sharing.
3. Implement car sharing and bike sharing program.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
100 Hours	100 Hours	$20,000	$20,000	$10,000	$10,000

- 100 hours of City staff hours in Year 1, with an additional 100 hours per year for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $20,000, with an additional $20,000 per year for Years 2-5.
- Other Costs (e.g. materials, capital equipment, supplies, etc.) amount to $10,000 per year for Years 1-5.

Supporting Measure 3: Complete Safe Routes to Schools projects to decrease need to drive students to school.

Implementation Details

Responsible Department	Development Services/Planning & Engineering	Supporting Department	Local School Districts	Task Type	Project

<table>
<tr><th colspan="6">Goal 4.1: Reduce Vehicle Miles Traveled</th></tr>
<tr><td>Implementation Timeline</td><td>Long-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Local Air Quality
• Increased Walkability
• Increased Safety for Children</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Work with school districts to identify projects.
2. List projects in the City budget and fund projects.
3. Seek grant funding when available.
4. Design and construct projects.</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:<table><tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr><tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr><tr><td>832 Hours</td><td>832 Hours</td><td>$800,000</td><td>$800,000</td><td>$200,000</td><td>$200,000</td></tr></table>• 832 hours of City staff hours in Year 1, with an additional 832 hours per year for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $800,000 for design and construction, with an additional $800,000 per year for Years 2-5 for design and construction.
• Other costs for Years 1-5 amount to $200,000 per year for surveying, inspections, and other items as needed.</td></tr>
<tr><th colspan="6">Supporting Measure 4: Coordinate with regional transit authorities and local school districts to improve student busing and public transit options.</th></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>City Manager/Finance</td><td>Task Type</td><td>Program</td></tr>
<tr><td>Implementation Timeline</td><td>Mid-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2025</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Local Air Quality
• Improved Community
• Reduced Reliance on Fossil Fuels</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Work with local schools to evaluate the feasibility of reinstating busing and other potentially effective ways to reduce GHGs at local schools.
2. Determine cost of measures and potential funding sources.
3. Establish a plan for implementation.
4. Implement the plan and program.</td></tr>
<tr><td>City Cost</td><td colspan="5">The action will require City staff hours to develop and implement the policy.
Estimated Costs:<table><tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr><tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr><tr><td>100 Hours</td><td>100 Hours</td><td>TBD</td><td>TBD</td><td>TBD</td><td>TBD</td></tr></table>• 100 hours of City staff hours in Year 1, with an additional 100 hours per year for Years 2-5.
• Consultant and other costs will be determined at a later time.</td></tr>
<tr><th colspan="6">Supporting Measure 5: Support SANDAG iCommute Guaranteed Ride Home Program for the community.</th></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Program</td></tr>
</table>

<table>
<tr><th colspan="6">Goal 4.1: Reduce Vehicle Miles Traveled</th></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Community
• Reduced Reliance on Fossil Fuels
• Alleviates Traffic Congestion</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Promote Guaranteed Ride Home program through City website and other education outreach channels.</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>10 Hours</td><td>10 Hours</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 10 hours of City staff hours in Year 1, with additional 10 hours per year for Years 2-5.</td></tr>
<tr><th colspan="6">Supporting Measure 6: Develop and implement a City Bike Rack Program.</th></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Development Services/Planning</td><td>Supporting Department</td><td>City Manager/Environmental Services</td><td>Task Type</td><td>Program</td></tr>
<tr><td>Implementation Timeline</td><td>Mid-Term</td><td>Start Year</td><td>2019</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Community and Public Health</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Research similar bike rack programs.
2. Develop a plan for a City bike rack program.
3. Allocate funding or seek grant funding.
4. Implement the City bike rack program.</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>100 Hours</td><td>300 Hours</td><td>$0</td><td>$0</td><td>$20,000</td><td>$20,000</td></tr>
</table>
• 100 hours of City staff hours in Year 1, with an additional 300 hours per year for Years 2-5.
• Other costs (e.g., materials, capital equipment, supplies, etc.) for Years 1-5 amount to $20,000 per year.</td></tr>
<tr><th colspan="6">Supporting Measure 7: Develop and implement a program to incentivize City employees commuting to work by Electric Vehicle (EV) or other modes of alternative transport as a model for other local employers.</th></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/Human Resources</td><td>Supporting Department</td><td>City Manager/Environmental Services</td><td>Task Type</td><td>Policy</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Community and Public Health
• Employee Wellness</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Survey other cities/agencies for existing policies.
2. Survey employee interest on types of incentives that would promote alternative transport/commuting.
3. Find funding source and platform to track and verify the alternative transport.
4. Set up a payout schedule with payroll.
5. Create a policy and obtain City Council approval.</td></tr>
</table>

Goal 4.1: Reduce Vehicle Miles Traveled						
City Cost	Estimated Costs:					
	City Staff Resources		Consultant Costs		Other Costs	
	Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
	100 Hours	100 Hours	$0	$0	$30,000	$20,000
	• 100 hours of City staff hours in Year 1 for implementation, with an additional 100 hours per year for Years 2-5 for staff to process the incentives each payroll. • Other costs, which would cover the cost of incentives and/or infrastructure, would amount to $30,000 in Year 1, and an additional $20,000 per year in Years 2-5.					
Supporting Measure 8: Adopt the National Association of City Transportation Officials Urban Bikeway Design Guide and utilize as a policy in the Capital Improvement Program (CIP) roadway projects.						
Implementation Details						
Responsible Department	Development Services/Engineering	Supporting Department	N/A		Task Type	Policy
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018		Completion Year	2018
Co-Benefits	• Improved Local Air Quality • Improved Community and Public Health • Increased Safety • Reduced Reliance on Fossil Fuels • Alleviates Traffic Congestion					
Basic Implementation Steps	1. Review design guide 2. City Council adopt guide. 3. Implement guide on all CIP roadway projects, as applicable.					
City Cost	Estimated Costs:					
	City Staff Resources		Consultant Costs		Other Costs	
	Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
	200 Hours	200 Hours	$0	$0	$0	$0
	• 200 hours of City staff hours in Year 1. Hours N/A for Years 2-5. • Consultant costs in Year 1 amount to an estimated $50,000.					
Notes: N/A = Not Applicable; CIP = Capital Improvement Projects; TBD = to be determined; HR = Human Resources; RFP = Request for Proposal						
Source: Ascent Environmental 2017, EPIC 2017.						

Goal 4.2: Reduce On-road Fuel Use

Goal 4.2: Reduce On-road Fuel Use					
Supporting Measure 1: Identify rebate and incentive programs and financing opportunities for installing roundabouts.					
Implementation Details					
Responsible Department	Development Services/ Engineering	Supporting Department	City Manager/Environmental Services	Task Type	Administration
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing

<table>
<tr><th colspan="7">Goal 4.2: Reduce On-road Fuel Use</th></tr>
<tr><td>Co-Benefits</td><td colspan="6">• Easing Budget Constraints</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="6">1. Seek grants and research other possible funding.
2. Apply for grants.</td></tr>
<tr><td>City Cost</td><td colspan="6">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>208 Hours</td><td>208 Hours</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 208 hours of City staff hours in Year 1, with an additional 208 hours per year for Years 2-5.</td></tr>
<tr><th colspan="7">Supporting Measure 2: Update the City's Circulation Element to support improved traffic flow.</th></tr>
<tr><th colspan="7">Implementation Details</th></tr>
<tr><td>Responsible Department</td><td colspan="2">Development Services/</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Project</td></tr>
<tr><td>Implementation Timeline</td><td colspan="2">Mid-term</td><td>Start Year</td><td>2020</td><td>Completion Year</td><td>2022</td></tr>
<tr><td>Co-Benefits</td><td colspan="6">• Improved Community and Public Health
• Improved Safety</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="6">1. Retain consultant.
2. Research necessary updates to the Circulation Element.
3. Prepare any necessary studies.
4. Develop updated draft Circulation Element.
5. Adopt amendments to the Circulation Element.</td></tr>
<tr><td>City Cost</td><td colspan="6">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>208 Hours</td><td>208 Hours</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 208 hours of City staff hours in Year 1, with an additional 208 hours per year for Years 2-5.</td></tr>
<tr><td colspan="7">Notes: CIP = Capital Improvement Projects; N/A = Not Applicable
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

