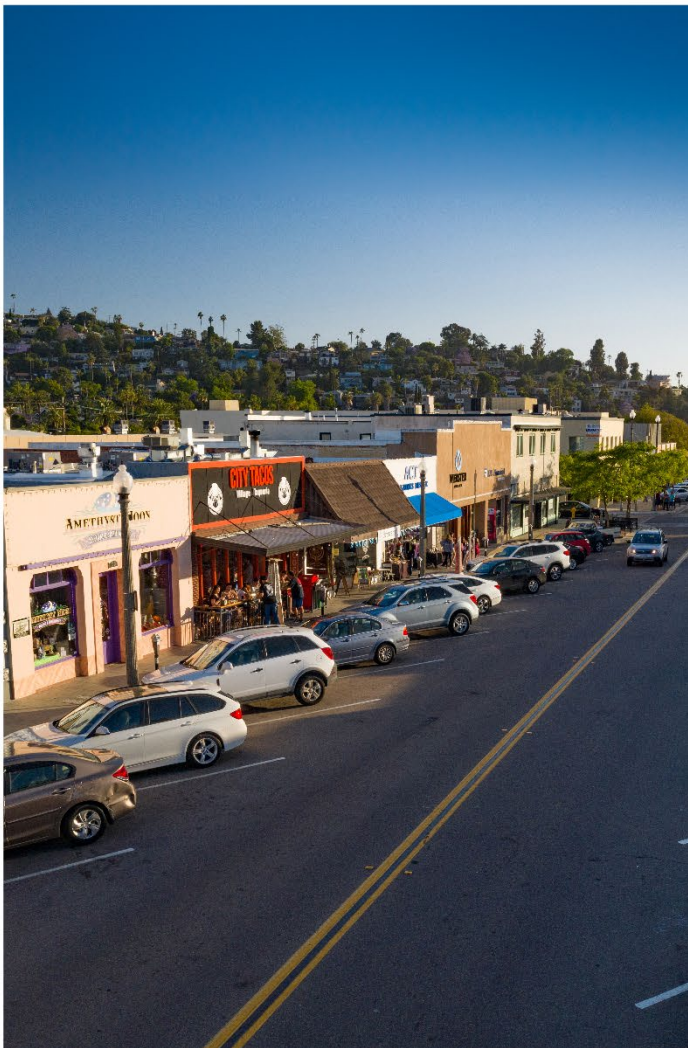
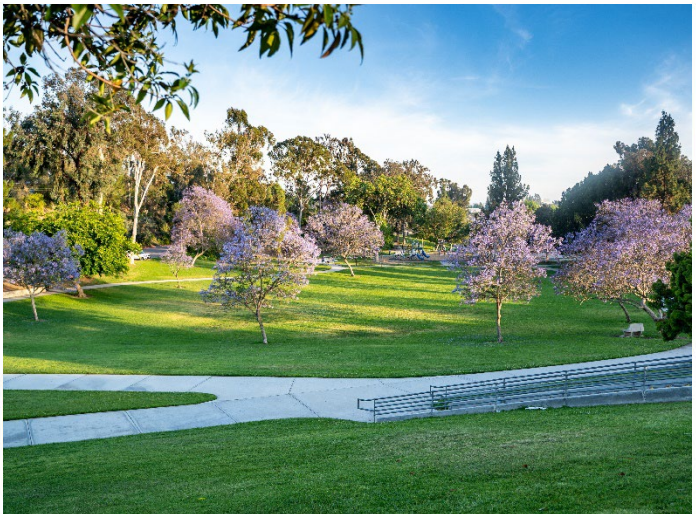
CITY OF LA MESA

Climate Action Plan Update

NOVEMBER 2024





ACKNOWLEDGEMENTS

All photos used throughout this plan were either: (1) provided by the City of La Mesa; or (2) sourced from Adobe Stock.

