# Appendix A

City of San Marcos Climate Action Plan

# Draft Climate Action Plan

City of San Marcos
July 2020

*Page Intentionally Left Blank*

# City of San Marcos

# Draft Climate Action Plan

*Prepared for:*

SAN MARCOS
DISCOVER LIFE'S POSSIBILITIES

**City of San Marcos**
1 Civic Center Drive
San Marcos, CA 92069

*Prepared by:*

1230 Columbia Street, Suite 440
San Diego, California 92101

5998 Alcalá Park
San Diego, California 92110

*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.*

**July 2020**

*Page Intentionally Left Blank*

# Credits and Acknowledgements

## City of San Marcos

### CITY COUNCIL

Rebecca Jones, Mayor

Sharon Jenkins, Mayor Pro Tem

Randy Walton, Council Member

María Nuñez, Council Member

Jay Petrek, Council Member

### PLANNING COMMISSION

Eric Flodine

Jeff Oleksy

Dave Nuttell

Ed Musgrove

Kevin Norris

Wendy Matthews

Christopher Carroll

Diana Cavanaugh, Alternate

Robert Crain, Alternate

### CITY MANAGER'S OFFICE

Jack Griffn, City Manager

### CITY ATTORNEY'S OFFICE

Helen Holmes Peak, City Attorney

### DEVELOPMENT SERVICES DEPARTMENT

Dahvia Lynch, Development Services Director

Joseph Farace, Planning Manager

Saima Qureshy, Principal Planner

## Ascent Environmental

Honey Walters, Principal

Poonam Boparai, Principal

Heidi Gen Kuong, Project Manager

Ricky Williams, Assistant Project Manager

Alyssa Way, Planner

Corey Alling, Communications Specialist

Michele Mattei, Document Production Specialist

Gayiety Lane, Document Production Specialist

## Energy Policy Initiatives Center (EPIC) - University of San Diego

Scott Anders, Director

Nilmini Silva-Send, PhD, Assistant Director/Adjunct Professor

Yichao Gu, Technical Policy Analyst

## San Diego Association of Governments (SANDAG)

Anna Lowe, Senior Regional Energy/Climate Planner

Maggie Soffel, Associate Regional Energy/Climate Planner

Katie Hentrich, Associate Regional Energy/Climate Planner

# Table of Contents

## APPENDICES



## FIGURES



## TABLES

# LIST OF ABBREVIATIONS

| | |
|---|---|
| 2013 CAP | City of San Marcos Climate Action Plan prepared in 2013 |
| 2017 Scoping Plan | CARB's 2017 Climate Change Scoping Plan Update |
| AB | Assembly Bill |
| BAU | business-as-usual |
| CAA | Clean Air Act |
| CAFE | Corporate Average Fuel Economy |
| CAP | Climate Action Plan |
| CARB | California Air Resources Board |
| CCA | community choice aggregation |
| CCE | community choice energy |
| CEC | California Energy Commission |
| CEQA | California Environmental Quality Act |
| CFC | chlorofluorocarbons |
| $CH_4$ | methane |
| City | City of San Marcos |
| CM | City of San Marcos City Manager's Office |
| $CO_2$ | carbon dioxide |
| CPUC | California Public Utilities Commission |
| CSE | California Center for Sustainability |
| CSU | California State University |
| DF | City of San Marcos Department of Finance |
| DS | City of San Marcos Development Services Department |
| Energy Roadmap | City of San Marcos Energy Roadmap |
| EPA | U.S. Environmental Protection Agency |
| EPIC | Energy Policy Initiatives Center |
| EV | electric vehicle |
| F-gases | fluorinated gases |
| FTE | full-time equivalent |
| General Plan | City of San Marcos General Plan |
| GHG | greenhouse gas |
| GWP | global warming potential |
| HFC | hydrofluorocarbons |
| HR | City of San Marcos Human Resources/Risk Division |
| HVAC | heating, ventilation, and air conditioning |

| | |
|---|---|
| IPCC | Intergovernmental Panel on Climate Change |
| IT | City of San Marcos Information Technology Department |
| ITS | intelligent transportation system |
| kWh | kilowatt-hour |
| MAWA | Maximum Applied Water Allowance |
| MPO | Metropolitan Planning Organization |
| $MTCO_2e$ | metric tons of carbon dioxide equivalent |
| MW | megawatt |
| N/A | not applicable |
| $N_2O$ | nitrous oxide |
| NCTD | North County Transit District |
| NEV | neighborhood electric vehicle |
| $O_3$ | ozone |
| PACE | Property Assessed Clean Energy |
| PFC | perflurocarobons |
| PV | photovoltaic |
| ReCAP | SANDAG's Regional Climate Action Planning Framework |
| RPS | Renewable Portfolio Standard |
| RTP | Regional Transportation Plan |
| SANDAG | San Diego Association of Governments |
| SB | Senate Bill |
| SCS | Sustainable Communities Strategy |
| SDAPCD | San Diego Air Pollution Control District |
| SDG&E | San Diego Gas and Electric |
| $SF_6$ | sulfur hexafluoride |
| SLCP | short-lived climate pollutants |
| State | State of California |
| Strategy | SANDAG's San Diego Climate Action Strategy |
| TDM | transportation demand management |
| VMT | vehicle miles traveled |
| WELO | Water Efficient Landscape Ordinance |
| ZEV | zero-emission vehicle |
| ZNE | zero net energy |

# Executive Summary

*Page Intentionally Left Blank*

## Executive Summary

This Climate Action Plan (CAP) provides a comprehensive roadmap to address the challenges of climate change in the City of San Marcos (City). Acting on climate change means both reducing greenhouse gas (GHG) emissions from activities within the City and helping the community adapt to climate change and improve its resilience over the long term. The City has dedicated resources and partnered with the San Diego Association of Governments (SANDAG) to update its 2013 CAP to achieve GHG reductions and address climate change at a local level. This CAP builds on the efforts and strategies identified in the City's 2013 CAP, and establishes GHG emission targets and identifies achievable, locally-based actions to reduce GHG emissions from municipal and community activities.

*Source: City of San Marcos*

Scientific evidence shows that the Earth's climate is experiencing a warming trend as a result of increasing GHGs in the atmosphere. Increasing average temperatures are also causing changes in the climate, including extreme weather and changes in precipitation; this phenomenon is known as global climate change. As California continues to experience historic trends of rising average temperatures, warmer storms, and higher sea levels, this is evidence that the effects of global climate change are already occurring and that reductions in GHG emissions are needed to prevent the most catastrophic effects of climate change.

The State has set GHG reduction targets to combat climate change to reduce GHG emissions to 80 percent below 1990 levels by 2050

The State has also taken several steps to reduce GHG emissions and respond to the threat of global climate change. In 2006, the California Global Warming Solutions Act (Assembly Bill [AB] 32) established the State's first target to reduce GHG emissions, which set a goal of lowering emissions to 1990 levels by 2020. According to the California Air Resources Board (CARB), California has been making steady progress and is expected to achieve the 2020 target. In 2016, Senate Bill (SB) 32 was signed into law, which codified into statute the mid-term GHG reduction target of 40 percent below 1990 levels by 2030, established by Executive Order (EO) B-30-15. This 2030 target places California on a trajectory towards meeting its longer-term goal: to bring emissions down to 80 percent below 1990 levels by 2050. EO B-55-18, signed in September 2018, furthers California's efforts to reduce GHG emissions by setting a goal to achieve carbon neutrality by 2045 and achieve net negative GHG emissions thereafter.

## Key Components of Climate Action Planning

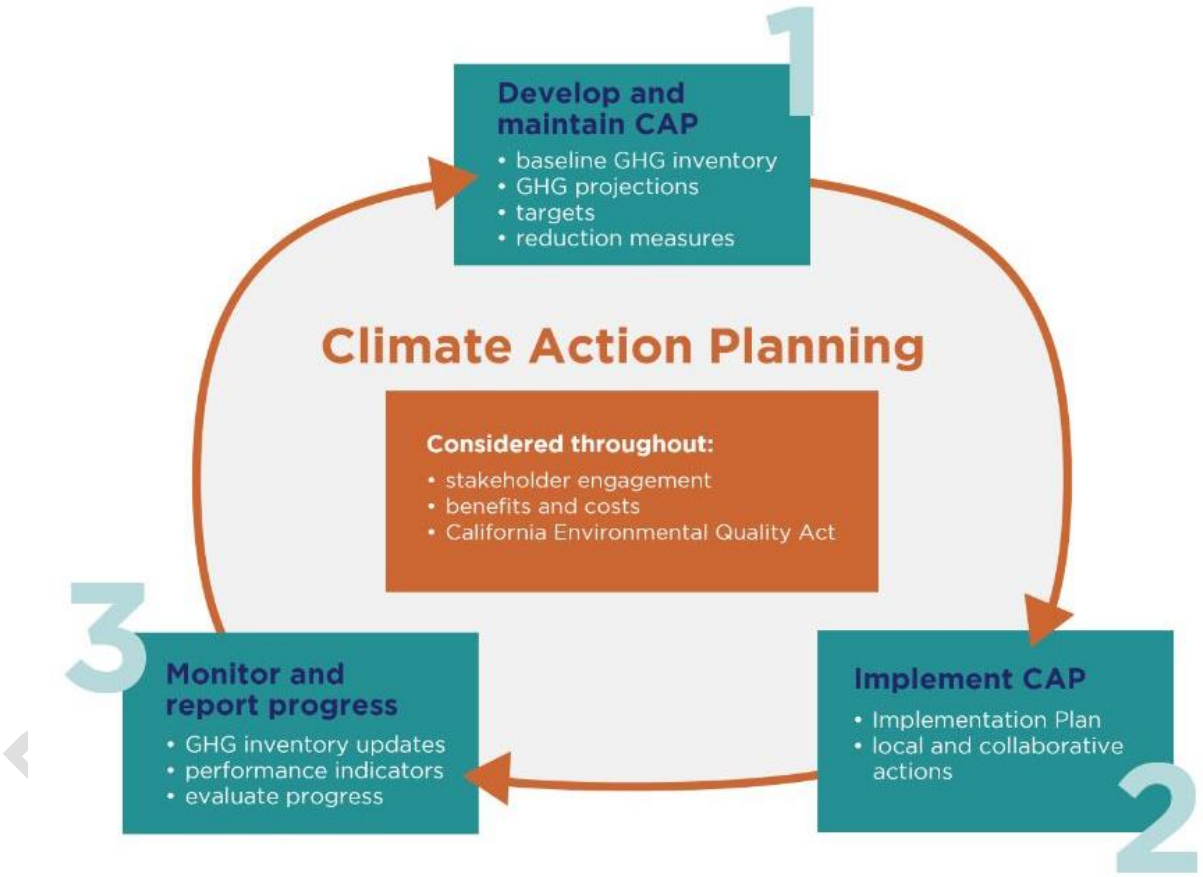
The climate action planning process includes undertaking three main steps:

**Step 1: Develop and Maintain a CAP**, which includes preparing baseline emissions estimates and projections and developing reduction targets and strategies.

**Step 2: Implement the CAP** through local measures.

**Step 3: Monitor and Report Progress** on CAP implementation and identify improvements or adjustments that can be made to the plan in the future.

Adoption of a CAP marks the beginning of an interactive process of maintaining, implementing, monitoring, and updating the CAP. Over time, the City will continue to repeat the iterative process by updating this CAP as new technologies, information, and inventories become available. The key components of the climate action planning process are summarized below and shown graphically in **Figure ES-1**.




*Source: SANDAG 2018.*

**Figure ES-1 The Climate Action Planning Process**

## Step 1: CAP Development

Development of the CAP consists of setting a baseline inventory of communitywide GHG emissions, projecting GHG emissions into future years, setting GHG reduction targets, and identifying strategies and measures the City will implement to achieve these targets.

### BASELINE GHG INVENTORY

A GHG inventory is a snapshot of the emissions associated with a community's various activities in a given year. A baseline GHG emissions inventory was prepared for 2012; the inventory is consistent with the base year used for SANDAG's Series 13 Regional Growth Forecast. In 2012, community activities in the City accounted for 599,000 metric tons of carbon dioxide equivalent ($MTCO_2e$). On-road transportation sources (e.g. vehicular gasoline and diesel consumption) accounted for 54 percent of citywide baseline emissions, and energy sources (e.g., electricity and natural gas consumption in buildings) accounted for an additional 39 percent. Emissions generated by solid waste, off-road transportation, water, and wastewater sources account for the remaining seven percent of the citywide baseline inventory. The 2012 baseline inventory is used to forecast emissions and set targets for emissions reductions based on State goals, as described in detail in **Chapter 2**.

### PROJECTIONS AND REDUCTION TARGETS

Citywide emissions projections were modeled based on a continuation of current trends in activity, population, and job growth. The business-as-usual (BAU) condition provides estimates of future citywide emissions assuming no changes in citywide activities. Based on trend data, the City would experience a decrease in emissions through 2020 under BAU conditions to eight percent below 2012 baseline levels. This decrease is primarily due to the City's implementation of the 2013 CAP and federal and State actions that have resulted in GHG reductions locally. Citywide emissions under BAU conditions would steadily rise after 2020 through 2030 but would not exceed 2012 baseline levels.

*Source: City of San Marcos*

Federal and State actions that are planned to take place in the future would further reduce the City's projected emissions when applied across the various GHG emissions categories. This projection, with the application of legislative actions that would reduce local GHG emissions, is referred to as the Legislatively-Adjusted BAU condition. The City's forecasted emissions, accounting for legislative actions, are projected to be 12 percent below 2012 baseline levels in 2020 and 28 percent below 2012 baseline levels in 2030.

Consistent with CARB's recommendations for community-wide targets, reduction targets were derived for the CAP using a mass emissions approach. These targets, to be achieved through the implementation of

this CAP, are to reduce citywide GHG emissions to four percent below 2012 levels by 2020 and to 42 percent below 2012 levels by 2030. A summary of the projections and targets is shown below in **Table ES-1**. The methodology used for calculating each projection and City reduction targets are further discussed in **Chapter 2**.

**Table ES-1 Greenhouse Gas Emissions Projections and Targets**

| Projection | 2012 Baseline Emissions ($MTCO_2e$) | 2020 | | 2030 | |
|---|---|---|---|---|---|
| | | Total Emissions ($MTCO_2e$) | Change from 2012 Baseline (%) | Total Emissions ($MTCO_2e$) | Change from 2012 Baseline (%) |
| BAU | 599,000 | 549,000 | *-8* | 591,000 | *-1* |
| Legislatively-Adjusted BAU | -- | 526,000 | *-12* | 429,000 | *-28* |
| Reduction Targets | -- | 575,000 | *-4* | 347,000 | *-42* |

Notes: BAU = business-as-usual; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent
Source: EPIC 2020a.

## REDUCTION STRATEGIES AND MEASURES

The City would meet its 2020 emissions reduction target under BAU conditions, based on existing activities and trends. However, to meet the City's 2030 reduction target, actions beyond those implemented at the federal and State level are required. To meet the City's 2030 target, this CAP identified strategies and measures to reduce GHG emissions citywide from a variety of emissions categories. In total, the City will implement eight strategies, listed below in **Table ES-2**, and 22 associated measures.

**Table ES-2 Strategies for Reducing Greenhouse Gas Emissions**

| Strategy | Description |
|---|---|
| Strategy 1 | Increase Use of Zero-Emission or Alternative Fuel Vehicles |
| Strategy 2 | Reduce Fossil Fuel Use |
| Strategy 3 | Reduce Vehicle Miles Traveled |
| Strategy 4 | Increase Building Energy Efficiency |
| Strategy 5 | Increase Renewable and Zero-Carbon Energy |
| Strategy 6 | Reduce Water Use |
| Strategy 7 | Reduce and Recycle Solid Waste |
| Strategy 8 | Increase Urban Tree Cover |

Source: EPIC 2020a.

Detailed measures were identified within each strategy by assessing the feasibility of implementation and potential co-benefits. Where strategies represent the high-level plans implemented to achieve reductions in each emissions category, measures provide specific actions the City will implement to achieve potential GHG emissions reductions associated with each measure. The CAP includes measures aimed at reducing GHG emissions from five emissions categories: transportation, energy (electricity and natural gas consumption), water, solid waste, and carbon sequestration. The three measures included in this CAP that would result in the most significant GHG reductions include:

**Measure E-3:** The City will establish or join a program to further increase grid-supply renewables and zero-carbon electricity to 95 percent of the City's electricity supply, reducing citywide emissions by 34,336 $MTCO_2e$ in 2030.

**Measure S-1:** The City will work with its franchise waste hauler to prepare a waste diversion plan that achieves an 85 percent waste diversion rate, reducing citywide emissions by 11,585 $MTCO_2e$ in 2030.

**Measure T-13:** The City will work with existing major employers to reduce commute and work-related vehicle miles traveled (VMT) through employee shuttle bus services, vanpool programs, parking cash-out or other transportation demand management activities to reduce commute VMT citywide by 3.7 percent. This measure would reduce citywide emissions by approximately 8,786 $MTCO_2e$ in 2030.

*Source: City of San Marcos*

A detailed description of the eight strategies and 22 measures, and associated GHG emissions reduction potential, is included in **Chapter 3**.

## Steps 2 and 3: Implementation and Monitoring

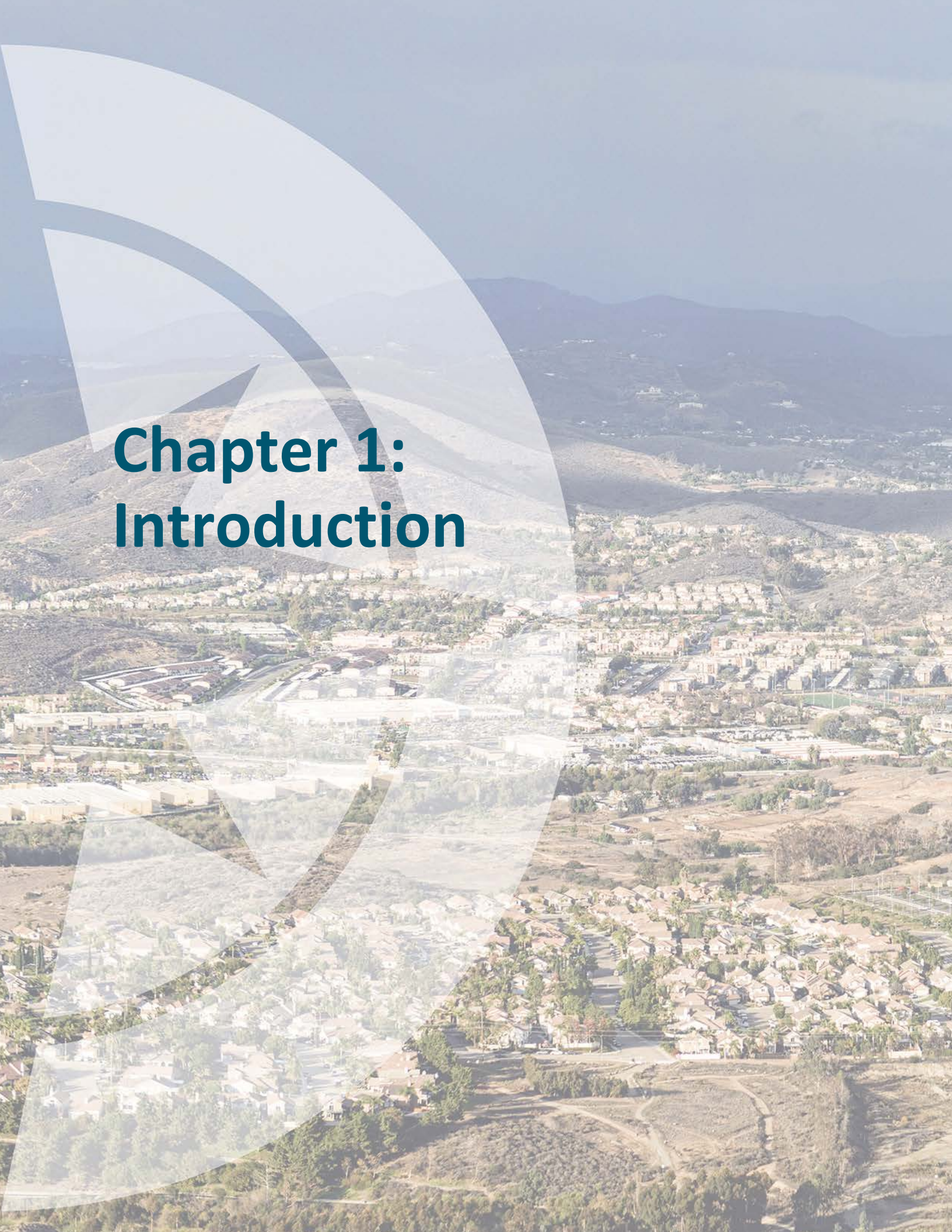
Implementation of the CAP will require ongoing management, oversight, and collaboration, ensuring that measures translate to real GHG emissions reductions. Successful implementation requires investment, long-term commitments, and widespread community participation. Monitoring CAP measures is an important part of achieving the City's 2030 reduction target. The City will monitor progress towards the 2030 goal by participating in SANDAG's biennial update of its local GHG inventory. City staff will provide periodic updates to the City Council and Planning Commissions on CAP implementation and efforts. Just as this CAP serves as an update to the City's 2013 CAP, the City will update this CAP in the future to ensure strategies and measures remain implementable and feasible, adjusting measures based on changing conditions or demands, and incorporating new technology not considered in previous CAPs.