Goal 4.3: Increase Use of Alternative Fuels

<table>
<tr><th colspan="6">Goal 4.3: Increase Use of Alternative Fuels</th></tr>
<tr><th colspan="6">Supporting Measure 1: Expand and implement a Green Building Incentive Program to increase Electric Vehicle (EV) charging at home and businesses.</th></tr>
<tr><th colspan="6">Implementation Details</th></tr>
<tr><td>Responsible Department</td><td>Development Services/Planning</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Program</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2018</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Reduced Reliance on Fossil Fuels
• Improved Local Air Quality</td></tr>
</table>

Goal 4.3: Increase Use of Alternative Fuels

- Expansion of Clean and Efficient Transportation

Basic Implementation Steps

1. Research alternatives and draft amendments to the program.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
25 Hours	N/A	$7,300	$0	$0	$0

- 25 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $7,300.

Supporting Measure 2: Complete and implement an Electric Vehicle (EV) Charging Station Master Plan to increase the use of Zero-Emission vehicles (ZEVs) by the community.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	N/A	Task Type	Plan
Implementation Timeline	Short-Term	Start Year	2018	Completion Year	2019

Co-Benefits

- Reduced Reliance on Fossil Fuels
- Improved Local Air Quality
- Expansion of Clean and Efficient Transportation

Basic Implementation Steps

1. Seek free resources for the completion of a plan (e.g., EV Expert or CSE).
2. Complete plan.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
30 Hours	N/A	$0	$0	$0	$0

- 30 hours of City staff hours in Year 1. Hours N/A for Years 2-5.

Supporting Measure 3: Work with SDG&E to explore projects through their Power Your Drive Program.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	Development Services/ Engineering; Parks & Recreation; Public Works	Task Type	Project
Implementation Timeline	Short-Term	Start Year	2018	Completion Year	2020

Co-Benefits

- Reduced Reliance on Fossil Fuels
- Improved Local Air Quality
- Expansion of Clean and Efficient Transportation

Basic Implementation Steps

1. Identify potential EVCS sites.
2. Acquire funding for program.
3. Sign agreements for EVCSs.
4. Install EVCSs.

City Cost

The action will require City staff hours to develop and implement the project.

Estimated Costs:

City Staff Resources	Consultant Costs	Other Costs

Goal 4.3: Increase Use of Alternative Fuels

Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
50 Hours	50 Hours[1]	$0	$0	$12,000	$0

- 50 hours of City staff hours in Year 1, with an additional 50 hours per year for Years 2 and 3 only.
- Other costs (e.g., materials, capital equipment, supplies, etc.) amount to $12,000 for Year 1.

[1] Assumes 50 Hours per year for Years 2 and 3 only.

Supporting Measure 4: Develop and implement EV charging plan for municipal facilities.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	Development Services/ Engineering; Parks & Recreation; Public Works	Task Type	Plan
Implementation Timeline	Short-Term	Start Year	2018	Completion Year	2019

Co-Benefits

- Reduced Reliance on Fossil Fuels
- Improved Local Air Quality
- Expansion of Clean and Efficient Transportation

Basic Implementation Steps

1. Complete in conjunction with Electric Vehicle Charging Station Master Plan.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
30 Hours	N/A	$0	$0	$0	$0

- 30 hours of City staff hours in Year 1. Hours N/A for Years 2-5.

Supporting Measure 5: Pursue partnerships with school districts and NCTD to explore the use of electric busing or public transit busing for schools.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	Local School Districts	Task Type	Project
Implementation Timeline	Mid-Term	Start Year	2018	Completion Year	2025

Co-Benefits

- Reduced Reliance on Fossil Fuels
- Improved Local Air Quality
- Expansion of Clean and Efficient Transportation

Basic Implementation Steps

1. Work with local schools and NCTD to evaluate the feasibility of reinstating busing and other potentially effective ways to reduce GHGs at local schools.
2. Determine cost of measures and potential funding sources.
3. Establish a plan for implementation.
4. Implement measures from plan.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
100 Hours	100 Hours	TBD	TBD	TBD	TBD

- 200 hours of City staff hours in Year 1. Hours TBD for Years 2-5.
- Consultant costs and other costs will be determined at a later date.

Goal 4.3: Increase Use of Alternative Fuels

Supporting Measure 6: Implement a wayfinding program with signage and information systems to facilitate walking, biking, and efficient driving and parking.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	Development Services/Planning &Engineering; Local Chamber; Bike advocacy groups	Task Type	Project
Implementation Timeline	Mid-Term	Start Year	2020	Completion Year	2022

Co-Benefits

- Reduced Reliance on Fossil Fuels
- Improved Local Air Quality
- Improved Community and Public Health
- Increased Safety
- Expansion of Clean and Efficient Transportation
- Alleviates Traffic Congestion

Basic Implementation Steps

1. Identify local chambers and bike advocacy groups to coordinate with.
2. Identify funding for program.
3. Develop a plan and maps for program.
4. Install signage for program.

City Cost

The action will require City staff hours to develop and implement the policy.

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
100 Hours	100 Hours[1]	$50,000	$0	$0	$0

- 100 hours of City staff hours in Year 1, with an additional 100 hours for Year 2 only.
- Consultant costs in Year 1amount to an estimated $50,000.

[1] Assumes 100 Hours in Year 2 only.

Supporting Measure 7: Implement educational activities to raise awareness about EVs among residents and businesses.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Short-Term	Start Year	2018	Completion Year	Ongoing

Co-Benefits

- Improved Community

Basic Implementation Steps

1. Develop outreach program in conjunction with other outreach activities related to climate action.
2. Post information on City website.
3. Purchase supplies for program.
4. Conduct outreach for program.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
50 Hours	50 Hours	$0	$0	$5,000	$5,000

- 50 hours of City staff hours in Year 1, with an additional 50 hours per year for Years 2-5.
- Other costs (e.g., materials, capital equipment, supplies, etc.) amount to $5,000 per year for Years 1-5.

Goal 4.3: Increase Use of Alternative Fuels

Supporting Measure 8: Install EV charging stations at municipal facilities.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	N/A	Task Type	Project
Implementation Timeline	Mid-Term	Start Year	2018	Completion Year	2025

Co-Benefits

- Reduced Reliance on Fossil Fuels
- Improved Local Air Quality
- Improved Community and Public Health
- Expansion of Clean and Efficient Transportation

Basic Implementation Steps

1. Use EVCS master plan to site stations.
2. Allocate for program funding.
3. Develop RFP for program.
4. Install EV Charging stations.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
200 Hours	50 Hours	$0	$0	$300,000	$0

- 200 hours of City staff hours in Year 1. Hours N/A for Years 2-5.
- Other costs for EVCSs and installation costs amount to $300,000.

Supporting Measure 9: Develop a City vehicle fleet conversion plan and identify funding to support conversion of fleet vehicles.

Implementation Details

Responsible Department	Public Works	Supporting Department	City Manager/Environmental Services	Task Type	Policy/ Administration
Implementation Timeline	Short-Term, then Ongoing	Start Year	2018	Completion Year	Ongoing

Co-Benefits

- Reduced Reliance on Fossil Fuels
- Improved Local Air Quality
- Improved Community and Public Health
- Expansion of Clean and Efficient Transportation

Basic Implementation Steps

1. Analyze Current Fleet.
2. Formalize Policy to replace vehicles with alternative fuel types.
3. Utilize all available State and grant funding for program.
4. Purchase vehicles.
5. Continue to right size fleet.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
60 Hours	60 Hours	$0	$15,000	$0	$50,000

- 60 hours of City staff hours in Year 1, with an additional 60 hours per year for Years 2-5.
- There are no consultant costs in Year 1, but amount to an estimated $15,000 per year for Years 2-5.