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
AB	Assembly Bill
APG	*California Adaptation Planning Guide*
BAU	business-as-usual
C&D	construction and demolition
Cal OES	California Governor's Office of Emergency Services
CalEnviroScreen	California Communities Environmental Screening Tool
CalEPA	California Environmental Protection Agency
CalRecycle	California Department of Resources Recycling and Recovery
CAP Update	Climate Action Plan Update
CAP	Climate Action Plan
CARB	California Air Resources Board
CCA	Community Choice Aggregate
CEQA	California Environmental Quality Act
CH_4	methane
City	City of La Mesa
Climate Collaborative	San Diego Regional Climate Collaborative
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
Community Power	San Diego Community Power
Community Protocol	*U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions*
EPA	United States Environmental Protection Agency
ESCO	energy services company
EV	electric vehicle
GHG	greenhouse gas
GWP	global warming potential
HPI	California Healthy Places Index
ICA	Implementation Cost Analysis
ICLEI	International Council for Local Environmental Initiatives – Local Governments for Sustainability
IPCC	Intergovernmental Panel on Climate Change

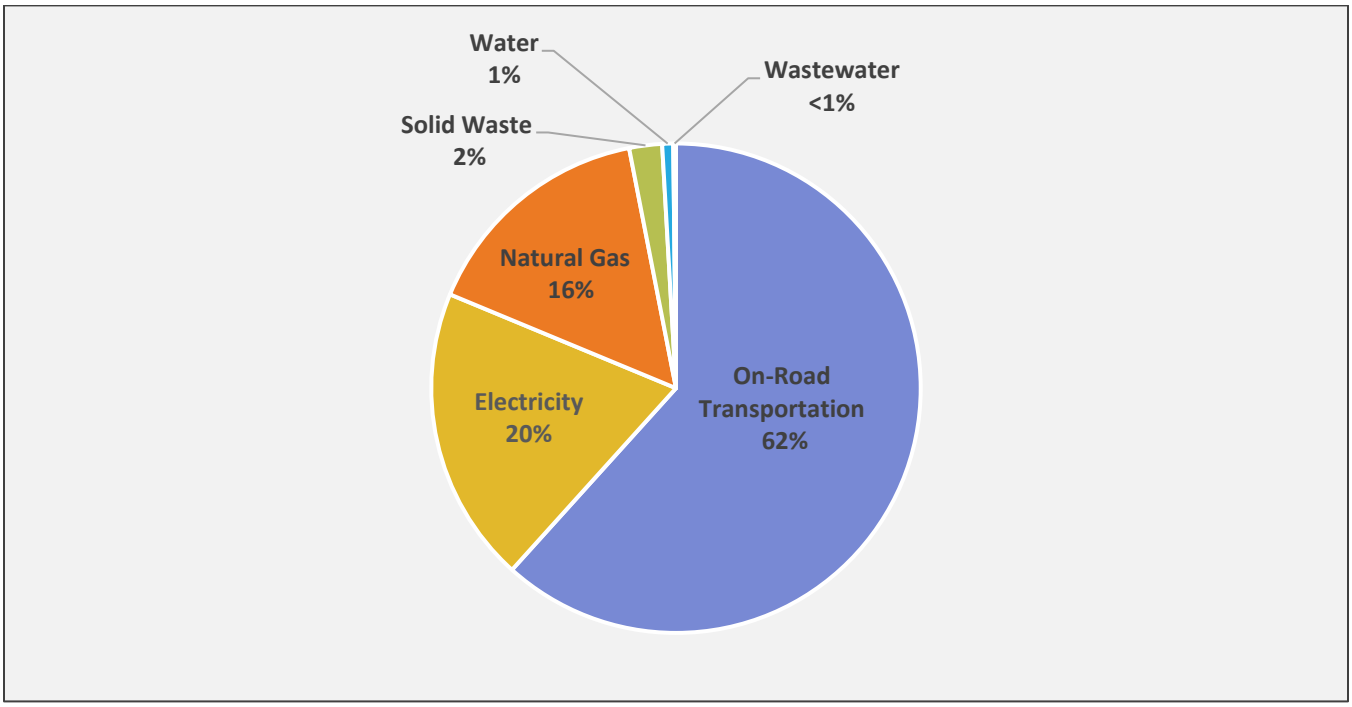
$MTCO_2e$	metric tons of carbon dioxide equivalent
MTS	San Diego Metropolitan Transit System
N_2O	nitrous oxide
NO_X	nitrogen oxide
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	California Governor's Office of Planning and Research
ReCAP	*Regional Climate Action Planning Framework*
SANDAG	San Diego Association of Governments
SB	Senate Bill
Scoping Plan	Climate Change Scoping Plan
SDG&E	San Diego Gas and Electric
SDREN	San Diego Regional Energy Network
state	State of California geography
State	State of California government
TDM	transportation demand management
VCP	Vulnerable Communities Platform
VMT	vehicle miles traveled
ZEV	zero-emission vehicle

EXECUTIVE SUMMARY

The City of La Mesa (hereinafter referred to as "City") is taking proactive steps to address the urgent challenges posed by climate change through this Climate Action Plan Update (CAP Update), which serves as the first comprehensive update to its original Climate Action Plan (CAP) adopted in 2018. This plan, which was informed by robust technical analyses and outreach and engagement with residents, demonstrates the City's ongoing commitment to sustainability, and aligns with recent legislation and best practices in climate action planning. The CAP Update, like the original CAP, will also continue to serve as a resource for California Environmental Quality Act (CEQA) streamlining. Successful implementation of the CAP Update will result in meaningful greenhouse gas (GHG) emissions reductions, increased community resilience, and equitable outcomes for the broader community.