This CAP has been prepared consistent with California Environmental Quality Act (CEQA) Guidelines Section 15183.5 which establishes standards for the content and approval process of plans to reduce GHGs. Pursuant to these standards, this CAP, as a "qualified" CAP, affords development applicants the opportunity to use CEQA streamlining tools for analysis of GHG emissions and related impacts for projects that are consistent with the CAP. In addition, the qualified CAP helps the City streamline the application and enforcement of GHG reduction measures applicable to development projects. Implementation of this CAP will include the administration of CEQA streamlining tools and ongoing review of development project consistency with CAP goals, strategies, and measures.

*Source: City of San Marcos*

Ongoing partnerships between community residents, businesses, property owners, the City, and other agencies and organizations in the region are essential for successful implementation. On a communitywide level, individuals and businesses can play an important role in reducing GHG emissions by changing habits to consume less water, use alternative modes of travel, or produce less waste.

Implementation and monitoring mechanisms are identified in this CAP to ensure that all strategies and measures are implemented, and reduction targets achieved. These steps complete the cyclical process of climate action planning and provide the necessary information and feedback used to repeat and improve the process. A detailed description of the City's implementation and monitoring efforts and the importance of continued community engagement and outreach is outlined in **Chapter 4**.



# Chapter 1: Introduction

*Page Intentionally Left Blank*

The purpose of this updated Climate Action Plan (CAP) is to build upon the existing efforts the City of San Marcos (City) is taking to address climate change and reduce its greenhouse gas (GHG) emissions. The CAP is consistent with and complementary to statewide legislation and regulatory mandates, and establishes local strategies, measures, and actions aimed at reducing GHG emissions. By reducing GHG emissions the livability and quality of life for residents will be improved.

The impacts of global climate change are occurring at a national, state, and regional level, as rising average temperatures, warmer storms, and higher sea levels are more frequent and severe. The impact of climate change in California varies across the state due to its diverse biophysical setting, climate, and jurisdictional characteristics. While projections generally show little change in total annual precipitation statewide over the next 50 to 100 years, even modest changes could have significant effects on the state's ecosystems. At a local level, annual temperatures and intensity of precipitation events are projected to increase steadily over time. These changes could result in increased heat waves, wildfire risk, and flooding, resulting in adverse effects on human health and safety, economic prosperity, infrastructure, and provision of public services in the City. Though climate change is a global issue, it requires the efforts from local governments and citizens to help reduce GHG emissions and adapt their communities to climate change.

Human-induced global warming has resulted in multiple observed changes in the climate system, including:

- Increased land and ocean temperatures
- Increased frequency of heatwaves
- Increased risk of drought
- Increased health risks

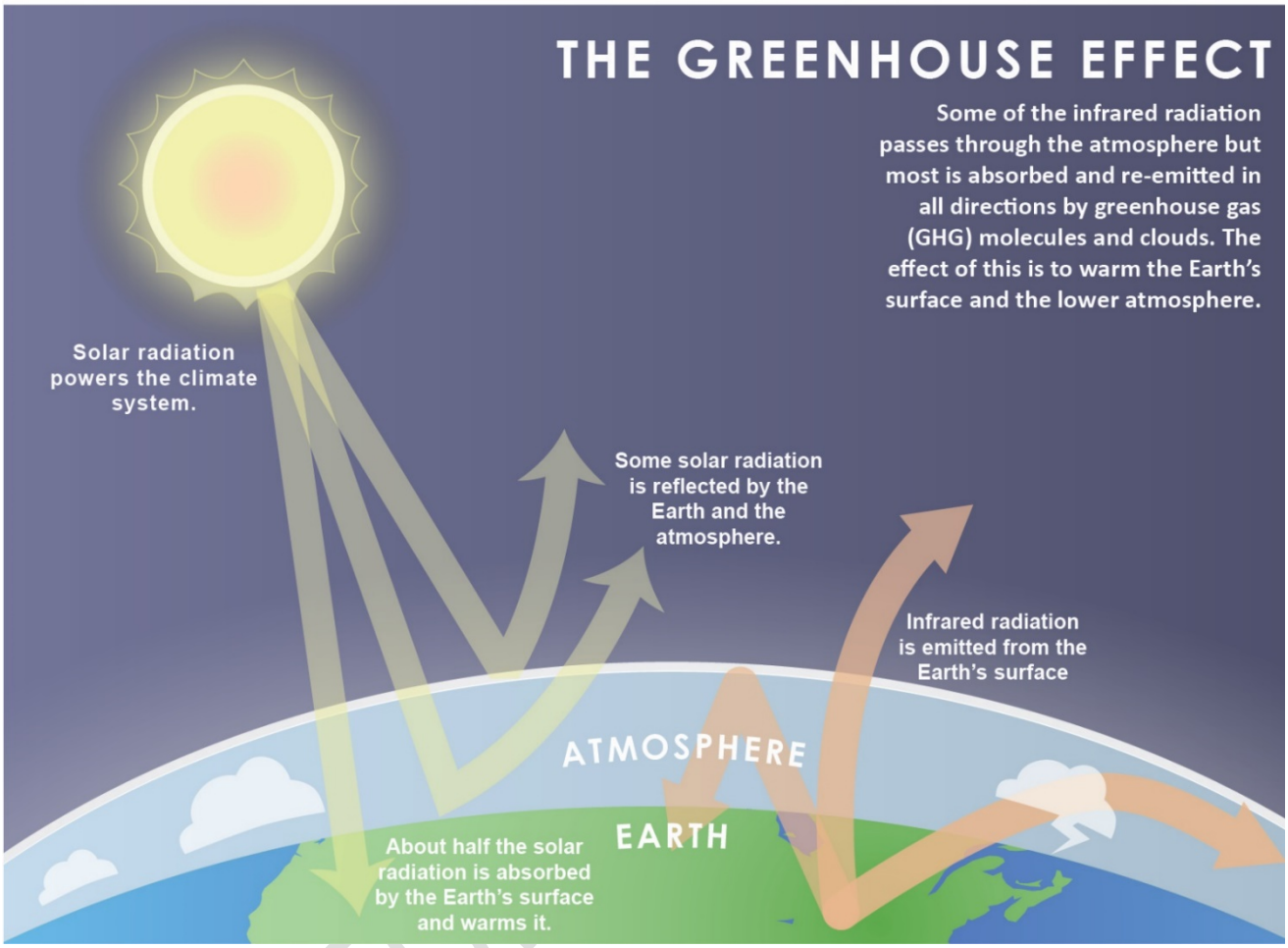
*Source: IPCC 2018*

Continuous improvements in technologies and changing markets inform how scientists identify climate change impacts and apply solutions. Therefore, the City will update this CAP periodically. As best practices, research, and technologies change, the strategies to combat climate change and reduce GHG emissions identified in this CAP may become obsolete. In addition, State and federal laws to address climate change may be updated over time, necessitating further changes to the CAP in order to comply. While the CAP may change and evolve over time, the overarching goal remains the same: to reduce GHG emissions generated by communitywide activities.

## 1.1 Introduction to Climate Change Science

The greenhouse effect, as identified below in **Figure 1-1**, results from a collection of atmospheric gases called GHGs that insulate the Earth and help regulate its temperature. These gases, mainly water vapor, carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), ozone ($O_3$), and chlorofluorocarbons (CFCs) all act as effective global insulators, reflecting Earth's visible light and infrared radiation to keep temperatures on Earth conducive to life as we know it. The greenhouse effect is essential for the planet to support life.

*Source: City of San Marcos*




Source: Ascent Environmental 2019.

Figure 1-1: The Greenhouse Effect

Human activities in recent decades (e.g., burning of fossil fuels for transportation and energy, increasing rates of deforestation and development) have contributed to the elevated concentrations of GHGs in the atmosphere. Human-caused (i.e., anthropogenic) emissions of GHGs above natural ambient concentrations are responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the Earth's climate, known as global climate change, or global warming. There is strong scientific consensus that it is "extremely likely" that most of the changes in the world's climate during the last 50 years are a result of anthropogenic (i.e. human caused) GHG emissions (Intergovernmental Panel on Climate Change [IPCC] 2014:3, 5). Global climate change, in turn, is the driver behind changes in precipitation patterns, shrinking polar ice caps, an increase in sea level, and other impacts to biological resources and humans.

It is "extremely likely" that in the last 50 years, most of the changes in the world's climate are a result of anthropogenic, or human-generated, activities.

Furthermore, short-lived climate pollutants (SLCPs), which are GHGs that remain in the atmosphere for a much shorter period than long-lived climate pollutants (e.g., $CO_2$ and $N_2O$), have an outsized impact on climate change in the near term. Despite their relatively shorter atmospheric lifespan, their relative potency in terms of how they heat the atmosphere (i.e., global warming potential [GWP]) can be tens, hundreds, or even thousands of times greater than that of $CO_2$. SLCPs include $CH_4$; fluorinated gases (F-gases), including hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride ($SF_6$); and black carbon.

*Source: City of San Marcos*

Climate change is a global problem that can lead to significant fluctuations in regional climates. Climate change is the driver behind rising average temperatures and changes in precipitation patterns globally, resulting in increased extreme heat events, reduced water supplies, and extended droughts. This CAP acknowledges global climate change effects on the City. The document is organized into five chapters. **Chapter 2** summarizes the City's GHG emissions that are contributing to climate change. **Chapter 3** includes a description of strategies and measures the City will undertake to reduce local GHG emissions. **Chapter 4** provides an outline for how the City will implement these reduction strategies and includes guidelines for monitoring and updating the CAP.

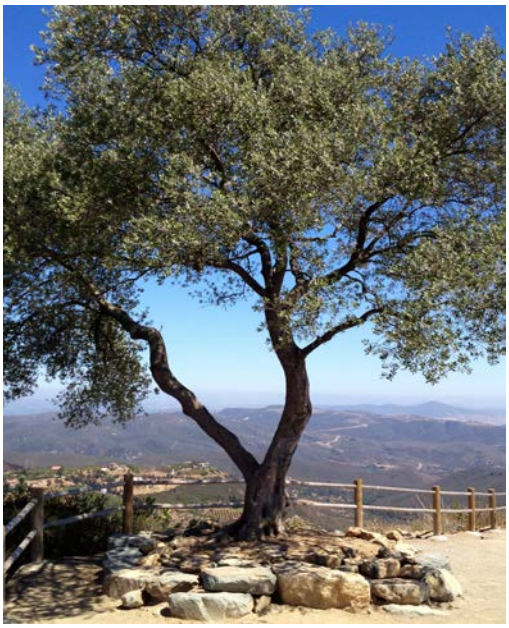
## 1.2 Regulatory Framework

In acknowledgement of the increase in human-caused GHG emissions, federal and state governments have taken the initiative to reduce GHG emissions and adapt to changes in climate. The following section provides information on the policies that lay the foundation for the development for this CAP.

### 1.2.1 FEDERAL AND STATE REGULATIONS

In 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which directed California to reduce GHG emissions to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. A year later, in 2006, the Global Warming Solutions Act (Assembly Bill [AB] 32) was passed, establishing regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions. AB 32 put a cap on GHG emissions, setting a target of reducing GHG emissions to 1990 levels by 2020. As part of its implementation of AB 32 and Executive Order S-3-05, the California Air Resources Board (CARB) developed a Scoping Plan in 2008. The Scoping Plan, along with its Update in 2014, describes the approach California will take to reduce GHGs to achieve reduction targets and goals. California is currently on track to meet or exceed the AB 32 current target of reducing GHG emissions to 1990 levels by 2020.

This CAP was developed to support the State's goals of reducing GHG emissions to 1990 levels by 2020, and 40 percent below 1990 levels by 2030.



*Source: City of San Marcos*

On April 20, 2015, Governor Edmund G. Brown Jr. signed Executive Order B-30-15, establishing a new GHG emissions reduction target of 40 percent below 1990 levels by 2030. This target aligns with those of leading international governments such as the 28-nation European Union which adopted the same target in October 2014. Executive Order B-30-15 also directed CARB to update the AB 32 Scoping Plan to reflect the path to achieving the 2030 target. In September 2016, Governor Brown also signed Senate Bill (SB) 32, which codified into statute the mid-term 2030 target established by Executive Order B-30-15. The new 2030 GHG emissions reduction target places California on a trajectory towards meeting the goal of reducing statewide emissions to 80 percent below 1990 levels by 2050.

In November 2017, CARB published the 2017 Climate Change Scoping Plan (2017 Scoping Plan), which lays out the framework for achieving the 2030 reductions as established in Executive Order B-30-15 and SB 32. The 2017 Scoping Plan Update identifies GHG reductions by emissions sector to achieve a statewide emissions level that is 40 percent below 1990 levels by 2030.

In addition to legislation setting statewide GHG reduction targets, SB 375, signed by Governor Schwarzenegger in 2008, better aligned regional transportation planning efforts, regional GHG emissions reduction targets, and land use and housing allocations. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy, showing prescribed land use allocations in each MPO's Regional Transportation Plan (RTP). CARB, in consultation with the MPOs, provides each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in their respective regions for 2020 and 2035. The San Diego Association of Governments (SANDAG) adopted San Diego Forward: The Regional Plan that integrates the RTP and SCS in October 2015.

To effectively address the challenges that a changing climate will bring, the State also prepared the 2009 California Climate Adaptation Strategy, which highlights climate risks and outlines possible solutions that can be implemented throughout the state. This Strategy was updated in 2014 and is now known as Safeguarding California. In 2015, the State also developed the Safeguarding California Implementation Action Plan.

*Source: City of San Marcos*

Other federal and State regulations relevant to the CAP are identified below:

**Table 1-1 Relevant Federal and State Regulations**

| | | |
|---|---|---|
| Federal | Federal Clean Air Act (CAA) | In 2007, the U.S. Supreme Court ruled that $CO_2$ is an air pollutant as defined under the CAA, and the U.S. Environmental Protection Agency has the authority to regulate emissions of GHG. |
| Federal | Corporate Average Fuel Economy (CAFE) Standards | The federal CAFE Standards determine the fuel efficiency of certain vehicle classes in the U.S. |
| State | SB 97 | The State Office of Planning and Research prepared, and the Natural Resources Agency adopted amendments to the State California Environmental Quality Act (CEQA) Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. Effective as of March 2010, the revisions to the CEQA Environmental Checklist Form (Appendix G) and the Energy Conservation Appendix (Appendix F) provide a framework to address global climate change impacts in the CEQA process; State CEQA Guidelines Section 15064.4 was also added to provide an approach to assessing impacts from GHGs. |
| State | Executive Order S-21-09 | Executive Order S-21-09, signed in 2009, directed CARB, under its AB 32 authority, to adopt a regulation by July 31, 2010 that sets a 33 percent renewable energy target as established by Executive Order S-14-08. |
| State | Executive Order S-01-07 | Executive Order S-01-07, signed in 2007, set forth a low carbon fuel standard for California, whereby the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020. |
| State | California Building Efficiency Standards Title 24 Part 6 | The California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. |
| State | AB 1493 | AB 1493 (Pavley), signed into law in 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. |
| State | AB 197 | AB 197 (Garcia), signed into law in 2016, creates a legislative committee to oversee CARB and requires CARB to take specific actions when adopting plans and regulations pursuant to SB 32 related to disadvantaged communities, identification of specific information regarding reduction measures, and information regarding existing GHGs at the local level. |
| State | SB 350 | SB 350, signed into law in 2015, requires the State to set GHG emission reduction targets for the load serving entities through Integrated Resource Planning. SB 350 requires an increase in the Renewables Portfolio Standard |

| Table 1-1 Relevant Federal and State Regulations | | |
|---|---|---|
| | | to 50 percent by 2030 and doubling energy savings in electricity and natural gas end uses. |
| State | Advanced Clean Cars Program | In January 2012, CARB approved the Advanced Clean Cars program, which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025. |
| State | SB X1-2 | SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 mandates that renewables supplied to the California grid from sources within, or directly proximate to, California make up at least 50 percent of the total renewable energy for the 2011-2013 compliance period, at least 65 percent for the 2014-2016 compliance period, and at least 75 percent for 2016 and beyond. |
| State | SB 100 | SB 100, signed into law in 2018, provides an update to SB X1-2 and requires California's renewable energy and zero-carbon resources supply 100 percent of electric retail sales to end-use customers and 100 percent of electricity procured to serve State agencies by 2045. |

### *California Environmental Quality Act Streamlining*

The California Environmental Quality Act (CEQA) is a statutory scheme that requires local agencies to evaluate and identify significant environmental impacts of their actions, and avoid or mitigate those impacts, if feasible. In 2007, California's lawmakers enacted SB 97, which expressly recognizes the need to analyze GHG emissions as part of the CEQA process. SB 97 required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to address GHG emissions as an environmental effect. In response to the mandate of SB 97, the CEQA Guidelines (Section 15183.5) establish standards for the content and approval process of plans to reduce GHGs.

This CAP has been prepared consistent with those standards. Pursuant to CEQA Guidelines Section 15183.5 ("Qualified Plan"), the CAP affords development applicants the opportunity to use CEQA streamlining tools for analysis of GHG emissions and related impacts for projects that are consistent with the CAP. Details on how projects can achieve consistency with the CAP are provided in a separate memorandum titled *Guidance for Demonstrating Consistency with the City of San Marcos Climate Action Plan for Discretionary Projects Subject to CEQA*, prepared by Ascent Environmental in 2020, and included in **Appendix D**.

*Source: City of San Marcos*

### 1.2.2 SAN DIEGO ASSOCIATION OF GOVERNMENTS

SANDAG is the MPO for the San Diego region. SANDAG produced the San Diego Climate Action Strategy (Strategy) in March 2010 that serves as a regional guide on climate change policy. The Strategy identifies a range of potential policy measures to be considered by SANDAG and other regional governments while updating long-term planning documents. At the regional level, the Strategy helps with the identification of land use, transportation, and related policy measures that can reduce GHGs from passenger cars and light-duty trucks as part of the SCS for the 2050 RTP in compliance with SB 375.