Notes: N/A = Not Applicable; EV = Electric Vehicle; CSE = Center for Sustainable Energy; EVCS = Electric Vehicle Charging Station; NCTD = North County Transit District; GHG= Greenhouse Gas; TBD = to be determined; RFP = Request for Proposal

Source: Ascent Environmental 2017, EPIC 2017.

2.2.5. Off-Road Transportation

Goal 5.1: Reduce On-road Fuel Use

<table>
<tr><th colspan="6">Goal 5.1: Reduce On-road Fuel Use</th></tr>
<tr><td colspan="6">Supporting Measure 1: Evaluate the use of alternative fueled landscaping equipment to reduce emissions.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Parks & Recreation</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Project</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2019</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Local Air Quality
• Reduced Noise
• Reduced Reliance on Fossil Fuels</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Research alternative equipment options.
2. Prioritize equipment based on cost and effectiveness.
3. Amend landscape contract, as needed.</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>500 Hours</td><td>40 Hours</td><td>$0</td><td>$0</td><td>$100,000</td><td>$0</td></tr>
</table>
• 500 hours of City staff hours in Year 1, with an additional 40 hours per year for Years 2-5.
• Other costs (e.g., materials, capital equipment, supplies, etc.) amount to $100,000 in Year 1.</td></tr>
<tr><td colspan="6">Supporting Measure 2: Educate home and business owners about alternatives to gas-powered leaf-blowing technologies.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>Development Services/ Engineering</td><td>Supporting Department</td><td>Development Services/Planning</td><td>Task Type</td><td>Policy</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2020</td><td>Completion Year</td><td>2022</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Community
• Education</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Develop education program
2. Disseminate information</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>520 Hours</td><td>N/A</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 520 hours of City staff hours in Year 1. Hours N/A for Years 2-5.</td></tr>
<tr><td colspan="6">Notes: N/A = Not Applicable
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

2.2.6. Solid Waste

Goal 6.1: Divert Solid Waste

<table>
<tr><th colspan="6">Goal 6.1: Divert Solid Waste</th></tr>
<tr><td colspan="6">Supporting Measure 1: Support regional efforts to plan for and develop residential and commercial food scrap composting programs.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Education</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Local Air Quality
• City Cost Savings
• Improved Community and Public Health
• Increased Diversion</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Construct EDCO regional facility (currently under construction and anticipated to be operational by 2019).
2. Work with and support other jurisdictions, nonprofits, and distribution networks to identify potential options.
3. Coordinate efforts with other Regional Solid Waste Association member agencies.</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>100 Hours</td><td>100 Hours</td><td>$10,000</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 100 hours of City staff hours in Year 1, with an additional 100 hours per year for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $10,000.</td></tr>
<tr><td colspan="6">Supporting Measure 2: Facilitate the establishment of fully-permitted community appropriate compost facilities in the City.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>Development Services/Planning</td><td>Task Type</td><td>Project</td></tr>
<tr><td>Implementation Timeline</td><td>Mid-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2022</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Local Air Quality
• City Cost Savings
• Improved Community and Public Health
• Increased Diversion</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Determine suitable sites and operators.
2. Work with City and County authorities for permitting of site(s).</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>200 Hours</td><td>150 Hours</td><td>$25,000</td><td>$10,000</td><td>$0</td><td>$0</td></tr>
</table>
• 200 hours of City staff hours in Year 1, with an additional 150 hours per year for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $25,000, with an additional $10,000 per year for Years 2-5.</td></tr>
</table>

Goal 6.1: Divert Solid Waste

Supporting Measure 3: Continue to support at-home management of food waste through educational workshops and subsidies of compost bins and worm bins.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing
Co-Benefits	• Improved Community and Public Health • Increased Diversion • Improved Soil Composition				
Basic Implementation Steps	Included in existing contract with Solana Center: 1. Promote and conduct compost workshops. 2. Promote residential compost bin sales.				

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
50 Hours	50 Hours	$30,000	$30,000	$0	$0

- 50 hours of City staff hours in Year 1, with an additional 50 hours per year for Years 2-5.
- Consultant costs in the first-year amount to an estimated $30,000, with an additional $30,000 per year for Years 2-5.

Supporting Measure 4: Continue to support Zero Waste programs at local schools.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing
Co-Benefits	• Improved Community and Public Health • Increased Diversion				
Basic Implementation Steps	Included in existing contract with BCK Programs and Solana Center. 1. Promote and conduct compost workshops and audits at schools.				

City Cost

The action will require City staff hours to develop and implement the policy.

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
50 Hours	50 Hours	$20,000	$20,000	$0	$0

- 50 hours of City staff hours in Year 1, with an additional 50 hours per year for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $20,000, with an additional $20,000 per year for Years 2-5.

Supporting Measure 5: Provide free audits of restaurants and grocery stores to reduce waste generation.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	N/A	Task Type	Program
Implementation	Ongoing	Start Year	Ongoing	Completion	Ongoing

<table>
<tr><th colspan="6">Goal 6.1: Divert Solid Waste</th></tr>
<tr><td>Timeline</td><td></td><td></td><td></td><td>Year</td><td></td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Community and Public Health
• Increased Diversion</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Promote EDCO's free waste audit program.
2. Consider funding additional auditing resources as necessary.</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>20 Hours</td><td>20 Hours</td><td>$10,000</td><td>$10,000</td><td>$0</td><td>$0</td></tr>
</table>
• 20 hours of City staff hours in Year 1, with an additional 20 hours per year for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $10,000, with an additional $10,000 per year for Years 2-5.</td></tr>
<tr><td colspan="6">Supporting Measure 6: Develop City Hall waste audits and consider pilot composting project based on audit results.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>Various Departments</td><td>Task Type</td><td>Project</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>2019</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Community and Public Health
• Increased Diversion</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="5">1. Conduct waste audit (completed at City Hall in 2018).
2. Evaluate audit results and determine feasibility of pilot program.
3. Conduct employee survey to determine interest.
4. If feasible, implement one-year pilot program.
5. Evaluate pilot program results.</td></tr>
<tr><td>City Cost</td><td colspan="5">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>465 Hours[1]</td><td>225 Hours</td><td>$5,000</td><td>$1,000</td><td>$1,000</td><td>$0</td></tr>
</table>
• 465 hours of City staff hours in Year 1, with an additional 225 hours per year for Years 2-5.
• Consultant costs in Year 1 amount to an estimated $5,000, with an additional $1,000 per year for Years 2-5.
• Other costs amount to $1,000 for compost bins and collection buckets in Year 1.
[1] Assumes 40 City staff hours for initial program evaluation and 225 hours for implementation and maintenance.</td></tr>
<tr><td colspan="6">Supporting Measure 7: Develop education program for textile recycling.</td></tr>
<tr><td colspan="6">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>N/A</td><td>Task Type</td><td>Education</td></tr>
<tr><td>Implementation Timeline</td><td>Short-Term/Ongoing</td><td>Start Year</td><td>2018</td><td>Completion Year</td><td>Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="5">• Improved Community and Public Health
• Increased Diversion
• Reduced Consumption</td></tr>
</table>

Goal 6.1: Divert Solid Waste

- Increased Amount of Charitable Donations

Basic Implementation Steps

1. Include textile recycling options in City outreach (e.g., Environmental Services Guide update, website, and social media).
2. Utilize other outreach resources (e.g., wastefreesd.org and solanacenter.org).

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
20 Hours	10 Hours	$500	$0	$0	$0

- 20 hours of City staff hours in Year 1, with an additional 10 hours per year for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $500.