The foundation of the CAP Update is built upon the City's GHG emissions profile. Using 2016 as the baseline year, the City's total GHG emissions were estimated at 398,000 metric tons of carbon dioxide equivalent ($MTCO_2e$), spread across six different sectors. This inventory revealed that the largest contributors to the citywide emissions were on-road transportation at 62 percent, electricity consumption at 20 percent, and natural gas usage at 16 percent. La Mesa's full 2016 inventory can be found in **Figure ES.1** below.

Figure ES.1 City of La Mesa 2016 Greenhouse Gas Emissions Inventory Pie Chart



Notes: % = percent; < = less than.

Source: **Developed by EPIC in 2024**.

Looking to the future, the CAP Update also presents two distinct GHG emissions forecasts: (1) a business-as-usual (BAU) forecast, which assumes a continuation of current trends in activity, population, and job growth without any additional interventions by the State of California (State) or federal government; and (2) a legislative-adjusted forecast, which takes into account the effects of State and federal regulations on forecasted

emissions. For this CAP Update, each of these forecasts estimate GHG emissions through 2045. In addition to the forecasts, the City has also set GHG emission reduction targets for 2035 and 2045, which are aligned with the State's goals and include a 50 percent reduction below 2016 levels by 2035 (i.e., 199,000 $MTCO_2e$), along with an 85 percent reduction below 2016 levels by 2045 (i.e., 60,000 $MTCO_2e$). While legislative actions from both the State and Federal government will result in notable GHG emissions reductions on their own, additional efforts need to be taken locally to make progress towards the City's established targets. These additional efforts come in the form of GHG reduction strategies and measures that were prepared for this CAP Update and are presented at a high-level in **Table ES.1** below. The outcome of these GHG reduction strategies and measures are also presented in **Figure ES.2** below, which showcases the reductions that will be accomplished upon successful implementation.