*Source: City of San Marcos*

SANDAG is currently working with local jurisdictions to help identify opportunities to save and reduce GHGs related to local operations through the Roadmap Program. Since 2010, the Roadmap Program has provided member agencies with voluntary, no-cost energy assessments known as "Energy Roadmaps". Each Energy Roadmap provides strategies unique to each local government, to reduce energy use in municipal operations and in the community. The Roadmap Program is primarily funded by San Diego Gas & Electric (SDG&E). In 2016, the Roadmap Program was expanded to include climate planning.

In November 2011, the City prepared the *City of San Marcos Energy Roadmap* (City's Energy Roadmap), which identifies ways to save energy in government operations and in the community that would result in municipal cost savings and benefits to the environment. The City's Energy Roadmap includes wide-ranging, cost-effective opportunities to save electricity, natural gas, and transportation fuels, and was used as a resource for implementing goals and policies laid out in the City's General Plan and 2013 CAP. The Energy Roadmap identifies ways the City could improve energy efficiency through government operations and within the community through the following eight measures.

- Save energy in City buildings and facilities
- Demonstrate emerging energy technologies
- Green the City vehicle fleet
- Develop employee knowledge of energy efficiency
- Promote commuter benefits to employees
- Leverage planning and development authority
- Support green jobs and workforce training
- Market energy programs to local residents, schools, and businesses

### 1.2.3 CITY OF SAN MARCOS

Local policies outlined in the *City of San Marcos General Plan* (General Plan) guide the City's future growth. A guiding theme included in the General Plan that serves as a basis for policy and programs is *Building a Greener Community.* This theme promotes the reduction of GHG emissions through various sustainability

actions such as implementing green building and water conservation measures and installing renewable energy systems. The City recently initiated the process of updating the General Plan. However, due to potential changes to the planning and economic context resulting from COVID-19, this effort has been put on hold. The update to the Housing Element of the General Plan is expected to be completed in 2021. The City will conduct community outreach with the Housing Element update effort and later when the General Plan update work begins again.

### *City of San Marcos General Plan*

Goals and policies in addition to those identified previously that would reduce overall GHG emissions in the City are noted below, organized by element of the City's General Plan.

#### Land Use and Community Design Element

**Goal LU-2:** Promote development standards and land use patterns that encourage long-term environmental sustainability

- **Policy LU-2.1:** Promote compact development patterns that reduce air pollution and automobile dependence and facilitate walking, bicycling, and transit use.
- **Policy LU-2.2:** Encourage new development to be sited to respond to climatic conditions, such as solar orientation, wind, and shading patterns.
- **Policy LU-2.3:** Require the incorporation of green building practices, technologies, and strategies into development projects per code standards.

*Source: City of San Marcos*

- **Policy LU-2.4:** Encourage retrofits of existing buildings to promote energy efficiency and indoor air quality.
- **Policy LU-2.5:** Promote landscaping (e.g., native, drought tolerant plants) that minimizes demands on water supply.
- **Policy LU-2.6:** Promote use of community gardens, farmers markets, and agricultural lands to provide locally-grown food.
- **Policy LU-2.7:** Promote the instillation of trees to reduce the urban heat-island effect and green infrastructure to reduce storm water runoff.

## Mobility Element

**Goal M-3:** Promote and encourage use of alternative transportation modes, including transit, bicycles, neighborhood electric vehicles (NEVs), and walking, within the City.

- **Policy M-3.1:** Develop an integrated, multimodal circulation system that accommodates transit, bicycles, pedestrians, and vehicles; provides opportunities to reduce air pollution and greenhouse gas emissions; and reinforces the role of the street as a public space that unites the City.
- **Policy M-3.3:** Provide a pedestrian and bicycle network in existing and new neighborhoods that facilitates convenient and continuous pedestrian and bicycle travel free of major impediments and obstacles.
- **Policy M-3.4:** Work with local partners to implement a Citywide Bike Sharing System. This would include working with developers to provide bike stations for key new developments, working with California State University San Marcos, Palomar Community College, and private universities to provide bike stations on their facilities, and working with regional transit agencies to implement bike stations near transit hubs.
- **Policy M-3.6:** Establish an intra-city shuttle system that connects the central development nodes of the City with Palomar Community College, California State University San Marcos, and the urban core of the community.

*Source: City of San Marcos*

- **Policy M-3.8:** Work with regional agencies, such as SANDAG, to install appropriate recharging stations to support the use of electric vehicles. Work with developers to install recharging stations at appropriate activity, employment, and transit centers to support electric vehicle use.

## Conservation and Open Space Element

**Goal COS-4: Improve regional air quality and reduce greenhouse gas emissions that contribute to climate change.**

- **Policy COS-4.1:** Continue to work with the U.S. EPA, California Air Resources Board, SANDAG, and the SDAPCD to meet State and federal ambient air quality standards.
- **Policy COS-4.3:** Participate in regional efforts to reduce GHGs.

- **Policy COS-4.4:** Quantify community-wide and municipal GHG emissions, set a reduction goal, identify and implement measures to reduce greenhouse gas emissions as required by governing legislation.
- **Policy COS-4.5:** Encourage energy conservation and the use of alternative energy sources within the community.
- **Policy COS-4.6:** Promote efficient use of energy and conservation of available resources in the design, construction, maintenance and operation of public and private facilities, infrastructure and equipment.

*Source: City of San Marcos*

- **Policy COS-4.7:** As City facilities and services are constructed or upgraded, incorporate energy and resource conservation standards and practices
- **Policy COS-4.8:** Encourage and support the generation, transmission and use of renewable energy.
- **Policy COS-4.9:** Encourage use and retrofitting of existing buildings under Title 24 of the California Building Energy Code.

**Goal COS-5:** Reduce water consumption and ensure reliable water supply through water efficiency, conservation, capture, and reuse.

- **Policy COS-5.2:** Support water conservation efforts to reduce energy consumption resulting from transport and treatment of water from outside the region.

**Goal COS-10:** Establish and maintain an innovative, sustainable solid waste collection, recycling, and disposal delivery system for present and future generations.

- **Policy COS-10.1:** Promote the curbside recycling program to divert residential refuse from the landfills.
- **Policy COS-10.2:** Develop programs requiring recycling and reuse of construction and demolition materials that divert solid waste from area landfills.
- **Policy COS-10.3:** Encourage the use of reusable and recyclable goods, educational displays and activities, and through sustainable purchasing policies and practices.
- **Policy COS-10.4:** Support alternative energy opportunities (methane recovery) at solid waste facilities.


*Source: City of San Marcos*

### *2013 Climate Action Plan*

In September of 2013, the City adopted the *City of San Marcos Climate Action Plan* to reduce GHG emissions from municipal operations and community activities and to achieve statewide reduction targets. According to the *City of San Marcos Greenhouse Gas Emissions Inventory Update*, prepared in 2013, the 2005 baseline emissions totaled approximately 411,939 metric tons of carbon dioxide equivalent ($MTCO_2e$). The 2005 baseline emissions level was for activities that took place in the City under the categories of transportation, residential energy use, commercial and industrial energy use, off-road, solid waste, and water and wastewater sectors. Under a business-as-usual (BAU) scenario, which assumes the continuation of conventional behaviors without the inclusion of any additional efforts or legislative actions to reduce GHG emissions, the 2013 CAP determined that the City's projected GHG emissions would be 523,733 $MTCO_2e$ in 2020 and 617,172 $MTCO_2e$ in 2030. To achieve consistency with State GHG reduction goals, the 2013 CAP specified that the City would reduce emissions 15 percent below 2005 levels by 2020, and 28 percent below 2005 levels by 2030 (City of San Marcos 2013).

*Source: City of San Marcos*

## 1.3 Climate Action Plan Purpose and Objectives

Emission source categories evaluated in the 2013 CAP have been carried over to the City's updated CAP and 2012 emissions inventory with modifications. The 2013 categories of residential energy use and commercial and industrial energy use have been combined for this CAP into one category titled "energy". This CAP also establishes communitywide GHG emission reduction goals to be achieved through local measures implemented by public agencies, businesses, and residents.

The 2012 inventory developed by the Energy Policy Initiatives Center (EPIC) estimates communitywide emissions to be 599,000 $MTCO_2e$. In order to reduce emissions and meet statewide targets according to CARB's 2017 Scoping Plan, the CAP has established local reduction targets, as discussed further in **Chapter 2**. The City plans to achieve the following emission reductions from 2012 levels:

The City has identified eight strategies and 22 measures to achieve GHG reductions to meet its 2030 reduction target.

- 4 percent below 2012 levels by 2020, and
- 42 percent below 2012 levels by 2030.

To achieve these targets, the CAP provides a summary of baseline GHG emissions and the potential growth in these emissions over time. The CAP identifies strategies and measures to achieve these targets in **Chapter 3**.

As part of CAP implementation, each strategy and measure should be continually assessed and monitored. Reporting on the status of implementation of these strategies, periodic updates to the GHG emissions inventory, and other monitoring activities will help to ensure that the CAP is making progress towards the identified targets. More information on administering, implementing, and monitoring the CAP is included in **Chapter 4**.

## 1.4 Community Action and Co-Benefits

For a CAP to be successfully implemented and for GHG emission reduction targets to be met, efforts need to be taken by multiple parties including local government agencies, community groups, businesses, and residents. It is up to these parties to establish ongoing partnerships and to participate in more sustainable practices that will also prepare communities to adapt to a changing climate.

*Source: City of San Marcos*

### 1.4.1 COMMUNITY ACTION

Changes in everyday habits such as consuming less energy, producing less waste through recycling, conserving water, composting, and driving less by choosing to carpool, taking transit, or walking and biking more frequently, can lead to better outcomes for the environment and the City. It is the role of residents and local businesses of the City to adopt these habits to reduce their carbon footprint and overall emissions within the City.

This CAP will guide residents and businesses to learn how local actions can help reduce GHG emissions and ultimately establish long-term efforts that improve the health of the environment and City. The measures provided in the CAP have been developed based on efforts to reduce emissions from the largest sources of GHG emissions and will require efforts from all community members to achieve reduction targets.

### 1.4.2 CO-BENEFITS

While measures and actions included in the CAP are generally geared towards reducing GHG emissions, many will also result in environmental or economic "co-benefits." Environmental co-benefits can include improvements to air quality, water supply, or biological resources, and improved public health. Additional co-benefits identified in the CAP include:

- Improved air quality as a result of reducing the number of miles traveled in vehicles and associated fuel combustion.
- Increased energy efficiency in buildings and increased use of renewable energy sources resulting in reduced building heating and cooling costs and fossil fuel use.
- Improved public health through encouraging alternative commuting transportation modes that allow people to drive less, save money, and enjoy a better quality of life.
- Improved travel times for all modes of transportation through improved bicycle, pedestrian, and transit infrastructure and access, and intersection efficiency improvements.
- Enhanced community character and improved air quality from increased tree plantings in City rights-of-way, other public spaces, and new private developments.

Co-Benefits identified in this CAP include:

- Improved Air Quality
- Reduced Energy Use
- Improved Public Health
- Reduced Traffic Congestion
- Enhanced Safety
- Improved Access to Low-Cost Transportation Options
- Improved Water Quality
- Reduced Heat Island Effects
- Enhanced Community Character
- Increased Local Green Jobs

In addition to these co-benefits, the CAP would provide other benefits to the City, including improved local control in selection of feasible and effective GHG reduction strategies that work within the local context. The CAP allows the City to identify and implement GHG reduction strategies that are most advantageous to the City, while also promoting economic competitiveness and positioning the City for competitive grant funding. The CAP also demonstrates that the City is aligned with State targets for reducing GHG emissions. Further, co-benefits of reducing air pollution can be an important element of climate policy, making these policies effectively cheaper by alleviating the need for additional policies or technologies to reduce air pollutants.

More detailed discussion of reduction strategies, along with their co-benefits, can be found in **Chapter 3**.

## 1.5 Climate Action Plan Update

The strategies and goals provided in the 2013 CAP were developed to reduce projected emissions based on a 2005 baseline year. These strategies and goals have been modified and updated within this CAP based on a baseline year of 2012. Due to updates in scientific understanding of GHGs and climate change, a 2012 baseline GHG inventory provides the City with a better understanding on the reduction targets necessary to meet statewide GHG emission reduction goals. The 2012 baseline analysis determined that the City emitted 599,000 $MTCO_2e$ from activities within the City. To meet statewide goals, the City must reduce emissions by 4 percent below 2012 levels to reach a target of 575,000 $MTCO_2e$ by 2020 and 42

percent below 2012 levels to reach a target of 347,000 $MTCO_2e$ by 2030. **Chapter 2** provides further details on reduction targets with respect to the 2012 baseline.

This CAP is organized to disclose GHG emissions inventory for a 2012 baseline year, project emissions under BAU and Legislatively-Adjusted BAU conditions, set emissions reduction targets consistent with State goals, and identify strategies and measures that would reduce communitywide GHG emissions to achieve these targets. This CAP is organized to achieve emissions reductions from five primary GHG emissions categories occurring from activities within the City:

The CAP inventory is based on 2012 citywide emissions, consistent with regional growth forecasts and best available data.

**Transportation:** Transportation measures aim to reduce emissions through reducing vehicle trips, encouraging the use of alternative modes of transportation, fostering the use of electric and alternative fuel vehicles, and managing the existing infrastructure and municipal operations more efficiently.

**Energy:** GHG emissions generated through the consumption of natural gas and electricity would be reduced through energy measures. These measures aim to achieve greater building energy efficiencies for new developments and increase renewable energy use.

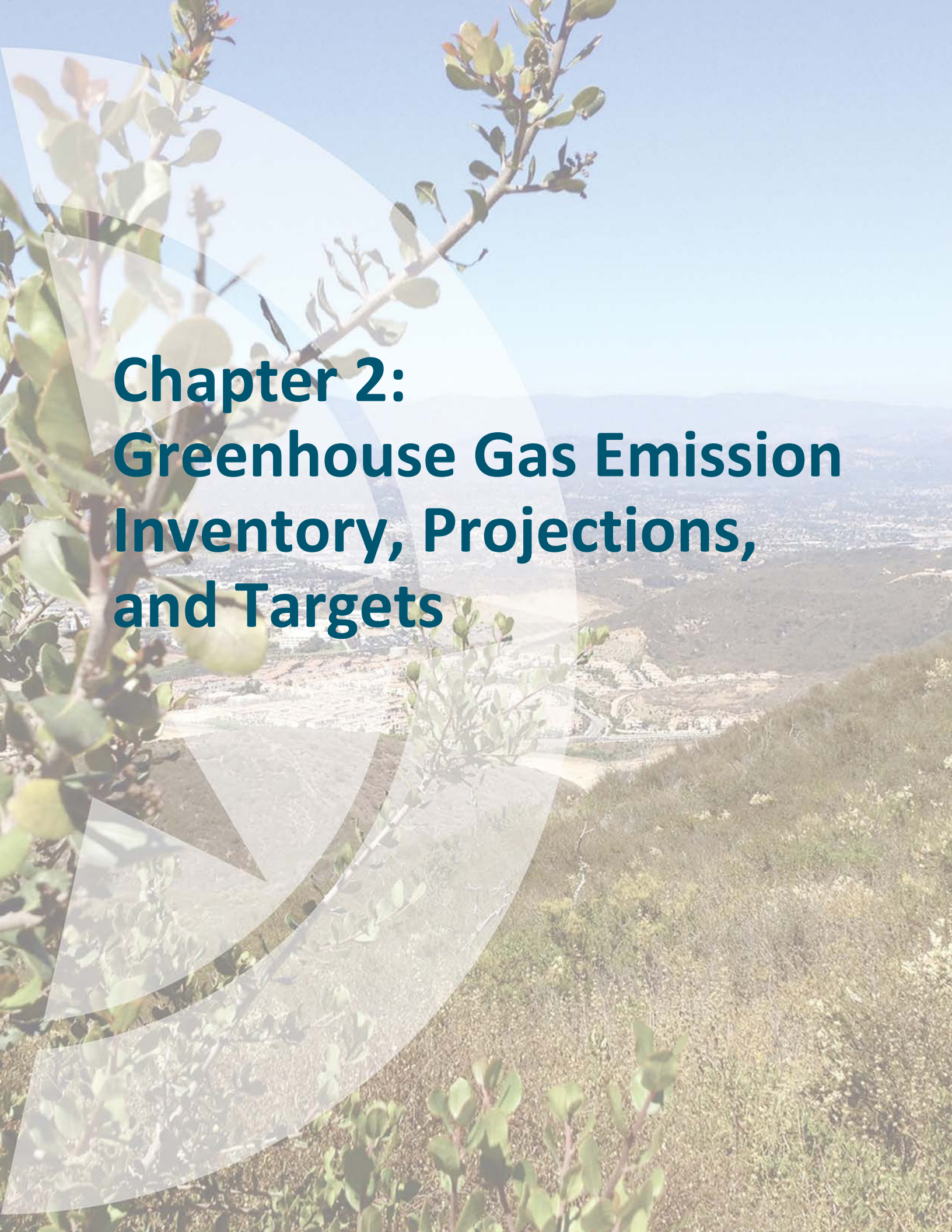
**Water:** The City would reduce GHG emissions generated from the transport, treatment, and conveyance of water to the City. Reduction measures in the water category aim to reduce water consumed by City residents and businesses, and in City managed landscaped areas.

**Solid Waste:** The City would reduce GHG emissions generated through the transport and decomposition of solid waste by working with waste haulers and City residents and businesses to reduce landfilled waste by promoting recycling and other waste diversion activities.

**Carbon Sequestration:** Planting trees in the public rights-of-way and at new developments provides the City with the ability to sequester, or store, $CO_2$ emissions.

For each category, strategies, measures, and goals are identified for the target year 2030. The City would generate emissions below the 2020 target emissions level under BAU conditions. For this reason, this CAP focuses only on reduction measures to meet the City's 2030 target. The estimated GHG reduction potential of each measure is also reported based on identified goals. Emissions categories and associated reduction strategies and measures are discussed in **Chapter 3**.

The CAP is a detailed plan for the City to achieve its long-term goals for reducing GHG emissions. It includes strategies and measures that achieve objectives to benefit the environment, economy, and community. The CAP demonstrates how the City will achieve GHG emissions targets for 2030 and demonstrate progress towards the long term reduction goals of 2050. Successful implementation will require long-term commitment and ongoing collaboration with private and public sector partners, as well as the community-at-large. Through management, monitoring, and periodic updates, the CAP will remain an effective tool to reduce emissions and help implement the City's vision for the future.



# Chapter 2: Greenhouse Gas Emission Inventory, Projections, and Targets

*Page Intentionally Left Blank*

This chapter summarizes the community's contribution to global climate change by offering a detailed accounting of greenhouse gas (GHG) emissions within the City of San Marcos (City). It includes a discussion of primary sources and annual levels of GHG emissions during year 2012 (i.e., baseline inventory); describes likely trends if emissions are not reduced for years 2020 and 2030 (i.e., projections); outlines emissions reduction goals over time to reduce contributions to climate change effects locally (i.e. targets); and sets forth a roadmap to reduce emissions from communitywide activities by 2020 and 2030 (i.e. strategies and measures). Emissions from community activities are discussed in Sections 2.2 through 2.4.