Supporting Measure 8: Evaluate and expand existing recycling requirements at City permitted events and activities.

Implementation Details

Responsible Department	Parks & Recreation	Supporting Department	City Manager/Environmental Services	Task Type	Education
Implementation Timeline	Ongoing	Start Year	2019	Completion Year	Ongoing

Co-Benefits

- Improved Community and Public Health
- Increased Diversion
- Reduced Litter

Basic Implementation Steps

1. Evaluate existing special event permit recycling requirements.
2. Expand recycling requirements, where feasible.
3. Conduct public outreach.
4. Establish new conditions for standard event permits.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
100 Hours	40 Hours	$25,000	$25,000	$0	$0

- 100 hours of City staff hours in Year 1, with an additional 40 hours per year for Years 2-5.
- Consultant costs in Year 1 amount to an estimated $25,000, with an additional $25,000 per year for Years 2-5.

Supporting Measure 9: Expand outreach and education on the City's C&D Ordinance that has a lower threshold for covered projects.

Implementation Details

Responsible Department	City Manager/ Environmental Services	Supporting Department	Development Services/Planning	Task Type	Education
Implementation Timeline	Ongoing	Start Year	2018	Completion Year	Ongoing

Co-Benefits

- Improved Community and Public Health
- Increased Diversion

Basic Implementation Steps

1. Evaluate existing program.
2. Update and expand outreach.

City Cost

Estimated Costs:

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5

Goal 6.1: Divert Solid Waste						
	140 Hours[1]	20 Hours	$10,000	$0	$2,000	$1,000
	• 140 hours of City staff hours in Year 1 for program evaluation and updating outreach efforts, with an additional 20 hours per year for Years 2-5 for monitoring of outreach and evaluation. • Consultant costs in Year 1 amount to an estimated $10,000. • Other costs (e.g., materials, capital equipment, supplies, etc.) amount to $2,000 in Year 1, with an additional $1,000 per year for Years 2-5. [1] Assumes 100 City staff hours for program evaluation, and 40 hours for updating outreach efforts.					
Supporting Measure 10: Support product stewardship and extended producer responsibility initiatives.						
Implementation Details						
Responsible Department	City Manager/ Environmental Services	Supporting Department	N/A	Task Type	Administration	
Implementation Timeline	Short-Term	Start Year	2018	Completion Year	Ongoing	
Co-Benefits	• Improved Community and Public Health • Increased Diversion • Reduce Consumption					
Basic Implementation Steps	1. Support legislative initiatives through letters of support.					
City Cost	Estimated Costs:					

City Staff Resources		Consultant Costs		Other Costs	
Year 1	Years 2-5	Year 1	Years 2-5	Year 1	Years 2-5
40 Hours	40 Hours	$0	$0	$0	$0

• 40 hours of City staff hours in Year 1, with an additional 40 hours per year for Years 2-5.

Notes: N/A = Not Applicable

Source: Ascent Environmental 2017.

2.2.7. Carbon Sequestration

Goal 7.1: Increase Urban Tree Cover

Goal 7.1: Increase Urban Tree Cover					
Supporting Measure 1: Continue turf management practices which specify the top-dressing of compost to increase carbon sequestration at City parks.					
Implementation Details					
Responsible Department	Parks & Recreation	Supporting Department	N/A	Task Type	Policy
Implementation Timeline	Ongoing	Start Year	Ongoing	Completion Year	Ongoing
Co-Benefits	• Improved Local Air Quality • Improved Water Quality • Improved Biological Resources • Water Conservation				

<table>
<tr><th colspan="7">Goal 7.1: Increase Urban Tree Cover</th></tr>
<tr><td>Basic Implementation Steps</td><td colspan="6">1. Contracted landscaper applies top dressing as part of landscape maintenance duties.</td></tr>
<tr><td>City Cost</td><td colspan="6">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>0 Hours</td><td>0 Hours</td><td>$218,400</td><td>$218,400</td><td>$0</td><td>$0</td></tr>
</table>
• Consultant costs in Year 1amount to an estimated $218,400, with an additional $218,400 per year for Years 2-5.</td></tr>
<tr><th colspan="7">Supporting Measure 2: Partner with schools to develop programs to educate students about planting trees.</th></tr>
<tr><td colspan="7">Implementation Details</td></tr>
<tr><td>Responsible Department</td><td>City Manager/ Environmental Services</td><td>Supporting Department</td><td>Parks & Recreation</td><td>Task Type</td><td colspan="2">Program</td></tr>
<tr><td>Implementation Timeline</td><td>Ongoing</td><td>Start Year</td><td>Ongoing</td><td>Completion Year</td><td colspan="2">Ongoing</td></tr>
<tr><td>Co-Benefits</td><td colspan="6">• Improved Community
• Education</td></tr>
<tr><td>Basic Implementation Steps</td><td colspan="6">1. Coordinate with local school districts, individual schools, and contracted educators to come up with education programs or projects.</td></tr>
<tr><td>City Cost</td><td colspan="6">Estimated Costs:
<table>
<tr><th colspan="2">City Staff Resources</th><th colspan="2">Consultant Costs</th><th colspan="2">Other Costs</th></tr>
<tr><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th><th>Year 1</th><th>Years 2-5</th></tr>
<tr><td>40 Hours</td><td>40 Hours</td><td>$0</td><td>$0</td><td>$0</td><td>$0</td></tr>
</table>
• 40 hours of City staff hours in Year 1 and an additional 40 hours per year for Years 2-5.</td></tr>
<tr><td colspan="7">Notes: N/A = Not Applicable
Source: Ascent Environmental 2017, EPIC 2017.</td></tr>
</table>

Note: Since the drafting of the Implementation Plan, some additional supporting measures were added to the Climate Action Plan. These measures will be included in the implementation plan after final CAP adoption.

2.3. Adaptation Strategy Implementation

This section begins to identify high-level implementation needs, organized by adaptation goal and then strategy. Each adaptation strategy was given relative City costs of low, medium, and high based on the anticipated level of resources, staffing, and time required to implement each strategy. Additional resources are needed to identify City and community costs, funding opportunities, and other resources. Implementation priority will be based on how significant and substantial the implementation needs are for each strategy.

2.3.1. Increased Temperature

Adaptation Goal: Prepare for Increases in Temperature and Extreme Heat

Adaptation Goal: Prepare for Increases in Temperature and Extreme Heat					
Adaptation Strategy 1: Incorporate green infrastructure strategies into new and existing infrastructure to mitigate the effects of the UHIE by reducing the area of heat-absorbing paved surfaces and increasing landscaped area with planted vegetation, including shade trees. Examples of green infrastructure include street trees, climate-appropriate landscaping, green and cool roofs, and heat-reflective surfaces and materials. These actions will decrease instances of heat-related illness, improve air quality, and lower energy costs associated with indoor cooling.					
Implementation Details					
Responsible Department	Development Services/ Engineering	Supporting Department	N/A	Task Type	Policy/Program
Implementation Timeline	Ongoing				
Basic Implementation Steps	1. Continue to implement/enforce WQIP, BMP Design Manual, and Stormwater Permit.				
Relative City Cost	Low				
Adaptation Strategy 2: Promote the use of solar carports on new and existing surface parking lots to mitigate heat absorption and increase shaded areas for the City's population. Implementation priority will be given to City-owned parking lots to serve as example solar carports. Solar carports would additionally provide GHG-reducing co-benefits by increasing distributed solar generation and, if electric vehicle charging stations are added, improving charging accessibility.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Development Services/Planning	Task Type	Education
Implementation Timeline	Mid-Term				
Basic Implementation Steps/Tasks	1. Develop education program. 2. Implement program.				
Relative City Cost	Low				
Adaptation Strategy 3: Promote the use of passive cooling design (e.g. appropriate building orientation, shade trees, window shading, and cool roofs) and use the California Building Standards Code (CalGreen) voluntary measures for residential and nonresidential buildings to improve energy efficiency. Other energy efficiency measures (e.g. air sealing improvements, whole house fans, energy efficient air-conditioning units) should be encouraged in new development within the City to reduce demand for air conditioning and help reduce energy costs.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Development Services/Planning	Task Type	Education
Implementation Timeline	Mid-Term				
Basic Implementation Steps	1. Develop education program. 2. Implement program.				
Relative City Cost	Low				