Table ES.1 Greenhouse Gas Reduction Strategies and Measures

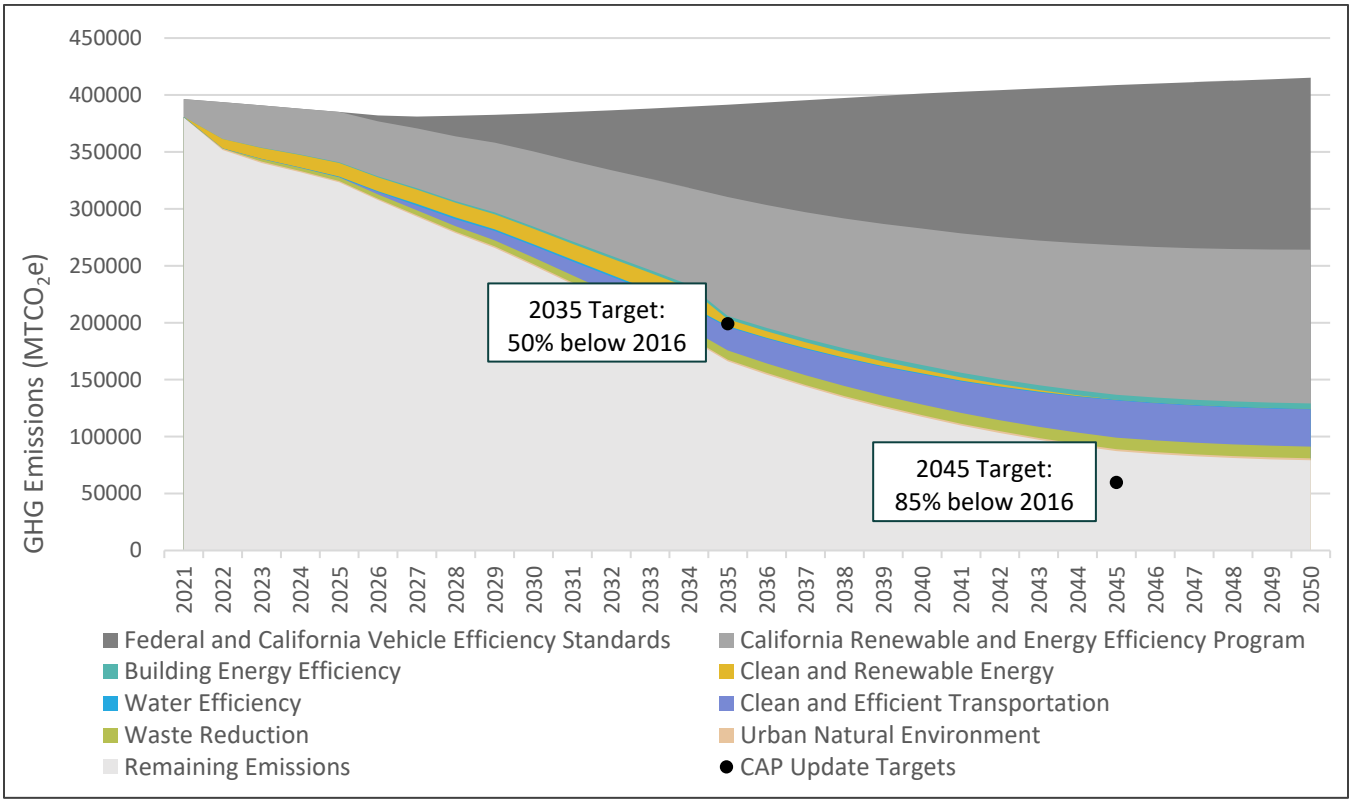
Strategy	Measure
Building Energy Efficiency (BE)	BE-1: Existing Building Retrofit Program
	BE-2: High Energy Performance Standards for New Construction
	BE-3: Municipal Facility Energy Retrofit Program
Clean and Renewable Energy (RE)	RE-1: Increase Renewable Energy and Energy Storage at Municipal Facilities
	RE-2: Increase Citywide Renewable Energy and Energy Storage
Clean and Efficient Transportation (T)	T-1: Bicycle and Pedestrian Infrastructure Development
	T-2: Transportation Demand Management Program
	T-3: Municipal Transportation Demand Management Program
	T-4: Mixed-Use and Transit-Oriented Development
	T-5: Alternative Refueling Infrastructure Development
	T-6: Municipal Fleet Transition
	T-7: Develop a Flexible Fleets Program
	T-8: Improve Traffic Flow
Water Efficiency (W)	W-1: Water Efficiency
	W-2: Local Water Supply Resilience
Waste Reduction (WR)	WR-1: Organic Waste Diversion
	WR-2: Construction and Demolition Waste Diversion Program
	WR-3: Increase Waste Diversion and Encourage Circular Economy
	WR-4: Recycled and Recovered Product Procurement
	WR-5: Local Food Systems and Food Recovery
Urban Natural Environment (U)	U-1: Increase Urban Forest Canopy Cover

Source: **Developed by EPIC in 2024**.

In addition to the GHG reduction strategies and measures included in this CAP Update, the plan also includes high-level, advisory strategies to adapt to climate change. These strategies are organized into five areas: (1) interdisciplinary; (2) extreme heat; (3) flooding; (4) wildfire; and (5) drought. While the cross-cutting strategies refer to strategies that are inherently broad or unspecific to a specific climate hazard, the other four strategy areas are specific to the primary climate hazards that the City is exposed to, which refer to natural hazards that

are worsened or altered due to the effects of climate change. This dual approach of reducing GHG emissions and preparing for climate change impacts ensures that the City is not only working to prevent further climate change, but also to build resilience to the challenges it presents.