## 2.1 Purpose of the Emissions Inventory

Preparing a GHG emissions inventory is the first step in developing a Climate Action Plan (CAP). The inventory provides a snapshot of the major sources of emissions in a given year, while also providing a baseline used to project emission trends. This inventory is used to inform what local actions are needed to reduce GHG emissions and to develop reduction targets that are consistent with State of California (State) mandates. The GHG emissions inventory serves as the foundation for the strategies, measures, and actions outlined in this CAP that the City will implement to reduce GHG emissions to meet both 2020 and 2030 targets.

The GHG emissions inventory baseline is used to:

- Forecast emissions
- Develop reduction targets

Assembly Bill (AB) 32, Senate Bill (SB) 32, and Executive Orders B-30-15 and S-3-05 set GHG emission reduction goals for the State by using 1990 levels as a benchmark year. Due to lack of availability of 1990 emissions data at the City level, an inventory was prepared for a 2012 baseline year, which represents the best available data at the time the baseline inventory was prepared. This inventory using a 2012 baseline year was prepared consistent with the baseline year for the San Diego Association of Government's (SANDAG's) Series 13 Regional Growth Forecast.

The City's GHG inventory also provides a framework to track communitywide emissions over time, as the City will prepare updated GHG emissions inventories after the CAP is adopted. These updated inventories will be compared to the 2012 baseline inventory to track progress in emissions reductions resulting from CAP measure implementation.

*Source: City of San Marcos*

## 2.2 Baseline Inventory

The baseline GHG inventory provides a detailed accounting of the sources and amounts of GHG emissions generated from activities within the City. The inventory provides an estimate of communitywide emissions for a defined set of gases that contribute to climate change. Three primary GHGs are quantified in the City's inventory: carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$). Emissions of these GHGs are converted to a comparable unit by multiplying each non-$CO_2$ gas by their global warming potential (GWP). Emissions of

*Source: City of San Marcos*

all GHGs are reported using a common metric of carbon dioxide equivalent ($CO_2e$). This conversion allows consideration of all gases in comparable terms and makes it easier to communicate how various sources and types of GHG emissions contribute to global climate change. A metric ton of $CO_2e$ ($MTCO_2e$) is the standard measurement of the amount of GHG emissions produced and released into the atmosphere.

### 2.2.1 2005 BASELINE INVENTORY

The City's previous CAP (2013 CAP) included a baseline inventory for the year 2005. This inventory was organized by seven emissions categories, including: on-road transportation, commercial/industrial, residential, solid waste, wastewater, water, and off-road transportation. The commercial/industrial and residential emissions categories include GHG emissions generated from electricity and natural gas consumption from these uses within the City. The City generated approximately 412,000 $MTCO_2e$ in 2005. Consistent with State requirements at the time, the 2013 CAP set a target to reduce GHG emissions to 15 percent below 2005 levels by 2020.

### 2.2.2 2012 BASELINE INVENTORY

The emissions inventory prepared for this CAP is based on a baseline year of 2012. The 2012 baseline reorganizes the building energy use emissions categories identified in the 2013 CAP (i.e. commercial/industrial and residential emissions categories) to look at source/fuel type as opposed to end user. The emissions categories identified in this CAP are on-road transportation, electricity, natural gas, solid waste, off-road transportation, water, and wastewater. **Table 2-1** provides a description of emissions associated with each category and is organized in order of total contribution to citywide GHG emissions.

The CAP baseline emissions inventory was prepared to identify emissions generated by a variety of communitywide activities, including vehicle use, water consumption, and waste generation.

The GHG reduction strategies and measures included in this CAP are focused primarily on the City's ability to reduce inventoried emissions. Reducing GHG emissions consistent with State goals, however, also requires partnerships and individual efforts beyond the City's control. Daily choices made by residents, businesses, and organizations within the City result in the generation of GHG emissions that extend beyond the influence of the City and this CAP. Individual actions have the ability to reduce GHG emissions that may not be identified in the CAP, such as buying locally-grown food or locally-manufactured products, bicycling or walking as an alternative to driving, or reducing the amount of water used in homes. These individual actions, along with efforts taken by the City, combine to significantly reduce the local carbon footprint.

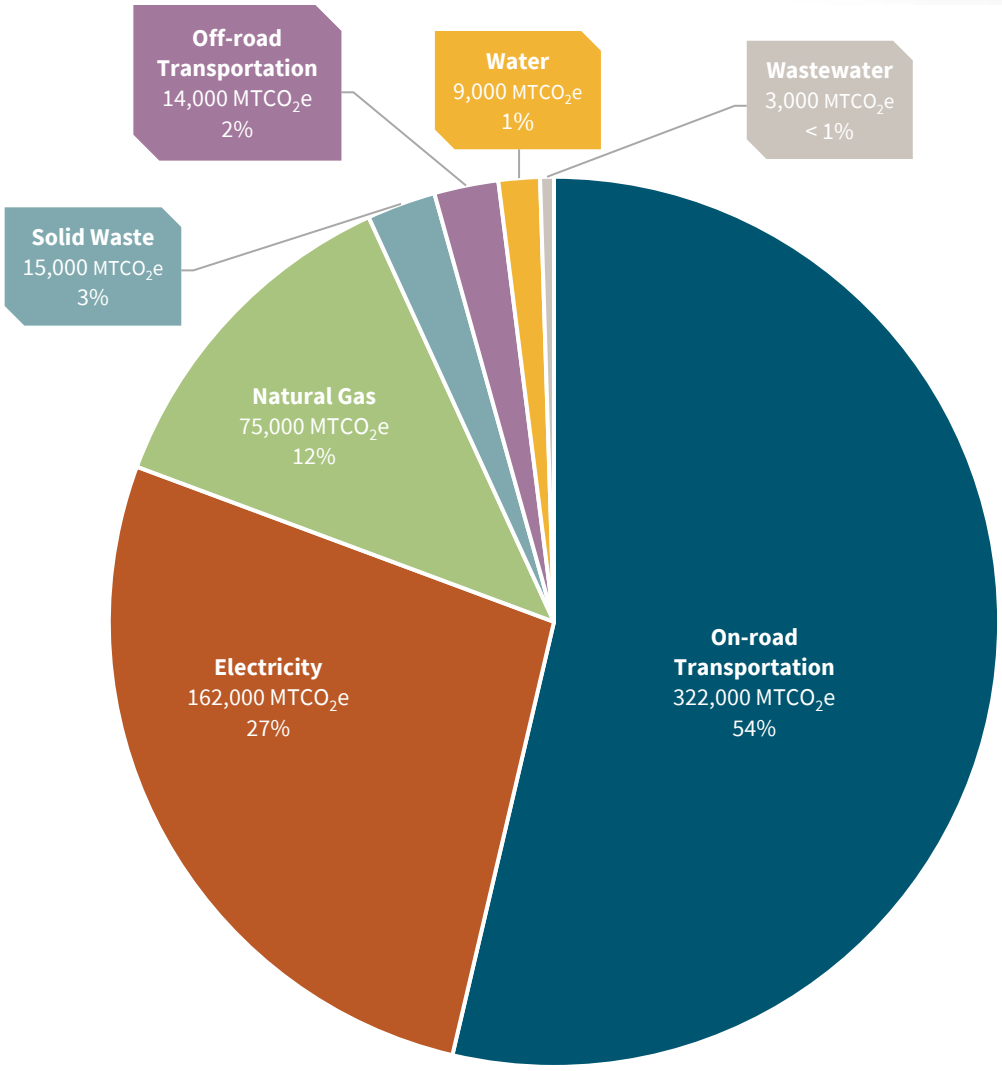
**Table 2-1 City of San Marcos Emissions Categories**

| Emissions Category | Description |
|---|---|
| On-Road Transportation | On-road transportation emissions associated with gasoline and diesel consumption from motor vehicles on local and regional roadways. |
| Electricity | Building energy use emissions associated with electricity in residential and non-residential buildings. |
| Natural Gas | Building energy use emissions associated with combustion of natural gas in residential and non-residential buildings. |
| Solid Waste | Waste emissions associated with waste generated by residents and businesses of the city and disposal of mixed and organic waste in landfills. |
| Off-Road Transportation | Off-road transportation emissions associated with gasoline and diesel fuel use from recreational vehicles, construction equipment, and residential and commercial equipment. |
| Water | Emissions associated with the water supplied, conveyed, treated, and distributed to residents and businesses within the city. |
| Wastewater | Wastewater treatment fugitive and process emissions consisting of GHGs from combustion of anaerobic digestor gas and operational fossil fuels. |

Notes: City = City of San Marcos; GHG = Greenhouse Gas
Source: EPIC 2020a.

The City of San Marcos's largest GHG contributors to global climate change are on-road transportation and energy use.

Community activities within the City generated approximately 599,000 $MTCO_2e$ in 2012. The City's 2012 baseline emissions by category are shown in **Figure 2-1**. The category with the greatest contribution to GHG emissions in the City is on-road transportation, which accounted for 54 percent of the total emissions in 2012. On-road transportation activities are primarily related to vehicular gasoline and diesel consumption. Emissions associated with this category were calculated based on estimated vehicle miles traveled (VMT) for all vehicles traveling to/from and within the City. Electricity and natural gas emissions, collectively referred to as the "energy" category, are the second largest contributors with 27 and 12 percent of total emissions in 2012, respectively. Emissions calculations for the energy category include electricity and natural gas used for non-renewable building energy consumption and water heating and cooling.




**Total Emissions in 2012 = 599,000 $MTCO_2e$**

Source: EPIC 2018.

Figure 2-1: GHG Emissions Inventory for the City of San Marcos in 2012 by Emissions Category

The City's GHG emissions generated by each category in the 2012 inventory are shown in **Table 2-2**. Additional details related to the specific emissions categories, data sources, assumptions, and methodologies can be found in **Appendix A**.

**Table 2-2 2012 City of San Marcos Greenhouse Gas Inventory**

| Emissions Sector | $MTCO_2e$ | Percent (%) |
|---|---|---|
| On-Road Transportation | 322,000 | 54 |
| Electricity | 162,000 | 27 |
| Natural Gas | 75,000 | 12 |
| Solid Waste | 15,000 | 3 |
| Off-Road Transportation | 14,000 | 2 |
| Water | 9,000 | 1 |
| Wastewater | 3,000 | <1 |
| Total | 599,000 | 100 |

Notes: Columns may not add to totals due to rounding.
$MTCO_2e$ = metric tons of carbon dioxide equivalent
Source: EPIC 2018.

## 2.3 Emissions Projections

GHG emissions projections provide an estimate of future levels based on a continuation of current trends in activity, while also accounting for known regulatory actions by federal and State agencies (i.e., "legislative" actions) that can reduce emissions in the future if implemented. Through GHG projections, communities gain insight into the scale of local reductions needed to achieve statewide GHG reduction targets, in addition to legislative actions.

The CAP uses two projections, referred to as the "business-as-usual" (BAU) and Legislatively-Adjusted BAU scenarios. The BAU projection assumes no additional efforts (including this CAP), beyond what have already been adopted, will be made to reduce GHG emissions in the future. Legislatively-Adjusted BAU projections provide a reduction from the BAU projection accounting for federal and State actions that are planned to take place in the future. Both projections assume that population, employment, and transportation activity will grow over time, consistent with SANDAG projections. Details on projections and the activity data used to estimate each sector can be found in **Appendices A** and **B**.

### 2.3.1 DEMOGRAPHIC TRENDS

GHG emissions projections were estimated for 2020 and 2030 using City-specific demographic data and vehicle activity projections through 2030 from the SANDAG Series 13 Regional Growth Forecast. At the time of writing this CAP, the SANDAG Series 13 Regional Growth Forecast represents the best available regional population, employment, and VMT forecasts, based on 2012 baseline data. The City is anticipated to experience relatively high growth from 2012 to 2030. Based on data used by the Energy Policy Initiatives Center (EPIC) to estimate emissions projections, the City's population is estimated to increase by 16 percent

The City's population is estimated to grow from approximately 86,000 people in 2012 to 109,000 people in 2030.

by 2020 and 27 percent by 2030 from 2012 levels. Similar growth in employment is expected to increase by 22 percent by 2020 and 39 percent by 2030 from 2012 levels. The BAU emissions projections assume activities within the City would continue producing GHG emissions at a similar rate and that these projected demographic trends would continue. Further details on the underlying SANDAG data used for emissions projections can be found in **Appendix A**.

### 2.3.2 BUSINESS AS USUAL PROJECTIONS

The first step in preparing comprehensive GHG emissions projections is the development of a BAU scenario, which assumes the continuation of conventional behaviors without the inclusion of any additional efforts or legislative actions beyond what has already been adopted at the time of the baseline year (i.e., 2012). Therefore, federal, State, and local policies, programs, and regulations designed to take effect in future benchmark years (e.g., 2020, 2030), and the GHG reductions that will occur with their implementation, are not considered in the BAU scenario.

*Source: City of San Marcos*

Since 2012, the citywide emissions projections in 2020 indicate the City has experienced an overall reduction in annual GHG emissions, as shown in Table 2-3. This observed decrease in BAU emissions is likely due to a combination of State actions and local choices that result in fewer emissions, including use of improved regionwide renewable energy portfolios, decreased residential and commercial water usage, improved vehicle standards and turnover of vehicle fleets, and implementation of the 2013 CAP. The City's GHG emissions would slowly increase under BAU conditions until 2030, as a result of growth in population and employment.

### 2.3.3 LEGISLATIVE ADJUSTMENTS

The Legislatively-Adjusted BAU accounts for a variety of approved legislative actions that will further reduce BAU emissions from the City. It accounts for the implementation of these legislative actions by estimating the impacts of these actions on the various GHG emissions producing categories in the CAP and adjusting emissions levels accordingly. While these projections include federal and State actions, they do not include local government actions such as the implementation of GHG emissions reduction measures identified in this CAP. The legislative actions applied to estimate the Legislatively-Adjusted BAU include:

**California Solar Policies and Programs.** The State has several policies and programs to encourage customer-owned, behind-the-meter photovoltaic (PV), including the California Solar Initiative, New Solar Home Partnership, Net Energy Metering, and updated Building Efficiency Standards requiring PV.

**California Energy Efficiency Programs.** The California Public Utilities Commission (CPUC) sets energy efficiency targets for utilities companies in the State, including San Diego Gas and Electric (SDG&E). Utilities achieve these targets through rebate programs and updates to codes and standards.

**California Renewable Portfolios Standards.** Utilities operating in the State are required to meet power mix targets to include increasing percentages of renewable energy. As required by the State Renewables Portfolio Standard (RPS), SDG&E's power mix would include at least 60 percent renewables by 2030.

**Federal and State Vehicle Efficiency Standards.** Federal and State agencies have set tailpipe emissions standards through 2025 (in place at the time emissions projections were prepared), including the California Zero Emissions Vehicle Program.

With the legislation provided above, the City's GHG emissions are projected to decrease over time, as indicated in **Table 2-3**. Under the Legislative-Adjusted BAU scenario, GHG emissions were estimated to be 526,000 $MTCO_2e$ in 2020 or 12 percent lower than 2012 emissions and 429,000 $MTCO_2e$ in 2030 or 28% lower than 2012 emissions. The overall decrease in emissions is primarily due to the federal and State legislation in place in 2012 that will continue into the benchmark years.

**Table 2-3 City of San Marcos Emissions Projections ($MTCO_2e$/year)**

| Emissions Category | 2012 | 2020 | | 2030 | |
|---|---|---|---|---|---|
| | | BAU | Legislatively-Adjusted BAU | BAU | Legislatively-Adjusted BAU |
| On-road Transportation | 322,000 | 307,000 | 296,000 | 317,000 | 252,000 |
| Electricity | 162,000 | 121,000 | 110,000 | 136,000 | 49,000 |
| Natural Gas | 75,000 | 79,000 | 77,000 | 88,000 | 79,000 |
| Off-Road Transportation | 14,000 | 14,000 | 14,000 | 18,000 | 18,000 |
| Solid Waste | 15,000 | 15,000 | 15,000 | 17,000 | 17,000 |
| Water | 9,000 | 10,000 | 10,000 | 11,000 | 11,000 |
| Wastewater | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| Total | 599,000 | 549,000 | 526,000 | 591,000 | 429,000 |
| *Percent change from 2012 (%)* | - | *-8%* | *-12%* | *-1%* | *-28%* |

Notes: Columns may not add to totals due to rounding.
BAU = business as usual; GHG = greenhouse gas emissions; $MTCO_2e$ = metric tons of carbon dioxide equivalent
Source: EPIC 2020a.

## 2.4 Reduction Targets

As directed in AB 32 and SB 32, this CAP focuses on reducing emissions consistent with these legislative actions by 2020 and 2030. The 2020 and 2030 targets set in AB 32 and SB 32, and the legislative pathway to achieve these targets in California Air Resources Board's (CARB's) *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan), represent benchmarks consistent with prevailing climate science, charting an appropriate trajectory forward that is in-line with the State's role in stabilizing global warming below dangerous thresholds. These goals aim to reduce statewide emissions to:

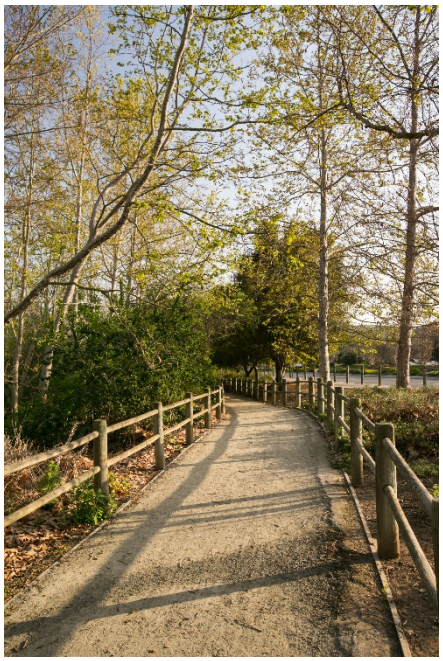
The goal of this CAP is to reduce citywide emissions to 42 percent below 2012 levels by 2030.

- 1990 levels by 2020;
- 40 percent below 1990 levels by 2030; and
- 80 percent below 1990 levels by 2050.

To determine an equivalent reduction target at the local level, CARB's 2017 Scoping Plan recommends communitywide GHG reduction goals for local climate action plans that will help the State achieve its 2030 target and longer-term 2050 goal (80 percent below 1990 levels by 2050). Estimating the equivalent reduction needed from the City's 2012 baseline based on the State inventory, the following adjusted reduction targets should be achieved in the City:

- 4 percent below 2012 levels by 2020; and
- 42 percent below 2012 levels by 2030.