Adaptation Goal: Prepare for Increases in Temperature and Extreme Heat					
Adaptation Strategy 4: Conduct outreach to educate City residents on the health risks associated with extreme heat events and strategies to prepare for these events. Alongside general outreach, particular focus should be given to educating populations vulnerable to extreme heat including children and the elderly.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Parks & Recreation/ Senior Center; Fire	Task Type	Education
Implementation Timeline	Mid-Term				
Basic Implementation Steps	1. Develop education program. 2. Implement program.				
Relative City Cost	Low				
Adaptation Strategy 5: Coordinate with relevant agencies including, but not limited to, the San Diego County Office of Emergency Services, San Diego Unified Disaster Council, and San Diego Fire Department to better plan and prepare for extreme heat events and the increased demand for emergency services associated with these events. Coordinated efforts should include improving Heat-Health Alert Warning Systems, identifying key vulnerable populations within the City in preparation for heat related events, and coordinating with local health care institutions (e.g. Scripps Memorial Hospital) to increase extreme heat preparedness and resiliency.					
Implementation Details					
Responsible Department	City Manager; Fire	Supporting Department	Public Works	Task Type	Program
Implementation Timeline	Mid-Term				
Basic Implementation Steps	1. Identify appropriate agencies to coordinate with. 2. Establish lines of communication. 3. Identify a procedure for notifying public. 4. Notify public, as needed.				
Relative City Cost	Low				
Adaptation Strategy 6: Work with local and regional employers to ensure worker protection measures are in place for extreme heat events. Measures may include assurance of adequate water, shade, rest breaks, and training on heat risks for all employees working in the City.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	N/A	Task Type	Education
Implementation Timeline	Mid-Term				
Basic Implementation Steps	1. Disseminate public information provided by the County regarding heat days for workers.				
Relative City Cost	Low				
Adaptation Strategy 7: Work with local businesses and institutions to provide a network of "Cool Zone" areas (i.e., cooling centers) for vulnerable residents to rest in air-conditioned environments during high temperature periods and heat wave events. Cooling centers can include locations like the Encinitas Library and the Encinitas Community and Senior Center. Work with the local school districts to ensure every school has air conditioning.					
Implementation Details					
Responsible	City Manager/Environmental	Supporting	Parks &	Task Type	Education

Adaptation Goal: Prepare for Increases in Temperature and Extreme Heat					
Department	Services	Department	Recreation/Senior Center; Fire		
Implementation Timeline	Mid-Term				
Basic Implementation Steps	1. Identify existing "Cool Zones" already in place. 2. Coordinate with local businesses to identify additional locations. 3. Develop education campaign to make locations known.				
Relative City Cost	Low				
Adaptation Strategy 8: Participate in beach nourishment projects that maintain local wide sandy beaches. Encinitas beaches are considered regional "Cool Zones." By maintaining the beach width, the City will be able to handle a larger number of coastal visitors, when needed, keeping the public a safe distance from the bluffs.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Ongoing				
Basic Implementation Steps	1. Implement the USACE Coastal Storm Damage Reduction Project. 2. Implement opportunistic beach fill program. 3. Seek grants, project partners, federal, State, regional and other funding.				
Relative City Cost	Very High				
Notes: *N/A = Not Applicable; WQIP = Water Quality Improvement Plan; BMP = Best Management Practices; UHIE = Urban Heat Island Effect; GHG = Greenhouse Gas; USACE = U.S. Army Corps of Engineers* *Source: Ascent Environmental 2017.*					

2.3.2. Changes in Precipitation Patterns

Adaptation Goal: Prepare for Changes in Precipitation Patterns and Water Supply

Adaptation Goal: Prepare for Changes in Precipitation Patterns and Water Supply					
Adaptation Strategy 1: Coordinate with local and regional partners (SDWD, OMWD, and SDCWA) to support and improve water conservation efforts and programs for City residents. Coordinate with these agencies to provide educational outreach to residents on how best to conserve water and reduce water demand.					
Implementation Details					
Responsible Department	SDWD; OMWD	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Ongoing				
Basic Implementation Steps	1. Identify partner agencies. 2. Coordinate to improve water conservation efforts.				

Adaptation Goal: Prepare for Changes in Precipitation Patterns and Water Supply					
Relative City Cost	Low				
Adaptation Strategy 2: Expand and/or improve the recycled water efforts currently in place at the San Elijo Water Reclamation Facility along with corresponding water conservation efforts to ensure that, when economically viable, all current and future City landscaping can source the majority of landscaping water needs from recycled sources.					
Implementation Details					
Responsible Department	San Elijo JPA; OMWD	Supporting Department	Development Services/ Engineering	Task Type	Project
Implementation Timeline	Ongoing				
Basic Implementation Steps/Tasks	1. Identify recycled water line expansion opportunities. 2. Identify funding for projects. 3. Connect to new recycled water lines.				
Relative City Cost	High				
Adaptation Strategy 3: Work with relevant water agencies, including SDCWA, OMWD, and SDWD, to evaluate current and future water supply systems and vulnerabilities and how water resources may be impacted by climate change.					
Implementation Details					
Responsible Department	SDWD; OMWD	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Ongoing				
Basic Implementation Steps	1. Completed as part of current water resource planning efforts.				
Relative City Cost	Medium				
Adaptation Strategy 4: Continue marketing and outreach program to promote participation in existing water conservation rebate and incentive programs in the region. Current programs for southern California include Water Smart San Diego (SDCWA), SoCal WaterSmart (Metropolitan Water District), and SDWD's free sprinkler nozzle program.					
Implementation Details					
Responsible Department	SDWD; OMWD	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Ongoing				
Basic Implementation Steps	1. Water conservation program in place at both water districts.				
Relative City Cost	Low				
Adaptation Strategy 5: Expand upon the City's existing Water Efficient Landscape Regulation to promote the use of climate appropriate landscaping (e.g., xeriscaping) to reduce demand for potable water resources among City residents. Promote current funding available through the Save Our Water Turf Replacement Rebate Program sponsored by DWR.					
Implementation Details					
Responsible Department	SDWD; OMWD	Supporting Department	Development Services/Planning	Task Type	Program
Implementation Timeline	Ongoing				

Adaptation Goal: Prepare for Changes in Precipitation Patterns and Water Supply	
Basic Implementation Steps	1. Water conservation program in place at both water districts.
Relative City Cost	Low
Notes: *N/A = Not Applicable; SDWD = San Dieguito Water District; OMWD = Olivenhain Municipal Water District; JPA = Joint Powers Authority; SDCWA = San Diego County Water Authority* *Source: Ascent Environmental 2017.*	