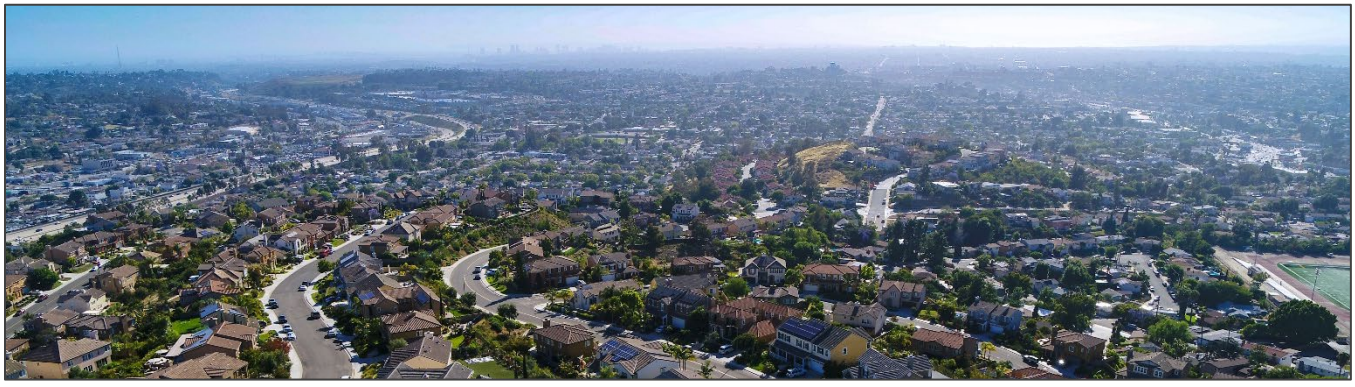
Figure ES.2 City of La Mesa Business-as-Usual Greenhouse Gas Emissions Forecast and Reductions from Measures



Notes: "Federal and California Vehicle Efficiency Standards" and "California Renewable and Energy Efficiency Program" represent all the federal and State regulations that will result in GHG emissions reductions, which are further described in Appendix A. / % = percent; CAP Update = Climate Action Plan Update; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: **Developed by EPIC in 2024**.

Overall, the CAP Update serves as a comprehensive roadmap for the City to reduce its GHG emissions, adapt to climate change, and create a more sustainable and resilient community. It builds upon existing efforts, sets ambitious GHG reduction targets aligned with State goals, and outlines a clear path forward. With this plan, the City is positioning itself to effectively address the challenges posed by climate change while enhancing the quality of life for all its residents. As the City moves forward with implementation, regular monitoring and updates will ensure the plan is adaptable to new challenges and opportunities.



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CHAPTER 1

Introduction

1 Introduction

The City of La Mesa (hereinafter referred to as "City") was first incorporated in 1912 and is also known as the "Jewel of the Hills." La Mesa is centrally located in the rolling hills of San Diego County. With a current population of around 60,000 residents spread across nine square miles, the City blends small-town charm with urban amenities, including tree-lined streets, walkable neighborhoods, quick access to retail and commercial areas, and a quaint downtown. The City's climate, characterized by warm, dry summers and mild winters, has long been one of its greatest assets, with many considering it an ideal climate. However, like many communities in California and across the world, climate change will present new challenges and exacerbate existing challenges within the City. Climate change can manifest in many different forms, and locally, this may include effects such as prolonged heat waves, extended drought periods, increased frequency or severity of storm events, and heightened wildfire risk due to more suitable conditions for wildfire ignition and spread. These effects have already been proven to negatively affect communities in the region and across the state due to their wide-ranging impacts on people, infrastructure, transportation, local economies, natural resources, agriculture, and many other assets.

The City recognizes the enormity of the climate change issue and has already demonstrated a strong commitment to promoting sustainability and resilience in the face of climate change. The City adopted its first Climate Action Plan (CAP) in March 2018, which served as a comprehensive roadmap for reducing greenhouse gas (GHG) emissions, which are heat-trapping gases that cause climate change, within the City. This Climate Action Plan Update (CAP Update) serves as the first update to the original CAP, and aims to continue and elevate the City's commitment to sustainability and resilience by realigning its climate action with recent legislation, best practices, and other advancements since the adoption of the original CAP.

Specifically, this CAP Update includes a new baseline GHG emissions inventory, updated GHG emissions forecasts, and revised GHG emissions reduction targets for the years 2035 and 2045 that align with targets established by the State of California (hereinafter referred to as "State"). Further, it presents a suite of GHG reduction strategies and measures that will make progress towards the revised GHG emissions reduction targets upon successful implementation. Additionally, the CAP Update includes an adaptation component that builds upon the City's existing efforts to adapt to climate change. Ultimately, this CAP Update will serve as a blueprint for advancing sustainability and resilience outcomes, all while preserving the unique character and quality of life that make La Mesa the "Jewel of the Hills."

This CAP Update is organized into five chapters. This chapter, **Chapter 1**, serves as the introduction to the CAP Update, providing important CAP Update-specific context and other background information. **Chapter 2** presents the City's GHG emissions inventory, forecasts, and reduction targets. **Chapter 3** includes all the GHG reduction strategies, measures, and actions, along with a brief discussion on adaptation and strategies the City can take to bolster its resilience to various climate hazards. **Chapter 4** provides details for implementing and monitoring the CAP Update, along with how it will serve as a resource for California Environmental Quality Act (CEQA) streamlining. Lastly, all works cited throughout this CAP Update are listed in **Chapter 5**.