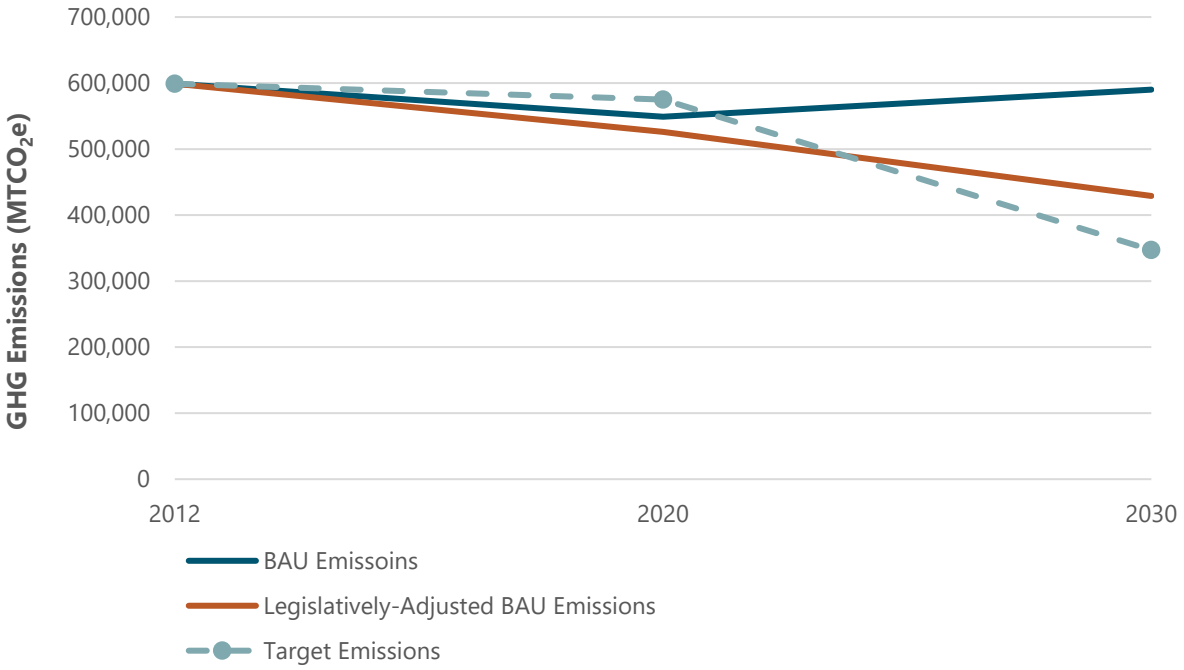
The City has set its 2030 target based upon the trajectory necessary to meet the statewide 2050 goal. The City's targets would require GHG emissions to be reduced to 575,000 $MTCO_2e$ in 2020 and 347,000 $MTCO_2e$ in 2030. A summary of the method used to develop these targets is provided in **Appendix B**.



*Source: City of San Marcos*

## 2.5 Local Emissions Gap

Based on the current demographic trends, and as shown in **Figure 2-2**, the City's emissions under BAU conditions would be below the 2020 target. Under the BAU scenario, the City is projected to generate 549,000 $MTCO_2e$ in 2020, which would be approximately 26,000 $MTCO_2e$ below the City's 2020 target. With State and federal adjustments applied, the City's Legislatively-Adjusted BAU emissions were estimated to be 526,000 $MTCO_2e$ in 2020, or 49,000 $MTCO_2e$ below the City's 2020 target.




Source: EPIC 2020a.

Figure 2-2: City of San Marcos Projections and Targets Without Climate Action Plan Actions

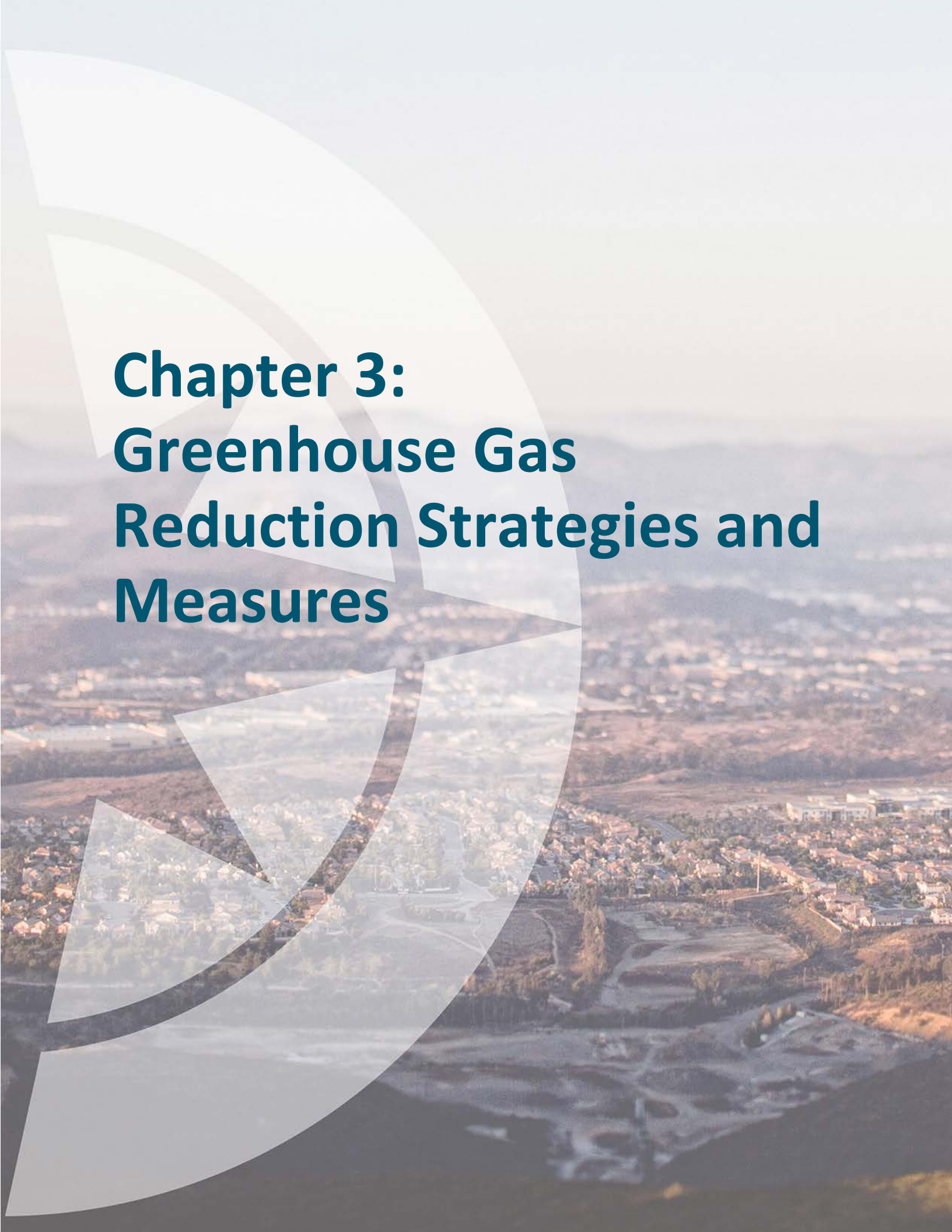
While existing activities would be adequate to meet the City's 2020 target, these activities, along with federal and State legislative actions, would not be adequate to achieve the City's 2030 GHG reduction target of 42 percent below 2012 levels. With State and federal adjustments applied, the City's 2030 emissions under Legislatively-Adjusted BAU conditions were estimated to be 429,000 $MTCO_2e$, or approximately 82,000 $MTCO_2e$ greater than the City's 2030 target. To achieve further reductions towards meeting the 2030 target, the City would need to implement additional actions. This additional reduction needed at the local level to meet the reduction targets for each year is referred to as the "local emissions gap." To close this gap, the City would need to implement actions that would result in approximately 82,000 $MTCO_2e$ in 2030.

To meet the 2030 target, the City will need to reduce emissions by 82,000 $MTCO_2e$

A detailed description of the calculations and estimates for these emissions projections and targets is provided in **Appendix B**.

Because the City would achieve its 2020 emissions reduction target under BAU conditions, this CAP focuses on reducing emissions in 2030 through local actions. While setting goals beyond 2030 is important to provide long-term objectives, it is difficult to establish longer-term targets for which defensible reduction assumptions can be made. This is primarily because of uncertainty around future technological advances and future changes in State and federal law beyond 2030. Though framed to reduce emissions to meet the State's near-term requirements, these targets are intended to provide a pathway for reductions beyond 2030. As climate change science and policy continues to advance, the City may be able to apply new strategies to assist in achieving the State's long-term 2050 GHG emissions reduction goal in future CAP updates.

# Chapter 3: Greenhouse Gas Reduction Strategies and Measures



*Page Intentionally Left Blank*

The City of San Marcos (City) will implement various strategies and measures to achieve its greenhouse gas (GHG) reduction targets. Accounting for legislative actions taken by the federal and State governments, this CAP focuses on locally-based measures that will be implemented to close the City's local emissions gap.

The City's Climate Action Plan (CAP) includes eight strategies, organized under five emission categories, that serve as the foundation for identifying and addressing ways in which the City will reduce citywide GHG emissions. Each strategy includes a series of measures, goals, and supporting activities that define the programs, policies, and projects the City will implement to reduce GHG emissions. The 22 measures identified in this CAP build on the measures and actions identified in the City's previous CAP, prepared in 2013 (2013 CAP) and focus on reductions from communitywide activities and municipal operations.

CAP strategies are organized under **five GHG emissions categories**:

- Transportation
- Energy (Electricity and Natural Gas)
- Water
- Solid waste
- Natural Systems

## 3.1 Greenhouse Gas Reduction Strategy Development

The development of GHG reduction strategies and measures is an important part of the climate action planning process. The City's local GHG emissions reduction targets identify 2012 as the base year from which to measure progress. As discussed in **Chapter 2**, the City is on track to meet its 2020 reduction target but would fall short of the 2030 target if growth continues under business-as-usual (BAU) practices and activities. The strategies and measures proposed in this CAP provide a pathway for new and existing development and activities in the City to reduce GHG emissions to meet the City's 2030 target and demonstrate progress in supporting the State's 2050 GHG emissions reduction goal.

The measures identified in this CAP were developed based on a review of 2013 CAP strategies and measures. Actions taken by the City since the development of the 2013 CAP were expanded upon, modified, or removed depending on implementation success or changes in regulations. For example, some measures identified in the 2013 CAP have since been adopted as City ordinances (e.g., Measure O-2 was incorporated into the City's Landscape Ordinance) or State regulations (e.g., "Smart Meter" installation and promotion, identified in Measure E-4, are now required by the California Public Utilities Commission). A majority of the 2013 CAP measures were adjusted and incorporated into this CAP, under emissions categories consistent with the regional formatting of emissions categories, defined through the San Diego Association of Government (SANDAG) Regional Climate Action Planning Framework (ReCAP). For example, measures for improving energy efficiency in residential buildings were categorized under the "Residential" emissions category in the 2013 CAP but are now categorized under the "Electricity" emissions category.

*Source: City of San Marcos*

In addition to a review of the measures included in the 2013 CAP, the City hosted public workshops to engage City residents, businesses, and community leaders to provide input and feedback on proposed measures. Input from these workshops was used to further define measures and identify measure goals. A summary of these public workshops and the input gathered is provided in **Appendix C**.

## 3.2 Greenhouse Gas Emissions Reduction Summary

The City is anticipated to generate 591,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) in 2030 under BAU conditions. The measures in this CAP are focused on meeting the 2030 target to reduce citywide emissions to 347,000 $MTCO_2e$ by 2030. State and federal regulations (see Legislatively-Adjusted BAU projections in **Chapter 2**) would further reduce citywide emissions in 2030; however, the City would still be responsible for reducing approximately 82,000 $MTCO_2e$ through local actions to meet its 2030 target. **Table 3-1** below, shows the GHG reductions attributable to the measures in this CAP and how anticipated reductions would help the City close the gap of 82,000 $MTCO_2e$ to meet its 2030 target. Detailed calculations and descriptions of the calculation methodologies are provided in **Appendix B**.

**Table 3-1 Greenhouse Gas Emissions Reductions from Business-as-Usual Conditions**

| Emissions Projection/Category | 2030 Emissions ($MTCO_2e$) |
|---|---|
| BAU Emissions Projection | 591,000 |
| Federal and State Action Reductions | 162,000 |
| Legislatively-Adjusted BAU Emissions Projection (BAU Projection – Federal and State Action Reductions) | 429,000 |
| 2030 Target Emissions | 347,000 |
| Total Reductions from CAP Measures | 82,000 |
| Reductions from CAP Transportation Measures | 33,800 |
| Reductions from CAP Energy Measures | 36,400 |
| Reductions from CAP Water Measures | 200 |
| Reductions from CAP Waste Measures | 11,600 |
| Reductions from CAP Carbon Sequestration Measures | 200 |
| City Emissions with CAP (Legislatively-Adjusted BAU – CAP Reductions) | 346,800 |

Notes: Numbers are rounded to the nearest thousand (with the exception of reduction measure values which were rounded to the nearest hundred); values and totals may not equal the values summed in other tables or figures.

BAU = business-as-usual; CAP = Climate Action Plan; City = City of San Marcos; $MTCO_2e$ = metric tons of carbon dioxide equivalent

Source: EPIC 2018; EPIC 2020a.

## 3.3 Reduction Strategies and Measures

To close the gap between the City's anticipated Legislatively-Adjusted BAU emissions and the CAP target in 2030, this CAP proposes eight strategies and 22 GHG reduction measures organized under five GHG emissions categories. As discussed above, these strategies and measures were developed based on a combination of factors, including:

- the feasibility of the measure to be implemented by the City;
- existing policies, actions, or programs that can be expanded or proposed policies yet to be adopted;
- feedback from community workshops;
- review of measures included in the 2013 CAP; and
- technological innovations.

The strategy framework consists of strategies, measures, target year, goals, and GHG reduction potential. The City has identified supporting activities that will assist in achieving each strategy's goals but were not directly quantified towards meeting the City's 2030 GHG reduction target. Each item in the reduction strategy framework is defined below and additional GHG reduction calculation details are included in **Appendix B**.

**Strategy:** A strategy is a high-level plan the City will implement to achieve GHG reductions in one of the five emissions categories. Each emission category may have one or more associated strategies. The framework includes eight overall strategies.

**Measure:** A measure is a program, policy, or project the City will implement that will cause a direct and measurable reduction in GHG emissions.

**Goal:** Each measure has a goal which serves as the metric by which achievement will be determined in 2030.

**GHG Reduction Potential:** The GHG reduction potential represents the estimated reduction in local GHG emissions from a specific measure if its goal is met. All GHG reduction potential values are shown in terms of $MTCO_2e$ reduced in 2030, which corresponds to the emissions target year set by the City (and in line with State mandates). Because the City would achieve its 2020 target under BAU conditions, the GHG reduction potential is presented only for the year 2030.

**Supporting Activities:** Supporting activities are additional activities that are currently occurring or will occur within the community that may support implementation of the identified strategy and measures, and/or could result in additional GHG reductions that were not quantified in the CAP.

### 3.3.1 TRANSPORTATION EMISSIONS CATEGORY

Emissions generated in the transportation category accounted for 56 percent of the City's total emissions in 2012. Internal combustion from on-road transportation is the largest contributor to GHG emissions in this category which also includes off-road transportation sources (e.g., construction equipment, residential and commercial equipment, and recreational vehicles). Legislative reductions from improvements in federal and State vehicle fuel efficiency standards will contribute to reducing transportation emissions by requiring the development of cleaner vehicle fleets. At the local level, however, the State relies on local or regional agencies to implement strategies that would reduce the frequency or distance of vehicle travel or reduce the use of internal combustion vehicles by shifting to alternative modes of transportation (e.g., bicycling, transit) or alternative fuel types (e.g. electric vehicles). The strategies that will be implemented at the local level in the City include increasing zero-emission or alternative fuel vehicle use, increasing transportation system efficiency for existing and future travel patterns, and increasing the use of alternative travel modes.

*Source: City of San Marcos*

*Strategy 1: Increase Use of Zero-Emission or Alternative Fuel Vehicles*

Strategy 1 Co-Benefits:
- Improved Air Quality
- Improved Public Health
- Increased Local Green Jobs.

The City would achieve GHG emissions reductions by reducing the use of gasoline or diesel-powered vehicles and equipment and transitioning to electric or zero-emissions vehicles for residents, workers, and the City's municipal fleet. Reductions from this strategy would occur through municipal projects and development requirements, and partnerships with local businesses, developers, and homeowners. This strategy includes four measures that would reduce the City's emissions by approximately 11,600 $MTCO_2e$ in 2030. **Table 3-2** outlines the framework for this strategy. Additional activities that would support this strategy would occur through partnerships with local and regional agencies.

**Table 3-2 Strategy 1: Increase Use of Zero-Emission/Alternative Fuel Vehicles**

**Measure T-1: Transition to a More Fuel-Efficient Municipal Fleet.**

Replace City-owned or leased vehicles scheduled for replacement with EVs or other types of ZEVs.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Reduce City fleet gasoline use by 4,000 gallons in 2030. | 32 |

**Measure T-2: Require Electric Vehicle Charging Stations in New Development.**

Starting in 2021, require that five percent of parking spaces provided in new multi-family and commercial developments are equipped with EV charging stations.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Install 220 EV charging stations in new multi-family developments by 2030. | 2,493 |
| Install 230 EV charging stations in new commercial developments by 2030. | |

**Measure T-3: Install Electric Vehicle Charging Stations at Public Facilities.**

Install EV charging stations at City-owned facilities for use by City staff or others conducting business at City facilities.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Install 45 EV charging stations by 2030. | 759 |

**Measure T-4: Provide Grants for Residents and Businesses to Install Electric Vehicle Charging Stations.**

Provide grants to residents and businesses to offset costs related to electric vehicle charging station installation. From 2021 to 2030, a total of $240,000 annually will be available to:

- Residents who purchase new plug-in hybrid electric vehicles (maximum $900 in grant funding per application)
- Businesses or new commercial construction not receiving any additional incentives or funding through other State or regional programs to install EV charging stations (maximum $1,800 in grant funding per application)

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Fund the installation of 900 EV charging stations at residences by 2030. | 8,282 |

| |
|---|
| Fund the installation of 900 EV charging stations at businesses by 2030. |

**Supporting Activities for Strategy 1:**

- Support Palomar College's efforts to increase the number of electric vehicle parking spaces on campus.
- Identify and secure funding (e.g., through the San Diego Regional Clean Cities Coalition, CARB, CEC, and/or CSE) to purchase/lease low- and zero-emissions fleet vehicles and equipment.
- Identify grants and incentives and educate developers about how to take advantage of available programs.

Notes: CARB = California Air Resources Board; CEC = California Energy Commission; City = City of San Marcos; CSE = California Center for Sustainable Energy; EV = electric vehicle; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent; ZEV = zero-emission vehicle

Source: EPIC 2020a.

### *Strategy 2: Reduce Fossil Fuel Use*

Citywide GHG emissions generated by internal combustion engines would be reduced by reducing the use of fossil fuels (i.e. gasoline and diesel) in vehicles operating on the City roadway network and construction sites. An efficient transportation network and the use of alternative fuels are promoted through this strategy. Improving traffic flow and increasing the efficiency of the existing traffic network and using alternatively-fueled construction equipment would reduce fossil fuel use. Emissions reductions in this strategy would be achieved through interagency participation to implement projects in City rights-of-way and working with developers and fleet owners to phase out old, fossil fuel—reliant equipment. This strategy includes two measures that would reduce the City's emissions by approximately 1,000 $MTCO_2e$ by 2030. **Table 3-3** outlines the framework for this strategy. Additional activities that would support this strategy would occur through partnerships with local and regional agencies, educational outreach, and updates to City plans and ordinances.

Strategy 2 Co-Benefits:
- Improved Air Quality
- Reduced Energy Use
- Improved Public Health
- Reduced Traffic Congestion
- Enhanced Safety
- Enhanced Community Character

**Table 3-3 Strategy 2: Reduce Fossil Fuel Use**

**Measure T-5: Synchronize Traffic Signals**

Synchronize traffic signals along major corridors in the City and determine other intersections where signal coordination would improve traffic flow.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Synchronize traffic signals at 13 intersections by 2020. | 263 |
| Synchronize traffic signals at an additional nine intersections by 2030. | |

**Measure T-6: Install Roundabouts**

Complete the installation of roundabouts at intersections identified in the University District Specific Plan.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Install two additional roundabouts by 2020 (for a total of seven after 2012). | 687 |

**Supporting Activities for Strategy 2**

- Support CSU San Marcos's evaluation of current and future transportation needs such as subsidized transit passes and the campus transportation demand management plan.
- Conduct educational campaigns to promote fuel-efficient driving ("eco-driving") practices such as reduced idling, slower driving speeds, gentle acceleration, and proper tire inflation.
- Update the City's Mobility Element to support improved traffic flow.
- Through the construction permitting process, limit construction vehicle and equipment idling to three minutes and require the project applicant to post clear signs for workers at the entrances to the site.