2.3.3. Increased Wildfire Risk

Adaptation Goal: Prepare for Increased Wildfire Risk

Adaptation Goal: Prepare for Increased Wildfire Risk					
Adaptation Strategy 1: Coordinate with relevant agencies including OES, the California Department of Forestry and Fire Protection (CAL FIRE), and the Encinitas Fire Department to map and identify current and future land uses, neighborhoods, and infrastructure that are at a high risk of experiencing wildfire impacts.					
Implementation Details					
Responsible Department	Fire	Supporting Department	GIS	Task Type	Policy
Implementation Timeline	Ongoing				
Basic Implementation Steps	1. Complete Very High Fire Hazard Severity Zones map. 2. Integrate the map into the Fire and Building Code. 3. Project proponents must follow regulations in ordinance. 4. Update map and ordinance every 3 years, as required by State.				
Relative City Cost	Low				
Adaptation Strategy 2: Continue to update the MHMP every five years as required by the State to comprehensively plan for current and future wildfire risks within the City and work to implement all strategies in the City's current MHMP.					
Implementation Details					
Responsible Department	Fire	Supporting Department	Multiple Departments	Task Type	Program
Implementation Timeline	Ongoing				
Basic Implementation Steps/Tasks	1. Fire coordinates implementation effort among multiple departments depending on action. 2. Implement all goals, objective and actions within MHMP.				
Relative City Cost	Medium				
Adaptation Strategy 3: Update the Safety Element of the City's General Plan consistent with the OPR General Plan Guidelines, which requires adopted safety elements to consider climate change and climate adaptation strategies pursuant to SB 379.					
Implementation Details					
Responsible Department	Development Services /Planning	Supporting Department	Fire	Task Type	Project

Adaptation Goal: Prepare for Increased Wildfire Risk					
Implementation Timeline	Short-Term				
Basic Implementation Steps	1. Hire consultant. 2. Revise element. 3. Adopt revised element.				
Relative City Cost	Medium				
Adaptation Strategy 4: Work with relevant State agencies, including OES and CAL FIRE, to improve coordination for emergency services related wildfire and related events in the City. Consider the development of a Community Wildfire Protection Plan to increase community resilience too wildfire events.					
Implementation Details					
Responsible Department	Fire	Supporting Department	City Manager; Public Works; SDWD	Task Type	Program
Implementation Timeline	Mid-Term				
Basic Implementation Steps	1. Evaluate existing emergency resources. 2. Upgrade radio system to improve interagency coordination. 3. Add additional hydrants in older areas of the City. See MHMP Goal 5.				
Relative City Cost	Medium				
Adaptation Strategy 5: Consider new development standards for City residents and businesses within the UWI, such as incorporating defensible space practices into landscape requirements for neighborhoods at increased risk of wildfire. Residential areas that should be considered for new standards include neighborhoods surrounding Lux Canyon, Saxony Canyon, the Manchester Preserve, and Escondido Creek.					
Implementation Details					
Responsible Department	Development Services/Planning	Supporting Department	Fire	Task Type	Policy
Implementation Timeline	Ongoing				
Basic Implementation Steps	1. Evaluate Fire and Building Codes as part of three-year review. 2. Revise and update codes, as needed. 3. Adopt updated code.				
Relative City Cost	Low				

Notes:

OES = Office of Emergency Services; GIS = Geographic Information Systems; MHMP = Multi-Jurisdictional Hazard Mitigation Plan; OPR = Office of Planning and Research; SDWD = San Dieguito Water District

Source: Ascent Environmental 2017, EPIC 2017.

2.3.4. Increased Likelihood of Flooding

Adaptation Goal: Prepare for Increased Flood Risk

Adaptation Goal: Prepare for Increased Flood Risk					
Adaptation Strategy 1: Conduct a comprehensive assessment of all stormwater and wastewater infrastructure in the City and analyze how this infrastructure may be affected or compromised by increased risk of flooding events.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Development Services/ Engineering; Information Technology; Fire	Task Type	Project
Implementation Timeline	Short-Term				
Basic Implementation Steps	1. Major wastewater pump stations have been renovated and are prepared for sea-level rise 2. Identify funding for Coastal Resiliency Mitigation Plan a. Plan would identify at-risk infrastructure and other vulnerabilities and establish a plan for sea-level rise. b. Incorporate completed maps of infrastructure and sea-level rise into the Plan: Flood Insurance Rate Maps, FEMA Maps, and CoSMoS, Tsunami, Flood Hazard Overlay Map. Incorporate these into plan. 3. Draft RFP. 4. Conduct study.				
Relative City Cost	High				
Adaptation Strategy 2: Coordinate with relevant agencies, such as OES and the Encinitas Public Works Department, to map and identify all critical facilities and infrastructure that may be compromised by increased flood risk. The City should plan accordingly for upgrades, relocation of facilities and infrastructure or identify beach nourishment projects to better prepare for increased risk of flooding events.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Fire	Task Type	Plan
Implementation Timeline	Mid-Term				
Basic Implementation Steps/Tasks	1. Complete as part of Coastal Resiliency Mitigation Plan (See Strategy 1 above).				
Relative City Cost	High				
Adaptation Strategy 3: Coordinate with relevant agencies, such as FEMA, OES and the Encinitas Fire Department, to better plan and prepare emergency services required for flooding events, including evacuation services, flood management services and recovery services.					
Implementation Details					
Responsible Department	Fire	Supporting Department	City Manager; Public Works; Lifeguards; Sheriffs	Task Type	Program
Implementation Timeline	Mid-Term				
Basic Implementation Steps	1. Implement actions within MHMP, Goals 6 and 7.				
Relative City Cost	Medium				

Adaptation Goal: Prepare for Increased Flood Risk					
Adaptation Strategy 4: Continue local and regional ecosystem restoration efforts that will result in increased climate resiliency for flooding events within the City.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Development Services/Planning & Engineering; San Elijo Lagoon Conservancy	Task Type	Program
Implementation Timeline	Ongoing/Long-Term				
Basic Implementation Steps	1. Plan and develop projects as funding becomes available.				
Relative City Cost	High				
Notes: *FEMA = Federal Emergency Management Agency; RFP= Request for Proposal; OES = Office of Emergency Services; MHMP = Multi-Jurisdictional Hazard Mitigation Plan* *Source: Ascent Environmental 2017.*					

2.3.5. Sea-Level Rise

Adaptation Goal: Prepare for Coastal Erosion and Predicted Sea-Level Rise

Adaptation Goal: Prepare for Coastal Erosion and Predicted Sea-Level Rise					
Adaptation Strategy 1: Support and monitor ongoing analysis of sea-level rise data relevant to the City's planning efforts. Continue to incorporate the most up-to-date information on sea-level rise into relevant planning documents including the Safety Element of the City's General Plan.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Development Services/Planning & Engineering; Information Technology	Task Type	Project
Implementation Timeline	Short-Term				
Basic Implementation Steps	1. Major wastewater pump stations have been renovated and are prepared for sea-level rise. 2. Identify funding for Coastal Resiliency Mitigation Plan. a. Plan would identify at-risk infrastructure and other vulnerabilities and establish a plan for sea-level rise. 4. Draft RFP. 5. Conduct study.				
Relative City Cost	High				

Adaptation Goal: Prepare for Coastal Erosion and Predicted Sea-Level Rise					
Adaptation Strategy 2: Develop a Coastal Resiliency Mitigation Report to coordinate FEMA, tsunami mapping, and the CoSMoS predictions for sea-level rise. Utilize maps and FEMA Hazus software to estimate potential losses from tsunamis or sea-level rise to map and display hazard data and the results of damage and economic loss estimates for building and infrastructure. By estimating losses, it provides a basis for developing mitigation plans and policies, emergency preparedness and response and recovery planning. Additionally, provide assistance to residents currently at-risk of coastal erosion in preparing for future impacts.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Development Services/Planning & Engineering; Information Technology	Task Type	Project
Implementation Timeline	Short-Term				
Basic Implementation Steps/Tasks	1. Major wastewater pump stations have been renovated and are prepared for sea-level rise. 2. Identify funding for Coastal Resiliency Mitigation Plan. a. Plan would identify at risk infrastructure and other vulnerabilities and establish a plan for sea-level rise. 4. Draft RFP. 5. Conduct study.				
Relative City Cost	Medium				
Adaptation Strategy 3: Develop a comprehensive outreach strategy to receive stakeholder input and educate residents about sea-level rise and how the community can best prepare for these impacts.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Short-Term				
Basic Implementation Steps	1. Conduct outreach and receive stakeholder input as part of Coastal Resiliency Report.				
Relative City Cost	Medium				
Adaptation Strategy 4: Continue to implement current efforts focused on beach nourishment, coastal bluff improvements and wetland restoration, prioritizing projects that will mitigate the impacts sea-level rise, including coastal erosion and saltwater inundation.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	N/A	Task Type	Program
Implementation Timeline	Ongoing				
Basic Implementation Steps	1. Implement the USACE Coastal Storm Damage Reduction Project. 2. Implement opportunistic beach fill program. 3. Seek grants, project partners, and federal, State, regional, and other funding.				
Relative City Cost	High				