1.1 Climate Change Overview

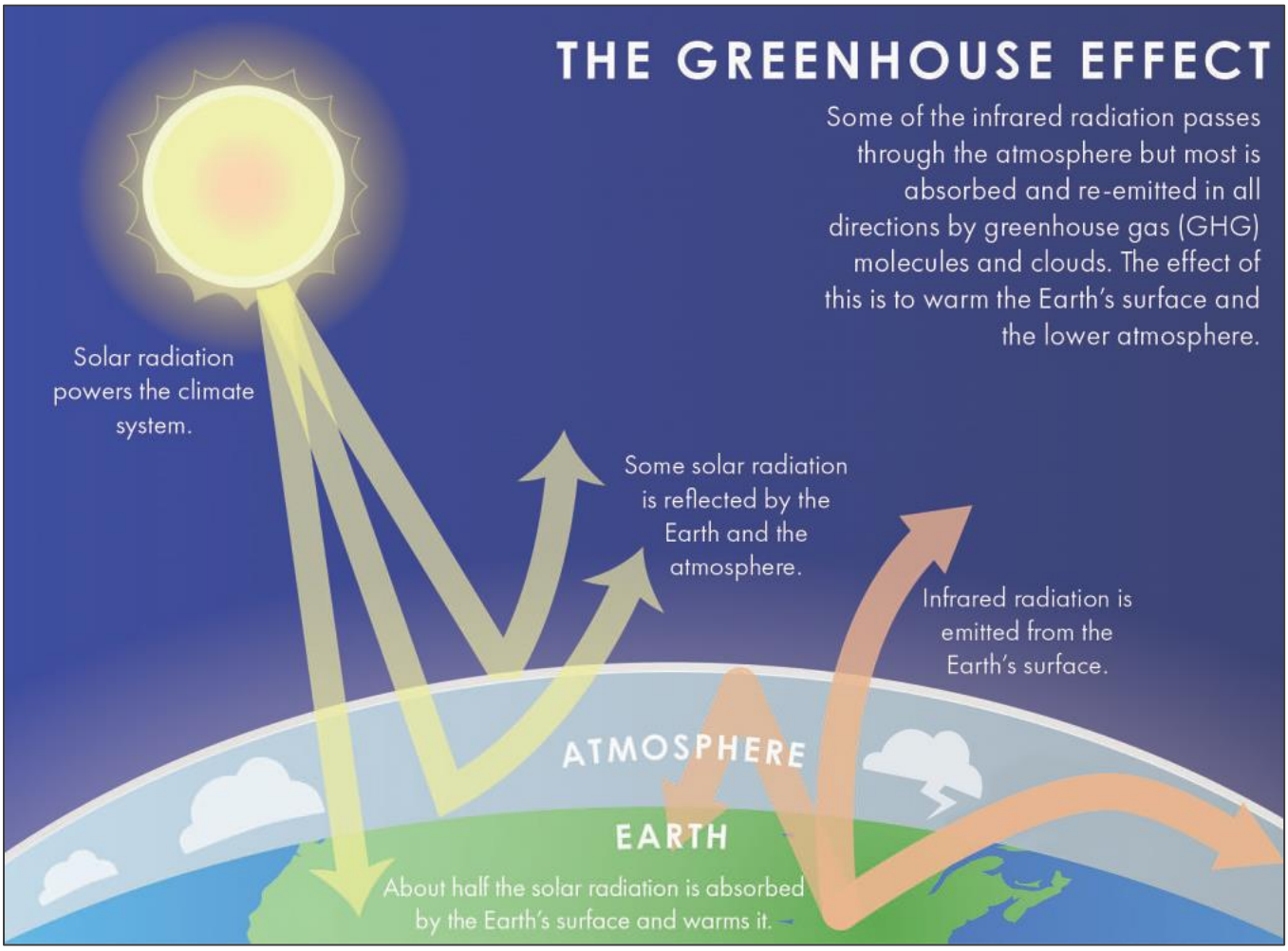
To understand the need for this CAP Update, it is important to understand the basics of climate change, including what it is, the science behind it, how it affects people and ecosystems, and how to address it at the local level. Climate change is a complex issue. The subsections below seek to provide a high-level overview of climate change.