Notes: City = City of San Marcos; CSU = California State University; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent

Source: EPIC 2020a.

### *Strategy 3: Reduce Vehicle Miles Traveled*

Strategy 3 Co-Benefits:
- Improved Air Quality
- Improved Public Health
- Reduced Traffic Congestion
- Enhanced Safety
- Improved Access to Low-Cost Transportation Options
- Enhanced Community Character

While the first two transportation strategies focus on reducing emissions associated with existing on- and off-road vehicle use, this strategy focuses on reducing vehicle trips and vehicle miles traveled (VMT) associated with municipal and communitywide activities. To reduce VMT, this strategy aims to increase the use of alternative transportation modes such as transit and bicycling, reduce vehicle trips associated with new developments through transportation demand management (TDM) programs, and increase connectivity between major commercial, retail, and residential areas in the City. All measures to reduce VMT rely on participation from local and regional agencies, residents, and businesses. Implementation of the eight measures identified in this strategy would reduce the City's GHG emissions by approximately 21,300 $MTCO_3e$ in 2030. **Table 3-4** outlines the framework for this strategy. Additional activities that would support this strategy would occur through partnerships with local and regional agencies, incorporation of multi-modal designs in all plans and projects, and municipal policies and programs.

**Table 3-4 Strategy 3: Reduce Vehicle Miles Traveled**

| **Measure T-7: Participate in the San Diego Association of Governments iCommute Vanpool Program.** | |
|---|---|
| Encourage businesses to participate in SANDAG's iCommute vanpool program. | |
| **Goal** | **GHG Reduction Potential in 2030 ($MTCO_2e$)** |
| Maintain 12 SANDAG vanpools that start or end in the City in 2030. | 149 |
| **Measure T-8: Develop Bicycle Infrastructure Identified in the City's General Plan Mobility Element.** | |
| Implement bicycle infrastructure projects identified in the City's General Plan Mobility Element, including adding new bicycle lanes and improving existing bicycle lanes. | |
| **Goal** | **GHG Reduction Potential in 2030 ($MTCO_2e$)** |
| Install an additional 18 miles of two-way bicycle lanes (Class II or better) by 2030. | 692 |
| **Measure T-9: Adopt Citywide Transportation Demand Management Ordinance.** | |
| Adopt a TDM ordinance in 2021 that specifies alternative mode-share goals for all new developments (excluding single-family developments). Include within the ordinance recommended activities to increase the use of alternative transportation modes (i.e. walking, bicycling, or taking transit) and carpooling/vanpooling. | |

| Table 3-4 Strategy 3: Reduce Vehicle Miles Traveled | |
|---|---|
| **Goal** | **GHG Reduction Potential in 2030 ($MTCO_2e$)** |
| Increase the alternative transportation mode share for new developments by seven percent annually through 2030. | 262 |
| **Measure T-10: Implement the Intra-City Shuttle System.** | |
| Implement the intra-city, electric shuttle system identified in the City's General Plan to connect the City's activity centers (University District, Creek District, Palomar Station, and California State University San Marcos) with two high-frequency shuttle routes. | |
| **Goal** | **GHG Reduction Potential in 2030 ($MTCO_2e$)** |
| Fully implement the intra-city shuttle system with electric shuttles running at 10-minute headways by 2030. | 4,932 |
| **Measure T-11: Increase Transit Ridership.** | |
| Work with neighboring cities, NCTD, and SANDAG to increase the number of workers commuting to or from the City using transit. | |
| **Goal** | **GHG Reduction Potential in 2030 ($MTCO_2e$)** |
| Increase the number of commuters taking transit to or from the City to 7,000 in 2030. | 4,415 |
| **Measure T-12: Reduce Parking Requirements for New Residential Development Near Transit.** | |
| Encourage increased density of residential developments within ½ mile of major transit stops (i.e. Sprinter stations or major transit stations[1]) by reducing minimum parking standards per unit. | |
| **Goal** | **GHG Reduction Potential in 2030 ($MTCO_2e$)** |
| Approve at least 3,700 new residential units near transit that provide at least 27 percent fewer parking spaces than required by City Code. | 2,017 |

[1] Major transit station, as defined by the California Public Resources Code Section 2115, is a transit stop located along a high-quality transit corridor with fixed bus route service with service intervals no longer than 15 minutes during peak commute hours.

**Table 3-4 Strategy 3: Reduce Vehicle Miles Traveled**

**Measure T-13: Implement Transportation Demand Management Plans at Existing Employers.**

Work with existing major employers to reduce commute and work-related VMT through employee shuttle bus services, vanpool programs, parking cash-out or other TDM activities.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Reduce commute VMT to 3.7 percent below projected VMT in 2030, or approximately 30.6 million VMT by 2030. | 8,786 |

**Measure T-14: Transition to an Online Building and Engineering Permit Submittal System.**

Provide online permit submittal and processing availability for all types of building permits.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Completely transition to an online permitting submittal system by 2021. | 13 |

**Supporting Activities for Strategy 3:**

- Support Palomar College's efforts to reduce single-occupancy vehicle trips including improving access to transit, increasing the number of carpool parking spaces available on campus, and increasing the number of online classes available to students.
- Support CSU San Marcos's efforts to evaluate current and future transportation needs and reduce single-occupancy and vendor trips to campus.
- Participate in and promote annual regional commute trip reduction events.
- Incorporate multi-modal improvements into pavement resurfacing, restriping, and signalization operations where the safety and convenience of users can be improved within the scope of work.
- Continue to pursue public and private funding to expand and link the City's bicycle and pedestrian network in accordance with the General Plan-Mobility Element, and Trails Master Plan.
- Consider development of a NEV master plan to encourage use of no emission vehicles on appropriate facilities.
- Coordinate with NCTD and SANDAG to facilitate the use of transit by increasing its safety and cleanliness, providing real-time information, and making other quality improvements.

Notes: City = City of San Marcos; CSU = California State University; EV = electric vehicle; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent; NCTD = North County Transit District; NEV = neighborhood electric vehicle; SANDAG = San Diego Association of Governments; TDM = Transportation Demand Management; VMT = Vehicle Miles Traveled

Source: EPIC 2020a.

### 3.3.2 ENERGY EMISSIONS CATEGORY

*Source: City of San Marcos*

Energy use in the City includes electricity and natural gas consumption, which accounted for 39 percent of the City's total emissions in 2012. Two strategies would reduce emissions from electricity and natural gas consumption by increasing building energy efficiency and the use of renewable energy sources. Legislative reductions from State energy efficiency and renewable energy programs will contribute to reducing transportation emissions by increasing the amount of renewable energy available statewide and improving energy efficiency requirements for new developments. At the local level, GHG emissions reductions would be achieved by improving energy efficiency of new developments beyond State requirements, both increasing the amount of renewable energy generated locally, and reducing the amount of non-renewable energy consumed locally. The success of these strategies relies on coordination with local utilities, organizations, and agencies, participation from the community, and administration of new or revised local policies and programs.

*Strategy 4: Increase Building Energy Efficiency*

Electricity and natural gas consumption in buildings accounts for a majority of GHG emissions from the energy sector. Although legislative reductions related to State actions will help reduce emissions associated with building energy, additional reductions are achievable by increasing building efficiency in the City. This strategy aims to reduce emissions by reducing energy used by residential consumers through increased energy efficiency. This strategy includes one measure that would reduce the City's emissions by approximately 1,280 $MTCO_2e$ in 2030. **Table 3-5** outlines the framework for this strategy.

Strategy 4 Co-Benefits:
- Improved Air Quality
- Reduced Energy Use
- Reduced Heat Island Effects
- Increased Local Green Jobs

| Table 3-5 Strategy 4: Increase Building Energy Efficiency | |
|---|---|
| **Measure E-1: Require New Residential Developments to Install Alternatively-Fueled Water Heaters.** | |
| Starting in 2022, require all new single-family and multi-family residential projects to install non-natural gas water heaters. Non-natural gas water heater options include electric HPWH, instantaneous electric, electric tank solar water heater with HPWH backup, or solar water heater with electric tank backup. | |
| **Goal** | **GHG Reduction Potential in 2030 ($MTCO_2e$)** |
| Install 1,800 new alternatively-fueled water heaters by 2030. | 1,275 |
| **Supporting Activities for Strategy 4:** | |
| ▪ Support Palomar College's efforts to improve energy efficiency in campus buildings and reduce campus-wide energy use.<br>▪ Support CSU San Marcos's efforts to achieve net zero energy buildings and laboratories. | |
| Notes: City = City of San Marcos; CSU = California State University; GHG = greenhouse gas; HPWH = heat pump water heater; kWh = kilowatt-hour; $MTCO_2e$ = metric tons of carbon dioxide equivalent<br>Source: EPIC 2020a. | |

*Strategy 5: Increase Renewable and Zero-Carbon Energy*

Strategy 5 Co-Benefits:
- Improved Air Quality
- Reduced Energy Use
- Enhanced Community Character
- Increased Local Green Jobs

Over a quarter of the City's GHG emissions in 2012 are generated through the consumption of fossil fuels for the purpose of electricity generation (i.e. natural gas—fired or coal power plants). Transitioning from fossil fuels to renewable energy electricity generation will reduce emissions and provide a more sustainable source of electricity. The City would reduce emissions by increasing renewable energy generated locally and participating in a community choice aggregation (CCA) or similar program to increase the amount of grid supplied renewable energy. This strategy includes two measures that would reduce the City's emissions by approximately 35,100 $MTCO_2e$ in 2030. **Table 3-6** outlines the framework for this strategy. Additional activities that would support this strategy would occur through partnerships with local and regional agencies.

**Table 3-6 Strategy 5: Increase Renewable and Zero-Carbon Energy**

**Measure E-2: Require Installation of PV systems at New Non-Residential Developments.**

Starting in 2022, require all new non-residential developments to install PV systems with a minimum of two watts per square foot of gross floor area.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Install 2.1 MW PV at new commercial developments by 2030. | 773 |

**Measure E-3: Increase Grid-Supply Renewable and Zero-Carbon Electricity.**

Join a program to increase grid-supply renewables and zero-carbon electricity to 95 percent by 2030 with a maximum customer opt-out rate of three percent.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Achieve 95 percent renewable and zero-carbon in electricity supply in 2030 with up to three percent customer opt-out rate. | 34,336 |

**Supporting Activities for Strategy 5**

- Support Palomar College's efforts to install at least one MW PV arrays on campus.
- Support CSU San Marcos's efforts to increase renewable energy generation and storage on campus.

Notes: City = City of San Marcos; CSU = California State University; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent; MW = Megawatts; PV = photovoltaic; RPS = Renewable Portfolio Standard

Source: EPIC 2020a.

### 3.3.3 WATER EMISSIONS CATEGORY

GHG emissions in the water category are generated by energy consumed to pump, transport, and treat water and wastewater. Emissions from this category account for only one percent of the City's total emissions in 2012, but reduction measures that reduce water consumption also play an important role in the City to adapt to climate change impacts and develop sustainable practices to conserve water communitywide.

*Strategy 6: Reduce Water Use*

The City would reduce water consumption under this strategy by practicing and implementing more efficient water use strategies in landscaped areas. The measures identified in this strategy would provide residents and municipal operators effective ways to reduce water consumption. This strategy achieves emissions reductions by reducing the energy needed to supply, treat, and deliver water. The implementation of the two measures under this strategy would reduce the City's GHG emissions by approximately 160 $MTCO_2e$ in 2030. **Table 3-7** outlines the framework for this strategy. Additional activities that would support this strategy would occur through partnerships with local and regional agencies.

Strategy 6 Co-Benefits:
- Reduced Energy Use
- Improved Water Quality
- Enhanced Community Character

**Table 3-7 Strategy 6: Reduce Water Use**

**Measure W-1: Reduce Outdoor Water Use for Landscaping.**

Enforce the Local Water Efficient Landscape Ordinance's new water budget and weather-based irrigation controller requirement.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Reduce outdoor water use for landscaping by 165 acre-feet in 2030. | 91 |

**Measure W-2: Reduce Water Use in City Managed Landscape Areas.**

Reduce landscape irrigation water use in existing City managed landscape areas.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Reduce water use in existing City managed landscaped areas by 120 acre-feet in 2030. | 67 |

**Supporting Activities for Strategy 6**

- Support Palomar College's plans to reduce water consumption in new construction and renovation projects, and landscaping and irrigation.
- Support CSU San Marcos's efforts to reduce water usage in campus buildings and landscaping.

Notes City = City of San Marcos; CSU = California State University; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent

Source: EPIC 2020a.

### 3.3.4 SOLID WASTE EMISSIONS CATEGORY

The disposal of solid waste by residents, businesses, and City facilities results in GHG emissions from solid waste decomposition and off-gassing at landfills. Communities can reduce emissions generated by solid waste by reducing the total amount of waste generated or diverting waste to other waste streams such as recycling or composting. The solid waste emissions category represents only three percent of the City's total emissions in 2012, but significant reductions could be made by changing individual behavior through partnerships with local waste haulers and outreach to residents and businesses.

*Source: City of San Marcos*

*Strategy 7: Reduce and Recycle Solid Waste*

Citywide GHG emissions would be reduced by diverting waste away from landfills and into other waste streams such as recycling or composting. Diverting waste to recycling results in increased material reuse for other products, while diverting waste to composting allows organic material to decompose and be reused as fertilizer. The implementation of the one measure in this strategy would reduce the City's GHG emissions by approximately 11,590 $MTCO_2e$ in 2030. **Table 3-8** outlines the framework for this strategy. Additional activities that would support this strategy would occur through partnerships with local and regional agencies and community education and outreach.

Strategy 7 Co-Benefits:
- Improved Air Quality
- Reduced Energy Use
- Enhanced Community Character
- Increased Local Green Jobs

**Table 3-8 Strategy 7: Reduce and Recycle Solid Waste**

**Measure S-1: Increase Citywide Waste Diversion.**

Work with City's franchise waste hauler to prepare a waste diversion plan that identifies interim steps toward achieving the 2030 waste diversion goal.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Achieve 85 percent Citywide waste diversion by 2030. | 11,585 |

**Supporting Activities for Strategy 7**

- Support CSU San Marcos's efforts to reduce laboratory waste, implement campus initiatives and programs to increase composting, and create a zero-waste plan.
- Continue to work with EDCO (local franchise waste hauler) to encourage waste audits and waste reduction plans for existing and new commercial developments.
- Include link to franchise waste haulers page on City of San Marcos webpage and include list of compostable food scraps and paper products that can be collected.
- Explore opportunities with franchise waste hauler and other local business organizations to develop and encourage participation in commercial food scrap collection program.
- Continue to participate in regional waste diversion discussions and monitor mandatory participation levels in other area construction and demolition waste diversion ordinances.
- Encourage EDCO to implement a restaurant food waste collection program.

Notes: City = City of San Marcos; CSU = California State University; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent

Source: EPIC 2020a.

### 3.3.5 CARBON SEQUESTRATION

Trees and other vegetation are a key part of part of the natural carbon cycle. Through photosynthesis, plants convert carbon dioxide ($CO_2$) from the atmosphere into oxygen and carbon-based matter. This process of removing atmospheric $CO_2$ through natural processes is referred to as carbon sequestration. Communities can increase the amount of carbon sequestered locally to reduce community-wide GHG emissions by expanding the urban forest canopy and protecting natural systems.

*Source: City of San Marcos*

*Strategy 8: Increase Urban Tree Cover*

The presence of trees is a significant source of carbon sequestration and storage in urban areas. This strategy focuses on increasing the number of new trees planted in urban areas to increase the amount of carbon sequestered. In addition to offsetting $CO_2$ emissions generated by other sources (e.g. vehicles), increased tree plantings result in co-benefits including improved air quality through the capture of air pollutants and community and public health benefits through the provision of shade and positive impacts on mental health. Implementation of the two measures through this strategy would reduce the City's emissions by approximately 250 $MTCO_2e$ by 2030. **Table 3-9** outlines the framework for this strategy. Additional activities that would support the implementation of this strategy would occur through partnerships with other local or regional agencies, updated City ordinances and policies, and community education and outreach activities.

Strategy 8 Co-Benefits:
- Improved Air Quality
- Improved Public Health
- Improved Water Quality
- Reduced Heat Island Effect
- Enhanced Community Character
- Increased Local Green Jobs.

**Table 3-9 Strategy 8: Increase Urban Tree Cover**

**Measure C-1: Increase Tree Planting at City Parks and Public Rights-of-Way.**

Develop a program to track tree planting and maintenance at City facilities, public parks and public rights-of-way, and at new developments and areas where the City performs landscape maintenance.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Plant and maintain 1,500 new trees in public spaces by 2030. | 148 |

**Measure C-2: Increase Tree Planting in New Development.**

Enforce the new development requirements to plant a minimum of one tree for every five parking spaces for projects with more than 10 uncovered parking lot spaces, and a minimum of one tree per single-family unit.

| Goal | GHG Reduction Potential in 2030 ($MTCO_2e$) |
|---|---|
| Plant and monitor 1,200 new trees on private properties by 2030. | 97 |

**Supporting Activities for Strategy 8**

- Support CSU San Marcos's development of a tree and plant replacement policy.
- Launch a community forestry program with an annual budget of at least 2 dollars per capita and observe an official Arbor Day on a yearly basis.
- Continue turf management practices which specify the top-dressing of compost to increase carbon sequestration at City parks.
- Apply for City recognition as "Tree City USA" and implement the program's requirements of forming a City of San Marcos Tree Board consisting of staff members involved in managing the City's urban forest.
- Continue to share related informational materials on City's webpage and at other community events such as street fairs on shade tree planting guides, preferred trees list, and tree giveaways.
- Collaborate with CSE and SDG&E in developing shade tree give-away program or other incentives to encourage planting of shade trees for existing residential and non-residential sites.
- Incentivize tree planting on private property by giving away tree seedlings during Arbor Day or other events.

Notes: City = City of San Marcos; CSE = Center for Sustainable Energy; CSU = California State University; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent; SDG&E = San Diego Gas and Electric

Source: EPIC 2020a.

## 3.4 Updates to Previous CAP Measures

*Source: City of San Marcos*

The 2013 CAP included 31 measures from local government operations, energy, transportation, off-road activities, water and wastewater, solid waste, urban greening, community education and outreach, and adaptation strategies. The process of identifying measures for inclusion in this CAP included a review of the measures included in the 2013 CAP. As noted previously, the measures in this CAP were organized based on the standards established by the SANDAG ReCAP Framework. A majority of the 2013 CAP measures were revised and included in this CAP. Other measures in the 2013 CAP were included as part of CAP document sections, chapters, or appendices, rather than being incorporated directly into new CAP measures (e.g., Measure LG-1 identified implementation efforts that are included in Chapter 4, *Implementation and Monitoring*). Additionally, some measures from the 2013 CAP were not included because they have since been adopted into the City's updated Building Codes, and other ordinances and regulations. For example, Measure O-2 included goals to reduce the use of lawn and garden equipment through landscaping standards. These standards have since been incorporated into the City's Landscape Manual. Finally, some measures included in the 2013 CAP were not incorporated into the CAP due to limited effectiveness at reducing GHG emissions or difficulty monitoring and tracking reductions. For example, 2013 CAP Measure E-1 relied heavily on voluntary resident participation in energy assessments. While voluntary assessments have occurred, it was difficult for the City to identify retrofits or retrocommissionings that resulted from such audits. A summary of how the 2013 CAP measures have been incorporated into this CAP is provided in **Table 3-10**.