Adaptation Goal: Prepare for Coastal Erosion and Predicted Sea-Level Rise					
Adaptation Strategy 5: Coordinate with relevant agencies, including FEMA, and OES, to prepare and plan for the impacts of coastal erosion, sea-level rise, and coastal storm surge, continuously updating and utilizing the most relevant strategies and guidance provided by relevant agencies and institutions.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Public Works; Sheriffs; Fire	Task Type	Program
Implementation Timeline	Long-Term				
Basic Implementation Steps	1. Gain awareness of federal and State emergency programs and assistance. 2. Plan for potential future disasters. 3. Anticipate potential funding needs during a coastal emergency and rebuilding.				
Relative City Cost	High				
Adaptation Strategy 6: Continue to map critical infrastructure in the City that may be impacted by sea-level rise and work with City's Public Works Department to plan accordingly.					
Implementation Details					
Responsible Department	City Manager/Environmental Services	Supporting Department	Information Technology	Task Type	Program
Implementation Timeline	Ongoing				
Basic Implementation Steps	1. Conduct mapping as part of regional and local coastal studies and plans.				
Relative City Cost	Medium				

Notes:

N/A = Not Applicable; FEMA = Federal Emergency Management Agency; RFP= Request for Proposal; OES = Office of Emergency Services; USACE = U.S. Army Corps of Engineers

Source: Ascent Environmental 2017, EPIC 2017.

3. Implementation Monitoring and CAP Updates

The 2018 CAP will need to be updated and maintained if it is to remain relevant and effective. The CAP Program Administrator, along with key City staff, will evaluate and monitor plan performance over time and make recommendations to alter or amend the plan if it is not achieving the proposed reduction targets. This process allows City staff to make timely adjustments to existing actions and supporting measures; replace ineffective or obsolete actions and supporting measures; or add new actions and supporting measures as technology, federal and State programs, and circumstances change. Adjustments will be made to the 2018 CAP if actions and supporting measures fall short of their targets or additional actions become available. The Implementation Plan strives to maintain flexibility to allow for the City to implement and achieve the most effective CAP.

The implementation tables in Section 3.0 are designed to highlight the key implementation metrics for all actions, supporting measures, and adaptation strategies. As implementation begins, City staff will need to track the key Performance Metrics (e.g., EV charging stations installed) and implementation detail metrics (e.g., progress towards completing basic implementation steps) found in the tables. The data and content collected will also serve as the basis for the CAP Monitoring Report and will be used to inform future CAP updates.

The CAP Program Administrator will serve as the key coordinator of the CAP monitoring process, but will be supported by staff from other City departments, as well as regional agencies. Similar to CAP implementation, the monitoring process will be a collaborative, inter-departmental effort in which monitoring for each action and supporting measure will be conducted primarily by the departments and staff tasked with responsibility for implementation. This process allows monitoring of CAP implementation to remain accurate, allows various City departments to play an integral role in the CAP implementation process, and provides necessary monitoring support to the CAP Program Administrator.

Additional resources and funding will be budgeted, a required, to effectively monitor the implementation process. City staff time will be needed to establish internal monitoring process, and ongoing time will be needed to continue to monitor progress.

3.1. CAP Monitoring Report

The CAP Monitoring Report will serve as a publicly available document that provides annual updates on CAP implementation progress, GHG reductions achieved, and other important milestones in the CAP implementation process. The report will inform the City Council, the Environmental Commission, and the general public about implementation progress on the specific actions and supporting measures being implemented, as well as overall progress towards the City's GHG reduction targets. The CAP Monitoring Report will also serve to inform City staff on the success and cost-effectiveness of the various actions and supporting measures being implemented, allowing future CAP updates to prioritize effective supporting measures and eliminate inefficient or ineffective policies.

The CAP Monitoring Report will be developed using the information gathered during the implementation monitoring process. The report will also highlight key data and metrics included in the City's online Climate Action Dashboard (Dashboard), which will serve as an additional interactive reporting component to allow the public and decision-makers to continuously observe the CAP implementation progress. The first CAP Monitoring Report is scheduled for development in 2019 and will be presented to the City's Environmental Commission and City Council once complete.

3.2. CAP and Inventory Updates

GHG Emissions Inventory Updates

In conjunction with CAP monitoring, GHG inventory updates will be necessary to assess progress and inform future CAP updates. An updated GHG inventory, using current data and assumptions, will allow the City to more accurately monitor GHG emissions occurring in the City over time, observe how CAP implementation is affecting overall emissions rates for each emission category, and observe how the City's emissions are affected by various external factors (i.e. State policy and economic growth in the region).). This helps to inform future CAP policy decisions.

Through climate planning services offered via its Energy Roadmap Program, the San Diego Association of Governments (SANDAG) will update the City's GHG emissions inventory every two years, with the first scheduled update to occur in 2018. The collaboration with SANDAG's Energy Roadmap Program will provide a regularly scheduled and consistent GHG inventory update process, allowing the City to observe how emissions categories perform over time in relation to the CAP implementation process. The GHG inventory updates will provide a comparison to the 2012 baseline inventory and the 2020, 2030, and 2050 emission projections. The program will also provide consistency for GHG inventory updates, through the use of the same reliable regional data sources that will provide a useful comparison of emissions between updates.

Although these updates will be conducted by SANDAG and their supporting contractors, City staff time and resources will be required to coordinate and participate in the GHG inventory updates.

CAP Updates

As the City continues to implement the CAP actions and supporting measures, regularly scheduled CAP updates will be required. Beginning in 2023, CAP updates will be prepared every five years and will be based on the findings from the monitoring reports and inventory updates. The CAP updates are necessary to account for any new State or federal legislation that may affect the 2018 CAP or implementation of the 2018 CAP, any new technologies that may affect or inform CAP policy, and information gathered in the CAP implementation monitoring process that may be useful for future CAP policy decisions. Future CAP updates can also serve to provide renewed focus on emissions categories that may not have been the focus of past CAP implementation efforts or may not have been infeasible at the time. For example, innovations in renewable energy and energy efficiency in recent years have allowed for cost-effective and rapid deployment of these technologies to achieve GHG reductions. Future CAP updates may focus on GHG reductions strategies that were previously more difficult to implement, such as transportation strategies, due to a lack of appropriate technologies or a high upfront implementation cost.

CAP updates will include an assessment and update of the GHG inventory, updated progress towards overall GHG reduction goals, adjustments to reduction actions and supporting measures as necessary, and any changes to land use projections to achieve consistency with zoning and General Plan land use designations and policies. Once complete, future CAP updates will be recommended for adoption by City Council. City staff time and resources will be necessary to complete the CAP update process.

The figure below outlines the CAP implementation and monitoring schedule.

CAP Implementation and Monitoring Schedule

2018	**CAP Adopted** Council adopts CAP and staff begins to implement actions and measures.
2018	**Begin Implementation and Monitoring** Staff performs initial start-up tasks and implementation of data tracking.
2018	**GHG Emissions Baseline Inventory Update** Staff conducts an update to the emissions inventory every two years starting with the 2016 baseline year, consistent with SANDAG's Energy Roadmap Program timeline.
2019	**Annual CAP Monitoring Report** Staff prepares and presents first annual monitoring report to City Council and Environmental Commission assessing the CAP's annual performance in achieving targeted goals.
2023	**CAP Update** Based on findings from the annual monitoring reports and inventory updates, staff prepares a CAP update every five years.