Climate Change Science

The science behind climate change is rooted in the greenhouse effect. Illustrated in **Figure 1.1**, the greenhouse effect is a natural process that insulates the Earth and helps regulate its temperature. After absorbing sunlight, the Earth emits heat in the form of infrared radiation, which is then absorbed by a collection of naturally occurring atmospheric gases called GHGs. These gases, which consist mainly of water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), act as effective global insulators by absorbing some of the infrared radiation that is emitted by Earth and re-emitting it back towards the planet. This process, where some heat is prevented from escaping the atmosphere, is what keeps temperatures on Earth conducive to life. Without the greenhouse effect, Earth would not be habitable. However, because of human (i.e., anthropogenic) activities, notably the combustion of fossil fuels, excess GHGs have increasingly been released into the atmosphere, causing the greenhouse effect to intensify and the Earth's climate to warm at an unprecedented rate. This phenomenon is known as climate change and is the primary driver behind changes in more extreme weather patterns, the rapid melting of the polar ice caps, rising sea levels, and other effects that result in impacts to people, infrastructure, and natural systems.

There is scientific evidence that observed increases in atmospheric GHG concentrations and the consequential warming of Earth's atmosphere, oceans, and land are linked to human activities and influence. Human activities are estimated to have caused approximately 2 degrees Fahrenheit (°F) of warming across the globe compared to pre-industrial era levels (i.e., prior to the year 1900), and global average temperature is expected to increase by up to 8 °F by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2021). The GHG emissions that have created this warming—those released between the pre-industrial era and the present—will persist for hundreds to thousands of years and create further long-term impacts to the climate system (IPCC 2018).

Figure 1.1 The Greenhouse Effect



Source: **Developed by Ascent in 2024**.

Climate Change Indicators

Table 1.1 below presents various climate indicators and a qualitative description of the historic and future projected trends in California (OPR, CEC, and CNRA 2019).

Table 1.1 California Climate Indicators with Historic and Future Trends

Climate Indicator	Historic Trend	Future Trend
Temperature	Warming (last 100+ years)	Warming
Snowpack	Declining (last 60+ years)	Declining
Intensity of Heavy Precipitation Events	No significant trends (last 100+ years)	Increasing
Frequency of Drought	No significant trends (last 100+ years)	Increasing
Sea Level	Rising (last 100+ years)	Rising
Area Burned by Wildfire[1]	Increasing (last 30+ years)	Increasing

Notes: The "Future Trends" associated with each "Climate Indicator" presented in this table are all based on Medium-High to Very High confidence, per *California's Fourth Climate Change Assessment: Statewide Summary Report*. / + = or more.

[1] There are many factors that play into the increasing amounts of area burned by wildfire in addition to climate change, including historic fire suppression regimes and inadequate levels of prescribed burning, among others. However, climate change has led to more favorable conditions for wildfire ignition and spread by contributing to a fire season that starts earlier, runs longer, and features conditions that could result in extreme fire behavior.

Source: **OPR, CEC, and CNRA 2019**.

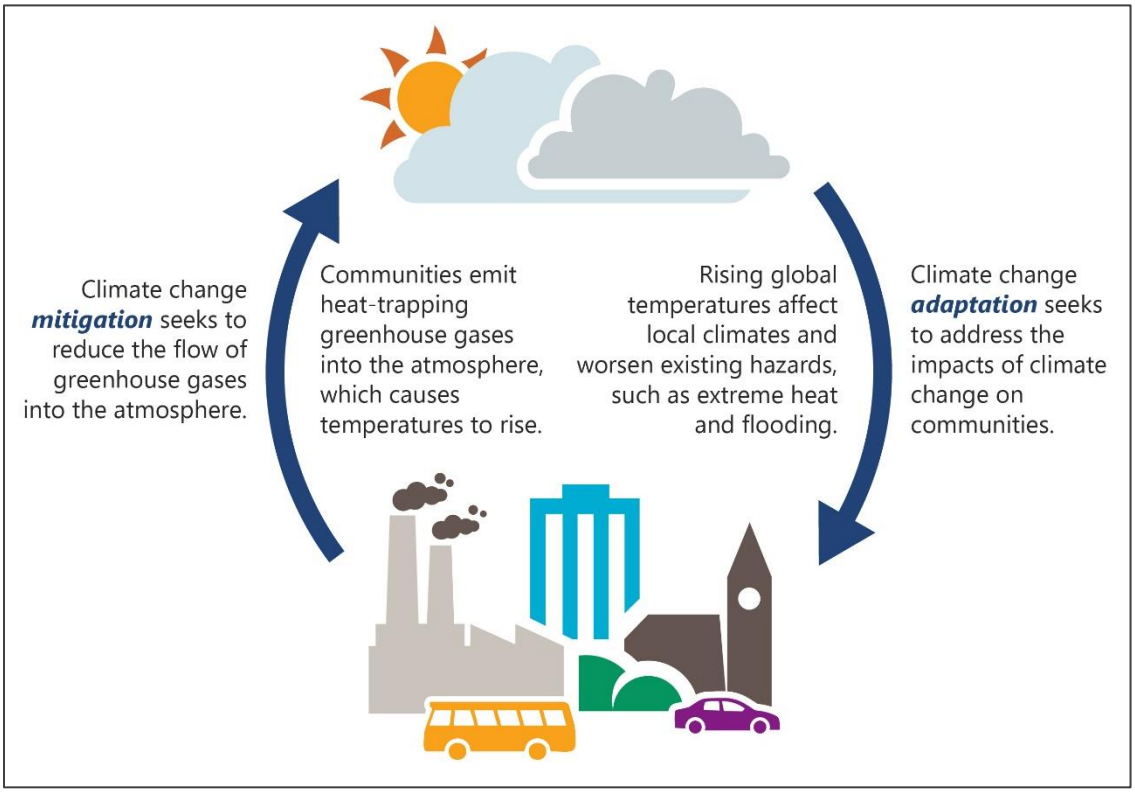
People across the region have high climate change risk perceptions, further underscoring how critical it is to act. In fact, **70 percent** of adults in San Diego County (inclusive of the City) **are worried about climate change**, and **more than half** claim they have already **personally experienced the effects of climate change**—both of which are well above the national average (YPCCC 2024).