**Table 3-10 2013 CAP Measure Updates**

| 2013 CAP Measure | CAP Update Related Chapter, Strategy, or Measure(s) |
|---|---|
| **Local Government Operations Measures** | |
| LG-1 CAP Implementation | Chapter 4, *Implementation and Monitoring* |
| LG-2 Municipal Energy Efficiency and Conservation | Strategy 6: W-2 |
| LG-3 Solar Energy for City Buildings and Facilities | Strategy 5: E-3 |
| LG-4 Low Emission Fleet Vehicles | Strategy 1: T-1 |
| LG-5 Employee Commute Alternatives | Strategy 2 & 3: T-7, T-9, T-11 |
| LG-6 Municipal Solid Waste Diversion | Strategy 7: S-1 |
| LG-7 Tree Planting on City Property | Strategy 8: C-1 |
| **Energy Measures** | |

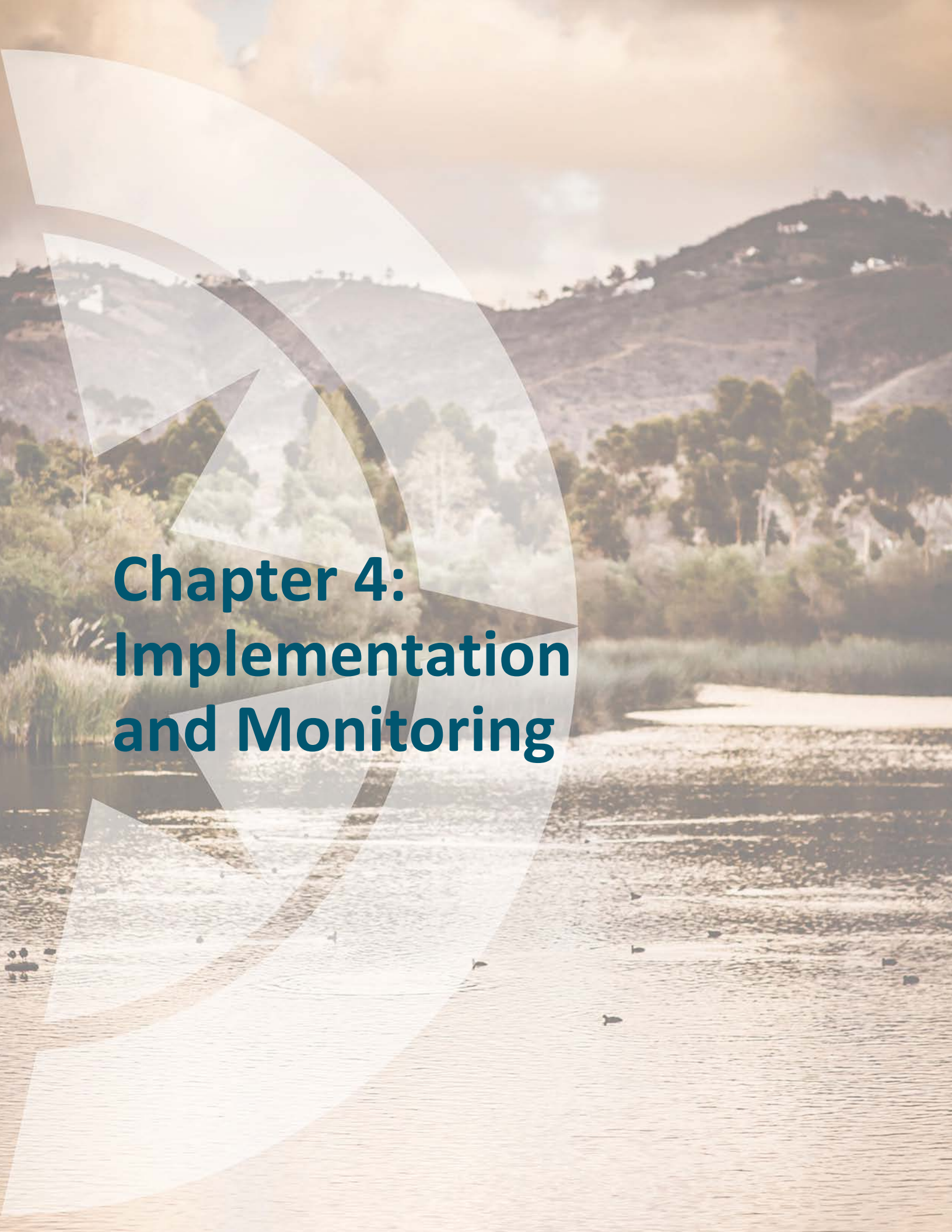
**Table 3-10 2013 CAP Measure Updates**

| 2013 CAP Measure | CAP Update Related Chapter, Strategy, or Measure(s) |
|---|---|
| E-1 Energy Efficiency of Existing Buildings | None |
| E-2 Energy Efficient New Construction | Strategy 4 & 5: E-1, E-2 |
| E-3 Energy Efficiency Outreach and Incentives | None |
| E-4 Smart Meters | None |
| E-5 On-Site Small-Scale Solar Energy | Strategy 5: E-2 |
| **Transportation Measures** | |
| T-1 Smart Growth | Strategy 3: T-12 |
| T-2 Bicycle and Pedestrian Environment | Strategy 2: T-8 |
| T-3 Transit Travel | Strategy 3: T-9, T-10, T-11, T-13 |
| T-4 Commute Trip Reduction | Strategy 3: T-7, T-8, T-9, T-11, T-13 |
| T-5 Traffic Flow and Vehicle Idling | Strategy 2: T-5, T-6 |
| T-6 Low Carbon/Alternative Fuel Vehicles | Strategy 1: T-2, T-3, T-4 |
| **Off-Road Measures** | |
| O-1 Construction Equipment Efficiency and Fuels | None |
| O-2 Lawn and Garden Equipment | None |
| **Water and Wastewater Measures** | |
| W-1 Exceed SB X7-7 Water Conservation Target | Strategy 6: W-1, W-2 |
| W-2 Recycled Water | Strategy 6: W-1, W-2 |
| W-3 Wastewater Treatment Plant Upgrades | None |
| **Solid Waste Measures** | |
| S-1 Solid Waste Reduction and Recycling | Strategy 7: S-1 |
| **Urban Greening Measures** | |
| U-1 Community Tree Planting | Strategy 8: C-1, C-2 |
| **Community Education and Outreach Measures** | |
| C-1 Community Education and Outreach | Appendix C, *Outreach and Public Engagement Summary* |
| **Adaptation Measures** | |
| A-1 Climate Change Vulnerability | None |
| A-2 Public Health, Socioeconomic, and Equity | None |
| A-3 Water Management | None |
| A-4 Biodiversity and Habitat | None |
| A-5 Infrastructure | None |

Notes: CAP = Climate Action Plan; City = City of San Marcos; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent; N/A = not applicable; SB = Senate Bill

Source: Ascent Environmental 2020, Rincon Consultants 2013

As shown in **Table 3-10**, the City's 2013 CAP included five measures addressing climate adaptation. Updates to these measures were not provided within this CAP and would be addressed within future updates of the City's General Plan. The City will continue to implement the adaptation measures included in the 2013 CAP which focus primarily on assessing the City's vulnerability to climate change impacts and implementing GHG reduction measures in the City's most recently adopted CAP.



# Chapter 4: Implementation and Monitoring

*Page Intentionally Left Blank*

Implementation and monitoring will ensure that:
- measures are effective;
- the CAP is on track to achieve GHG reduction targets; and
- desired community outcomes are achieved.

This chapter outlines how the City of San Marcos will implement and monitor the strategies and measures identified in this Climate Action Plan (CAP) to reduce greenhouse gas (GHG) emissions. To achieve the GHG emissions reductions described in **Chapter 3**, measures should be continuously assessed and monitored to ensure that: (1) they are effective; (2) the CAP is on track to achieve the GHG reduction targets; and (3) desired community outcomes are achieved.

A detailed implementation and monitoring plan was created as part of the City's previous CAP, prepared in 2013 (2013 CAP). The information presented in this chapter builds upon the implementation and monitoring plan and strategy identified in the 2013 CAP.

## 4.1 Implementation Strategy

Implementation of GHG reduction measures will require ongoing management, oversight, and staffing. Ensuring that measures translate to on-the-ground results and reductions in GHG emissions is critical to the success of the CAP. Success of the City's CAP and GHG emissions reduction measures will depend on the participation of the City's residents, businesses, and City departments.

*Source: City of San Marcos*

To achieve GHG reduction targets, an implementation strategy is required to determine the priority of the strategies described in **Chapter 3**. Priorities depend on a variety of factors, including timeframe, staff resources needed, and required level of department/agency collaboration. The implementation strategy in this chapter provides a summary of costs and activities associated with each measure. To continue successful implementation of the CAP strategies, the City will further expand on this initial examination once implementation has begun. Further detail on the information provided in this chapter is included in the *City of San Marcos Climate Action Plan Implementation Cost Analysis* (Cost Analysis), prepared by the Energy Policy Initiatives Center (EPIC) in 2020, and included in **Appendix E**.

Implementation priorities are based on timeframe, staff resources, required collaboration and coordination, and actions needed to implement.

The initial evaluation of reduction measure implementation includes identifying implementation action(s), responsible departments, collaborating departments, implementation timeframe, and staffing costs. These evaluation categories are identified below.

### 4.1.1 IMPLEMENTATION ACTIONS

Each reduction measure identified in this CAP has associated implementation actions. Implementation actions identify the steps and/or tasks that need to be completed to achieve the GHG reduction potential of each measure. One or more implementation actions have been identified for each GHG reduction measure. Detailed descriptions of each implementation action are provided in **Appendix E** and will be further defined as the City begins implementation of each GHG reduction measure.

Generally, implementation actions can be categorized as policies, programs, and projects. These categories identify a main procedure or task associated with the implementation actions.

- **Policies** include high-level measures (e.g. developing and adopting ordinances) the City would implement that would result in additional, related GHG-reducing activities in the future.
- **Programs** include measures implemented by the City that facilitate GHG-reducing activities such as providing grants/funding or creating partnerships with other organizations.
- **Projects** include substantive activities the City would implement, and discretionary actions that would directly result in GHG reductions.

*Source: City of San Marcos*

### 4.1.2 RESPONSIBLE DEPARTMENTS

Initial implementation of local measures will be a coordinated effort between City departments and local/regional agencies. Internal City departments such as Development Services, Public Works, and the City Manager's Office will play a key role in implementation of the CAP.

The primary department responsible for implementation of each GHG reduction measure will take the lead in planning, administration, and tracking specific actions identified in the CAP. Some actions involve the City assisting and supporting other local or regional agencies, such as the San Diego Association of Governments (SANDAG) or the North County Transit District (NCTD), in measure implementation. Similarly, many measures would require various departments to support implementation while not directly serving as the responsible department. These collaborating departments would provide additional support such as coordinating or performing a specific implementation action.

### 4.1.3 IMPLEMENTATION TIMEFRAME

The timeframe over which strategies are implemented varies from the first year following CAP adoption to implementation over several years following adoption. Prioritization of the measures is based on a timeframe during which measures can be implemented. Certain measures should be prioritized early because they would require more effort and would take longer to implement and assigning such measures a higher priority would allow the City to allocate resources appropriately. The implementation timeframes for GHG reduction measures in this CAP are identified by the year following CAP adoption that implementation should occur/begin (e.g., measures with an implementation timeframe of "Year 1" should be implemented within one year of CAP adoption). For certain measures, implementation occurs as a single activity, where no further action is required following the completion of a single action (e.g., adopt an ordinance). Other measures, however, require ongoing implementation following the initial action (e.g. develop a policy and complete projects over time to support that policy). These ongoing implementation actions can be continuous (i.e., occur through the lifetime of the CAP and potentially beyond), or over a specific timeframe (i.e., for a set number of years following initial implementation). Recommendations for implementation timeframes are shown in **Table 4-1**, and discussed further in **Appendix E**.

### 4.1.4 STAFFING COSTS

*Source: City of San Marcos*

Levels of effort required to implement measures are based on City staff capacity to execute each action. Consideration of staff costs is needed to guide CAP implementation. Staff costs are based on the anticipated levels of resources, staffing, and timeframe required to implement each measure. These costs are defined through "full-time equivalent" value ranges assigned to each implementation action. Full-time equivalent, or FTE, values represent the number of people required to complete each action. For example, an implementation action with an FTE value of 1.0 means that the activity will require one person, whose work time is completely dedicated to completing that specific action. The Cost Analysis includes minimum and maximum FTE values for each implementation action. These FTE values are summarized in this chapter based on a scale of low, medium, high, or very high based on the FTE ranges presented in the Cost Analysis. Some implementation actions would not require any additional staff capacity because they are either currently being performed by existing City staff or would be implemented by other agencies or contractors.

A summary of the FTE calculations for each implementation action are provided in **Appendix E**.

### 4.1.5 IMPLEMENTATION STRATEGY MATRIX

The implementation strategy matrix provides a summary of initial prioritization of GHG reduction measures.

The implementation strategy matrix identified in **Table 4-1** provides a summary of the initial prioritization and categorization of the CAP's strategies. The matrix includes the implementation action and type, responsible and collaborating departments, implementation timeframe, and staffing requirements for each GHG reduction measure. Following adoption of the CAP, this implementation strategy matrix will serve as the initial guidance for City staff. Future updates to the CAP will require the matrix to be adjusted according to feasibility of implementation and legislative requirements. Key staff in each department or agency will facilitate and oversee measure implementation, allocate staff resources, and secure funding as needed.

**Table 4-1 Implementation Strategy Matrix**

| Measure | | Implementation Action | | Action Type | Responsible Departments | | Time-frame | Staffing Cost |
|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Support | | |
| Strategy 1: Increase Use of Zero-Emissions or Alternative Fuel Vehicles | | | | | | | | |
| T-1 | Transition to a More Fuel-Efficient Municipal Fleet. | T-1.1 | Develop a low- and zero-emissions replacement/purchasing policy for official City vehicles and equipment. This would not apply to vehicles with special performance requirements. | Policy | PW | DS | Year 1/ Ongoing | Medium |
| | | T-1.2 | Work with individual departments with vehicle fleets and equipment to develop fuel saving policies and programs. | Policy | PW | DS | Year 1/ Ongoing | Low |
| T-2 | Require EV Charging Stations in New Development. | T-2.1 | Develop, adopt, and implement an ordinance to require EV charging stations in new multi-family and non-residential developments. | Policy | DS | CA | Year 1 | Medium |
| T-3 | Install EV Charging Stations at Public Facilities. | T-3.1 | Develop an EV charging station plan to identify installation sites. | Policy | DS; PW | PW | Years 2-10 | Medium |
| | | T-3.2 | Collaborate with other organizations in the region that are installing or supporting the installation of public EV charging stations (e.g. SANDAG, CSE, SDG&E). | Program | DS | PW | Years 2-10 | Low |
| | | T-3.3 | Install EV charging stations. | Project | PW | DS | Years 2-10 | High |
| T-4 | Provide Grants for Residents and Businesses to Install EV Charging Stations. | T-4.1 | Identify potential sources to fund EV charging station grant programs. | Project | DS | -- | Year 1 | Low |
| | | T-4.2 | Conduct research into existing grant programs to determine program structure. | Project | DS | DF; CM | Year 1 | Medium |
| | | T-4.3 | Develop and Implement EV charging station grant program. | Project | DS; DF | DF; CM | Year 1 | Medium |

**Table 4-1 Implementation Strategy Matrix**

| Measure | | Implementation Action | | Action Type | Responsible Departments | | Time-frame | Staffing Cost |
|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Support | | |
| | | T-4.4 | Develop outreach materials and conduct marketing to encourage participation in the grant program. | Program | CM | DS | Year 1 | Low |
| Strategy 2: Reduce Fossil Fuel Use | | | | | | | | |
| T-5 | Synchronize Traffic Signals. | T-5.1 | Develop and ITS plan for traffic signal synchronization and congestion management. | Project | PW | DS; IT | Year 1/ Ongoing | Medium |
| | | T-5.2 | Upgrade all traffic signal controllers to smart controllers capable of running adaptive traffic signal control and communicating with vehicles and other infrastructure. | Project | PW | -- | Year 1/ Ongoing | Low |
| | | T-5.3 | Periodically review the coordination parameters of all main corridors in the City and use state-of-the-art technology to optimize traffic operations. | Project | PW | -- | Year 1/ Ongoing | Medium |
| | | T-5.4 | Evaluate additional traffic signals that may be coordinated based on motorists' complaints. | Project | PW | -- | Year 1/ Ongoing | Medium |
| T-6 | Install Roundabouts. | T-6.1 | Construct identified roundabout projects on Rock Springs Road, at the Tesoro developments, and in the University District. | Project | DS | -- | Year 1/ Ongoing | Low |
| | | T-6.2 | Continue to monitor traffic patterns to identify candidate intersections for future roundabout projects. | Project | PW | DS | Year 1/ Ongoing | Low |
| Strategy 3: Reduce Vehicle Miles Traveled | | | | | | | | |
| T-7 | Participate in the SANDAG iCommute Vanpool Program. | T-7.1 | Identify employers to connect to vanpools and carpools through SANDAG iCommute program. | Program | DS | CM | Year 3 | Medium |
| | | T-7.2 | Establish an iCommute employer network to track the number of City employees participating in the program and measure the City's financial and environmental savings. | Program | HR | IT; DS | Year 3 | Low |

**Table 4-1 Implementation Strategy Matrix**

| Measure | | Implementation Action | | Action Type | Responsible Departments | | Time-frame | Staffing Cost |
|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Support | | |
| | | T-7.3 | Participate in SANDAG's free iCommute program to develop and implement a customized commuter benefit program for City employees, including incentives such as pre-tax benefits and/or discounted transit passes. | Program | HR | IT; DS | Year 3 | Low |
| | | T-7.4 | Collaborate with SANDAG to identify the longest commute distances and associated employers and encourage these employers to participate in vanpool programs. | Program | DS | PW | Year 3 | Low |
| | | T-7.5 | Collaborate with businesses to promote the iCommute vanpool program | Program | CM; DS | -- | Year 3 | Low |
| T-8 | Develop Bicycle Network Identified in the City's General Plan Mobility Element. | T-8.1 | Adopt a comprehensive mobility plan (e.g. Bicycle Master Plan, Pedestrian Master Plan, or Streets Design Manual) to provide for multi-modal connectivity opportunities throughout the City. | Project | PW; DS | -- | Year 1/ Ongoing | Medium |
| | | T-8.2 | Expand and link the City's bicycle and pedestrian network consistent with the General Plan Mobility Element and Trails Master Plan. | Project | DS | PW | Year 1/ Ongoing | Low |
| | | T-8.3 | Consider ordinance updates to increase the number of bicycle parking facilities in front of retail, restaurants, and employment centers. | Policy | DS | -- | Year 1/ Ongoing | Low |
| | | T-8.4 | Work with local partners to establish and implement a Citywide bicycle/scooter sharing system. | Program | DS; PW | -- | Year 1/ Ongoing | Medium |