4. Ongoing Engagement

As the City continues to implement and monitor progress on the 2018 CAP, continued engagement with and participation by the community is a critical component in successfully achieving progress towards meeting GHG reduction goals. Meaningful and continued engagement with the community will provide the necessary support and political will to implement the CAP over the long-term. Community engagement will include outreach to individual residents and businesses, community organizations, developers, property owners, schools, and other local and regional government agencies. While the 2018 CAP focuses on actions and supporting measures in which the City has a role, many of the actions and supporting measures require partnerships and collaboration in order to be effective. Active community engagement throughout the CAP implementation process will also support residents' and business' sense of ownership over the CAP and responsibility for its successful implementation. This will ensure CAP implementation continues to be a priority for City staff and elected officials. Ongoing engagement will be overseen and led by the CAP Program Coordinator, with key City staff and contractors assisting, where needed. See implementation tables in Section 2 for more specifics on ongoing engagement.

Educating the public about the CAP implementation process, how the public can help support CAP implementation, how the CAP may affect City residents, and the variety of community benefits (i.e. cost savings, walkability, etc.) that will be realized through CAP implementation is critical for meeting CAP goals and targets. Public education strategies for the CAP implementation process will cover a broad range of topics related to various components of the City's CAP, focusing on both climate change mitigation (i.e. actions) and adaptation strategies for the Encinitas community. The City's online Climate Dashboard will be instrumental in communicating CAP progress and engaging community members. The dashboard provides information about CAP data, highlights success stories in climate action, and invites public participation in the ongoing CAP process.

Along with general public education about the CAP, outreach efforts will include focused educational campaigns specific to sectors of the public that will be directly involved and/or impacted by the various actions being implemented. While not all actions will require outreach efforts, several actions must include public education outreach efforts to ensure successful implementation (see Implementation Tables in Section 2). Specific organizations and stakeholders most appropriate for outreach efforts will be finalized during the implementation process.

4.1. Key Stakeholders

The following is a general list of key City staff, organizations, and overall stakeholders that should be involved or considered for involvement in the CAP implementation and public outreach process.

- City of Encinitas Staff, Departments and Committees
- Sea-Level Rise Council Subcommittee
- Community Choice Aggregation (CCA) Council Subcommittee
- EV Charging Station Council Subcommittee
- Environmental Commission
- Public Works Department
- City Manager's Office
- San Dieguito Water District (SDWD)
- Olivenhain Municipal Water District (OMWD)
- Development Services
- Regional Agencies
- North County Transit District (NCTD)
- San Diego Association of Governments (SANDAG)
- Caltrans (District 11)
- Local Organizations and Businesses
- Solana Center for Environmental Innovation
- North County Eco Alliance
- Citizens Climate Lobby
- Regional Organizations
- San Diego Regional Climate Collaborative
- Center for Sustainable Energy
- San Diego Gas & Electric (SDG&E)
- UC San Diego
- San Diego State University

4.2. Social Equity

Incorporating equity into implementation of the CAP will be key to a successful outcome. Equity would ensure just distribution of the benefits of climate protection efforts and would help alleviate unequal impacts created by climate change. Social equity is a broad subject that transcends the 2018 CAP and intersects with multiple facets of City operations. However, the 2018 CAP presents an opportunity to begin addressing climate equity and laying the foundation for further action by the City. The City intends to address social equity in a holistic manner through its General Plan.

The City currently manages various programs to address equity in planning. The City of Encinitas Housing Authority operates a Section 8 Rental Assistance program for very-low income families. The City of Encinitas also receives an annual federal grant for the Community Development Block Grant (CDBG) Program. Funds for the CDBG Program are provided for affordable housing and community development activities within communities. The City also has an Inclusionary Housing requirement, whereby, developments of 10 or more units must provide affordable housing or pay an in-lieu fee to be used for affordable housing in the City.

The City will continue to incorporate equity considerations into implementation of the 2018 CAP. Local actions such as the Community Choice Energy (CCE) program and residential and commercial photovoltaic programs would create and promote jobs for the local workforce. The City will provide climate action related resources and knowledge-sharing opportunities for small-business owners at workshops and outreach events. The City will also consider low-income areas when locating and installing electric vehicle (EV) charging stations. Needs of underserved communities, such as low-income and seniors, would be considered when siting local transit shuttle routes and stops. Active transportation-related actions would be implemented to provide benefits to low-income populations, students, children, and other groups that do not have access to other transportation choices. The City is a participant in the North Coast Energy Action Collaborative, which supports energy savings for local businesses, including small businesses. The City would also partner with schools and local businesses to promote climate action. The City will also evaluate opportunities to install energy efficiency upgrades, photovoltaic systems, and EV charging stations at City-owned low-income housing. The City will actively prioritize actions and supporting measures that include consideration of social equity. In preparing a holistic approach to equity, the City will develop tracking and reporting metrics to determine progress and success.

Green Jobs Creation

According to the Bureau of Labor Statistics, green jobs are defined as the following:

A. Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources.

B. Jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources.

To provide support for the creation of green jobs within the City, the following measures will be implemented as part of the 2018 CAP:

1. The City's Economic Development effort, which serves to support local business development, will support the creation of green jobs through targeted workshops, customer service programs, funding of mainstreet and chamber associations and services offered via a business ombudsperson. In addition to green jobs, we will support the "greening of jobs" by reducing the environmental impact of businesses associated with transportation, water use, energy use and solid waste generation.

2. The City will develop a Green Business Program for local businesses and restaurants. The program will include minimum participation requirements, awards for high achieving green businesses, the promotion of green jobs, and encouragement of local businesses to work on climate-related projects and programs through press releases, workshops, incentive programs, and social and other media outreach.

3. The City will facilitate the creation of green jobs through the promotion and support of the City's green business corridor, called the "E^3 Cluster", which includes the Leichtag Foundation, the San Diego Botanic Garden, and the Encinitas Union School District Farm Laboratory. As the E^3 Cluster develops, it will serve as a direct source of a significant number of additional green jobs within the City as well as promote and support other businesses and organizations to add green jobs throughout the City.

4. The City will track performance goals for green jobs and green businesses through the City's business license tracking system and report on green jobs and green businesses as part of the regular CAP monitoring report.

5. The City will provide efficiency and renewable energy training for the City employees responsible for the management of City facilities.

6. The City will ensure that all climate action-related work done through City programs comply with the California Statewide Prevailing Wage Ordinance, where applicable.

7. The City is currently in the process of updating its Housing Element to be compliant with State law. The updated Housing Element will include housing options for all facets of the City's workforce and will create a more sustainable live/work community. This more complete community will facilitate a reduction in vehicle miles traveled and encourage the use of greener transportation modes like biking, walking and public transit. In compliment to the Green Business Program described above, these new residents could seek local employment and support the city's transition to workforce made up of more local and green jobs.

5. Conclusion

Achieving significant and permanent GHG reductions for the City through CAP actions and supporting measures remains a difficult task, one that requires thoughtful and careful implementation and monitoring. CAP implementation requires funding and resources for administration and staffing, financing and budgeting, implementation of actions and supporting measures, monitoring and reporting, and continued public engagement (see figure below).

The City will use the information in this Implementation Plan to begin allocating funding and staff resources for implementation, implementing actions and supporting measures and, establishing tracking and monitoring mechanisms, and planning for future GHG inventory and CAP updates. The City will be diligent in seeking cost-effective implementation and strategic funding opportunities, using partnerships to share the cost and grants where feasible. This Implementation Plan is the first step towards effectively implementing the CAP. Additional resources will be needed to develop a more detailed benefit-cost analysis, create a workplan, and allocating budget for each action and supporting measure outlined in the 2018 CAP.