**Table 4-1 Implementation Strategy Matrix**

| Measure | | Implementation Action | | Action Type | Responsible Departments | | Time-frame | Staffing Cost |
|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Support | | |
| T-9 | Adopt Citywide TDM Ordinance for new development. | T-9.1 | Work with developers to integrate bicycle and pedestrian amenities within their development plans. | Program | DS | -- | Years 2-5 | Low |
| | | T-9.2 | Require new development at transit nodes and along transit corridors to meet planning and design standards to generate, attract, and facilitate transit ridership as a condition of approval. | Policy | DS | -- | Years 2-5 | Low |
| | | T-9.3 | Require new developments to provide safe routes to adjacent transit stops, where applicable, in coordination with NCTD. | Program | DS | -- | Years 2-5 | Low |
| | | T-9.4 | Develop, adopt, and implement a Citywide TDM ordinance specifying mode-share goals for new developments. | Policy | DS; PW | CM | Years 2-5 | High |
| T-10 | Implement the Intra-City Shuttle System. | T-10.1 | Conduct an analysis to determine optimal route and service frequency for an intra-City shuttle. | Project | DS; PW | -- | Years 6-10 | N/E |
| | | T-10.2 | Establish an intra-City shuttle system that connects the central development nodes of the City with Palomar Community College, CSU San Marcos, and the urban core of the community. | Project | DS; PW | -- | Years 6-10 | N/E |
| | | T-10.3 | Identify funding opportunities for an intra-City shuttle. | Project | DS; PW | PW | Years 6-10 | N/E |
| | | T-10.4 | Conduct outreach at Palomar Community College and CSU San Marcos to partner on intra-City shuttle. | Program | DS; PW | CM | Years 6-10 | Low |

**Table 4-1 Implementation Strategy Matrix**

| Measure | | Implementation Action | | Action Type | Responsible Departments | | Time-frame | Staffing Cost |
|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Support | | |
| T-11 | Increase Transit Ridership. | T-11.1 | Provide targeted marketing and promote commute trip reduction programs. | Program | DS; PW | CM | Years 6-10 | N/E |
| | | T-11.2 | Provide information on, and links to, commuter assistance programs and employer services offered through SANDAG on the City's website. | Program | CM; IT | -- | Years 6-10 | N/E |
| | | T-11.3 | Provide information on and promote existing employer based TDM programs as part of the business licensing and renewal process. | Program | DF | CM | Years 6-10 | N/E |
| | | T-11.4 | Work with the Chamber of Commerce and other business groups to promote commute trip reduction programs, such as iCommute, with an emphasis on employer services. | Program | CM | DS | Years 6-10 | N/E |
| | | T-11.5 | Partner with neighboring cities and NCTD to identify opportunities to increase transit ridership. | Program | PW; DS | -- | Years 6-10 | N/E |
| T-12 | Reduce Parking Requirements for New Residential Developments Near Transit. | T-12.1 | Develop, adopt, and implement an ordinance to reduce parking requirements for new residential developments near transit stops. | Policy | DS | CM | Years 3-5 | Medium |
| T-13 | Implement TDM Plans at Existing Employers. | T-13.1 | Develop and implement a plan to reduce VMT associated with commuting. | Policy | PW; DS | -- | Years 2-5 | Medium |
| | | T-13.2 | Identify the largest employers in the City to collaborate with on TDM plan implementation. | Project | PW; DS | CM | Years 2-5 | Low |
| | | T-13.3 | Develop and distribute educational materials on alternative commuting options. | Program | DS; CM | -- | Years 2-5 | Low |

**Table 4-1 Implementation Strategy Matrix**

| Measure | | Implementation Action | | Action Type | Responsible Departments | | Time-frame | Staffing Cost |
|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Support | | |
| | | T-13.4 | Work with organizations in the City and the region to identify relevant programs and incentives associated with alternative commuting options. | Program | PW; DS | -- | Years 2-5 | Medium |
| T-14 | Transition to an Online Building and Engineering Permit Submittal System. | T-14.1 | Develop and launch electronic permitting website. | Project | IT; DS | -- | Year 1 | Very High |
| | | T-14.2 | Develop and distribute educational materials on electronic permitting | Program | DS | CM | Year 1 | Medium |
| | | T-14.3 | Provide educational materials at the permit counter and on the permitting website to inform developers and other users about the new online permitting process option. | Program | CM; DS | -- | Year 1 | Medium |
| Strategy 4: Increase Building Energy Efficiency | | | | | | | | |
| E-1 | Require New Residential Developments to Install Alternatively-Fueled Water Heaters. | E-1.1 | Develop, adopt, and implement an ordinance to require alternatively powered water heaters. | Policy | DS | CM | Year 2 | Medium |
| | | E-1.2 | Conduct a cost-effectiveness study for the ordinance identified in E-2.1 and submit it to CEC and the Building Standards Commission for approval. | Policy | DS | -- | Year 2 | Medium |
| | | E-1.3 | Develop and distribute educational materials on alternatives to natural gas water heaters. | Program | DS; CM | DS | Year 2 | Low |
| Strategy 5: Increase Renewable and Zero-Carbon Energy | | | | | | | | |
| E-2 | Require Installation of PV Systems at New Non-Residential Developments. | E-2.1 | Develop, adopt, and implement an ordinance to require PVs on new non-residential developments. | Policy | DS | -- | Years 1-5 | Medium |
| | | E-2.2 | Conduct a cost-effectiveness study for the ordinance identified in E-3.1 and submit it to CEC and the Building Standards Commission for approval. | Policy | DS | -- | Years 1-5 | Medium |

**Table 4-1 Implementation Strategy Matrix**

| Measure | | Implementation Action | | Action Type | Responsible Departments | | Time-frame | Staffing Cost |
|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Support | | |
| | | E-2.3 | Facilitate financing of renewable energy systems through programs like PACE funding. | Program | DS | CM | Years 1-5 | Low |
| | | E-2.4 | Educate businesses about incentive programs to reduce the cost of installing PV systems. | Program | DS | CM | Years 1-5 | Low |
| E-3 | Increase Grid-Supply Renewable and Zero-Carbon Electricity. | E-3.1 | Adopt a Renewable Procurement Policy that mandates that the City will procure 60 percent renewable and 95 percent zero-carbon electricity. | Policy | DS | -- | Years 1-10 | Low |
| | | E-3.2 | Conduce a CCE Program Feasibility Study and collaborate with neighboring jurisdictions to explore opportunities to establish a regional Joint Powers Authority CCE Program. | Program | DS | CM | Years 1-10 | Medium |
| | | E-3.3 | Establish and launch a CCE program for the City by 2030. | Program | DS | CM | Years 1-10 | High |
| Strategy 6: Reduce Water Use | | | | | | | | |
| W-1 | Reduce Outdoor Water Use for Landscaping. | W-1.1 | Provide educational workshops and training to promote the installation of low-maintenance native landscaping in new and existing developed lots to reduce lawn and garden equipment use. | Program | PW; DS | CM | Year 1/ Ongoing | Medium |
| | | W-1.2 | Evaluate reducing outdoor water use by adopting a MAWA that is lower than State requirements and/or reducing the landscape area thresholds for projects to meet regulations outlined in the City's existing WELO. | Project | DS | PW | Year 1/ Ongoing | Medium |
| | | W-1.3 | Promote programs/resources to help residents and businesses convert to more efficient landscaping. | Program | DS; PW | CM | Year 1/ Ongoing | Low |
| | | W-1.4 | Monitor and enforce the City's WELO. | Policy | DS | -- | Year 1/ | Low |

**Table 4-1 Implementation Strategy Matrix**

| Measure | | Implementation Action | | Action Type | Responsible Departments | | Time-frame | Staffing Cost |
|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Support | | |
| | | | | | | | Ongoing | |
| W-2 | Reduce Water Use in Existing City Managed Landscape Areas. | W-2.1 | Establish a municipal water use reduction target to be achieved through the use of advanced irrigation systems, and installation of additional low-water use landscapes in medians, parks, and around City buildings and facilities. | Policy | PW | DS | Years 1-10 | Medium |
| | | W-2.2 | Conduct water audits at City parks to identify the highest water users. | Project | PW | DS | Years 1-10 | High |
| | | W-2.3 | Develop and implement a plan to reduce water use at City parks. | Policy | PW | DS | Years 1-10 | Medium |
| Strategy 7: Reduce and Recycle Solid Waste | | | | | | | | |
| S-1 | Increase Citywide Waste Diversion. | S-1.1 | Develop, adopt, and implement an ordinance requiring 75 percent construction and demolition waste diversion requirement for applicable projects. | Policy | DS | CM | Years 6-10 | N/E |
| | | S-1.2 | Develop and adopt citywide goals for solid waste diversion to achieve an 85 percent reduction in solid waste. | Policy | CM | DS | Years 6-10 | N/E |
| | | S-1.3 | Work with the City's franchise waste hauler to prepare a waste diversion plan that identified interim steps towards achieving an 85 percent waste diversion rate by 2030. | Program | CM | DS | Years 6-10 | N/E |
| | | S-1.4 | Work with neighboring cities and the City's franchise waste hauler to obtain residential and commercial waste characterization data to identify City- or region-specific opportunities for additional waste diversion. | Program | CM | DS | Years 6-10 | N/E |

**Table 4-1 Implementation Strategy Matrix**

| Measure | | Implementation Action | | Action Type | Responsible Departments | | Time-frame | Staffing Cost |
|---|---|---|---|---|---|---|---|---|
| | | | | | Primary | Support | | |
| | | S-1.5 | Adopt mandatory recycling for multi-family and commercial projects consistent with AB 341. | Policy | CM | DS | Years 6-10 | N/E |
| | | S-1.6 | Explore the establishment of a composting pilot project through the City's franchise waste hauler. | Program | CM | DS | Years 6-10 | N/E |
| Strategy 8: Increase Urban Tree Cover | | | | | | | | |
| CS-1 | Increase Tree Planting at City Parks and Public Rights-of-Way. | C-1.1 | Identify and secure grant or other funding to plant additional trees on City properties. | Project | PW | DS | Years 1-10 | Medium |
| | | C-1.2 | Develop, adopt, and implement a tree protection and maintenance guidance plan for street trees. | Policy | PW | DS | Years 1-10 | Medium |
| | | C-1.3 | Manage parks, open space, and other natural areas to ensure long-term health and viability of trees and other vegetation. | Project | PW | DS | Years 1-10 | High |
| CS-2 | Increase Tree Planting in New Developments. | C-2.1 | Track the number of trees planted annually at new developments. | Program | DS | -- | Year 1/ Ongoing | Low |
| | | C-2.2 | Continue to require tree plantings for a minimum of one tree per each new single-family residential unit and a minimum of five trees for projects that provide more than 10 parking spaces. | Policy | DS | -- | Year 1/ Ongoing | Low |

Notes: AB = Assembly Bill; CA = City Attorney; CCE = community choice energy; CEC = California Energy Commissions; City = City of San Marcos; CM = City Manager's Office; CSE = Center for Sustainable Energy; DF = Department of Finance; DS = Development Services Department; EV = electric vehicle; HR = Human Resources/Risk Division; IT = Information Technology Department; ITS = intelligent transportation system; MAWA = Maximum Applied Water Allowance; N/E = not evaluated; NCTD = North County Transit District; PACE = Property Assessed Clean Energy; PV = photovoltaic; PW = Public Works Department; SANDAG = San Diego Association of Governments; SDG&E = San Diego Gas & Electric; TDM = transportation demand management; WELO = Water Efficient Landscape Ordinance; ZNE = zero net energy

Source: Ascent Environmental 2020, EPIC 2020b.

## 4.2 Monitoring and Updates

This CAP lays out a broad-based strategy to reduce GHG emissions and improve the sustainability and resilience of the community. The CAP will be monitored over time to assess progress on the implementation of identified strategies and measures. Monitoring of strategies will be conducted by tracking key indicators for each measure. These key tracking indicators will be identified through the City's Implementation Plan and strategies developed for measure implementation. Examples of key tracking indicators for measures could include:

- **Commute VMT:** commute VMT represents the total vehicle miles traveled during commute hours by individuals living or working in the City. Several measures could be tracked using commute VMT, such as **Measure T-7** and **Measure T-9**.
- **Electricity Consumption:** electricity consumed citywide and in new developments can be used to track progress towards the goals of **Measure E-1** and **Measure E-2**.
- **Tree Canopy:** the total tree canopy in the City could be tracked to determine the number of trees planted as well as the total shaded area in City parks or in City rights-of-way. This information could be used to track the progress of **Measure CS-1** and **Measure CS-2**.

The City has been implementing and monitoring strategies and measures identified in the 2013 CAP. Upon adoption of the CAP, the City will begin to implement the updated GHG reduction strategies and measures. In addition, the City will continue implementation of programs that were enacted to support the 2013 CAP. Continued implementation of the City's GHG reduction efforts would support overall GHG reductions and CAP implementation. Periodically, City staff will present a summary of CAP implementation progress to-date to the Planning Commission and City Council. Through the climate planning services offered via its Roadmap Program, SANDAG will provide updated GHG emissions inventories for local jurisdictions every two years, beginning with the 2016 baseline year. City staff will also evaluate each GHG emissions reduction measures' cost, effectiveness, and benefits. By evaluating whether the implementation of a measure is on track to achieve its reduction potential, the City can identify successful measures and reevaluate or replace under-performing ones.

City staff will prepare monitoring reports that provide updates on CAP implementation progress, GHG reductions achieved to-date, and other important milestones in the CAP implementation process on a regular basis. As technologies and markets change and the City implements the measures in the CAP, these new inventories and monitoring reports will be used to track progress and identify measures that need to be improved, adjusted, or removed. The report will also serve to inform the public about progress on strategies and measures being implemented, and overall progress towards the City's GHG reduction targets.

*Source: City of San Marcos*

**Figure 4-1** outlines the CAP implementation and monitoring schedule.

## Implementation and Monitoring Schedule

**2020** — **CAP Adopted**

City Council adopts plan and staff begins to implement CAP measures

**2020** — **Initial Set-Up**

Staff performs initial start-up tasks and implementation of data tracking

**2020** — **Receive GHG Emissions Inventory Data from SANDAG**

In coordination with SANDAG, the City will receive 2018 baseline emissions estimates, accounting for City-specific demographics.

**2022 & 2024** — **Biennial Monitoring Report**

City staff prepares and presents biennial monitoring report to Planning Commission and City Council, assessing the CAP's performance in achieving targets and progress made on specific measures.

**2026** — **Measure Review and CAP Update**

Based on findings from the monitoring reports and inventory updates, City staff will review the performance of GHG reduction measures to evaluate if CAP update is needed.

*Source: Ascent Environmental, 2020.*

Figure 4-1: Climate Action Plan Implementation and Monitoring Schedule

## 4.3 California Environmental Quality Act Streamlining

CEQA guidelines require that a project perform an analysis of GHG emissions and potential climate change impacts from new development. With associated CEQA coverage, this CAP qualifies under Section 15183.5 of the CEQA Guidelines as a plan for the reduction of GHG emissions for use in cumulative impact analysis pertaining to development projects. The CAP provides development applicants the opportunity to use CEQA streamlining tools for projects that are consistent with this CAP. Demonstrating consistency with the CAP establishes that a project will not result in an "additional environmental effect" related to GHG emissions. Projects that do not demonstrate consistency may, at the City's discretion, prepare a more comprehensive project-specific analysis of GHG emissions consistent with CEQA requirements.

Implementation of this CAP will include administration of CEQA streamlining tools for discretionary projects in the City. CEQA streamlining from this CAP will require discretionary projects to demonstrate consistency with applicable GHG reduction measures in **Chapter 3**. Details on how projects can demonstrate consistency are provided in a separate memorandum titled *Guidance to Demonstrating Consistency with the City of San Marcos Climate Action Plan for Discretionary Projects Subject to CEQA,* and included in **Appendix D**.

## 4.4 Ongoing Engagement

As the City continues to implement and monitor progress on the CAP, continued engagement with, and participation by the community is critical. This includes individual residents and businesses, community organizations, developers, property owners, other local and regional government agencies, and others (e.g., stakeholder groups or educational institutions). While this CAP focuses on measures in which the City has a role, many of the measures require partnership and collaboration.


*Source: Ascent Environmental.*

The City is also committed to public education about the important role individuals play in combating climate change. Effective and long-term climate action and resilience in the City can only be achieved through efforts that continue to change the way individuals interact with the environment. Many of the measures in **Chapter 3** are focused on increasing community awareness and participation in existing programs or connecting the community with new information, tools, funding, or resources to take action. Thus, this CAP serves as a resource that supports community-based action by providing ongoing opportunities to gather input and ideas for CAP implementation and future updates. Successful implementation of the CAP will require a combination of City actions, frequent monitoring and reporting, and active participation from residents, businesses, and community organizations.

# Chapter 5: References

*Page Intentionally Left Blank*

# References

California Air Resources Board. 2017 (November). *California's 2017 Climate Change Scoping Plan*. Available at https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed on January 9, 2020.

California State University San Marcos. 2018 (December). *Sustainability Master Plan*. Available at https://www.csusm.edu/sustainability/docs/sustainabilitymasterplan.pdf#page=9. Accessed on October 23, 2019.

CARB. *See* California Air Resources Board.

City. *See* City of San Marcos.

City of San Marcos. 2017 (November). *Parks Master Plan Update*. Available at https://www.san-marcos.net/home/showdocument?id=18032. Accessed on January 16, 2020.

_____. 2016 (September). *Landscape Manual*. Available at https://www.san-marcos.net/home/showdocument?id=13984. Accessed on July 8, 2020.

_____. 2013 (September). *City of San Marcos Climate Action Plan*. Adopted by City Council Resolution on September 10, 2013. Available at https://www.san-marcos.net/home/showdocument?id=9922. Accessed on January 2, 2020

_____. 2012 (February). *City of San Marcos General Plan*. Adopted by City Council Resolution on February 14, 2012. Available at https://www.san-marcos.net/home/showdocument?id=8482. Accessed on January 2, 2020.

_____. 2011 (November). *City of San Marcos Energy Roadmap*. Prepared through the SANDAG Energy Roadmap Program. Available at https://www.sandag.org/uploads/projectid/projectid_373_14787.pdf. Accessed on January 2, 2020.

CSU San Marcos. *See* California State University San Marcos.

Energy Policy Initiatives Center. 2020a (January). *Methods for Estimating Greenhouse Gas Emissions Reductions in the San Marcos Climate Action Plan*. Prepared for the City of San Marcos.

_____. 2020b. *City of San Marcos Climate Action Plan Implementation Cost Analysis*. Prepared for the City of San Marcos.

_____. 2018 (August). *City of San Marcos Greenhouse Gas Emissions Inventory and Projections*. Prepared for the City of San Marcos.

EPIC. *See* Energy Policy Initiatives Center.

Intergovernmental Panel on Climate Change. 2018. *Special Report: Global Warming of 1.5°C.* Available at https://www.ipcc.ch/sr15/chapter/spm/. Accessed on August 26, 2019.

_____. 2014. *Climate Change 2014 Synthesis Report Summary for Policy Makers*. Available at https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf

IPCC. *See* Intergovernmental Panel on Climate Change.

Palomar College. 2010. *2022 Facilities Master Plan 2010 Update*. Prepared by LPA. Available at https://www2.palomar.edu/pages/strategicplanning/files/2016/03/Master-Plan-2022-2010-Update.pdf. Accessed on January 2, 2020.

San Diego Association of Governments. 2018 (May). *Regional Climate Action Planning Framework*. Available at https://www.sandag.org/index.asp?classid=17&subclassid=46&projectid=565&fuseaction=projects.detail. Accessed on September 3, 2019.

_____. 2010 (March). *San Diego Association of Governments Climate Action Strategy*. Available at https://www.sandag.org/uploads/publicationid/publicationid_1481_10940.pdf. Accessed on January 2, 2020.

SANDAG. *See* San Diego Association of Governments.