These trends are already holding true and many of them are being experienced locally. For example, in September 2022, there was an unprecedented and uninterrupted 10-day stretch of extreme heat that exceeded triple digits across much of the state, which led to hundreds of excess deaths, including residents within the broader San Diego region (CDPH 2023). Additionally, in January 2024, heavy precipitation resulted in widespread flood impacts throughout the City and across the region, notably causing significant structural damage and interrupting the schedules of teachers and students at all 21 schools within the La Mesa-Spring Valley School District (Letang 2024). In general, climate-related hazard events like these can have an array of adverse and cascading impacts on populations, the built environment, and community functions, and over time, these events will likely increase in frequency, intensity, and/or duration because of climate change. The City recognizes this, and as such, has: (1) formally declared a climate emergency in February 2021 (i.e., Resolution 2021-020): and (2) adopted an additional resolution in January 2022 (i.e., Resolution 2022-010) to take action in response to the declared climate emergency, which recognized the original CAP (and consequently, this CAP Update) as the primary mechanism for doing so. As California continues to experience rising temperatures, increasingly severe storms, destructive wildfires, and prolonged periods of drought, among other climate-related hazards and their associated impacts, it has become more than evident that climate change is already occurring. Without immediate and intentional action, climate change has the potential to further harm current and future generations' safety, health, economic opportunity, and quality of life. Through the development and implementation of this CAP Update, the City is committed to its role in addressing the challenges that climate change presents.

Climate Change Mitigation and Adaptation

While climate change is a global issue, it is felt on a local scale, and thus, local governments have an opportunity to address it at the local level. Addressing climate change requires an integrated approach that targets both its sources and impacts. Targeting its sources is known as climate change mitigation and involves reducing the anthropogenic flow of heat-trapping GHGs into the atmosphere. Targeting its impacts is known as climate change adaptation and involves efforts that are intended to reduce risk and build resilience to climate change. **Figure 1.2** below illustrates this integrated approach to climate change mitigation and adaptation. Although climate change mitigation and adaptation can often be separate planning efforts, it is important to consider both components in climate action planning, which this CAP Update does.

Figure 1.2 Climate Change Mitigation vs. Adaptation



Note: GHG = greenhouse gas.

Source: **Cal OES 2020; adapted by Ascent in 2024**.

1.2 Plan Background and Details

In March 2018, the City affirmed its commitment to sustainability and addressing climate change when City Council adopted the original CAP, which established a roadmap to reduce GHG emissions and ultimately support a safe and healthy environment. The original CAP was prepared based on various assumptions and the best available data at the time of its preparation. Because of that, and to accurately reflect the City's growing and ever-changing role in addressing climate change, it was specified in the original CAP that an update to the CAP should occur every five years. This CAP Update serves as the first comprehensive update to the original CAP.

Purpose

Generally, the CAP Update, like the original CAP, will continue to serve as a roadmap for reducing GHG emissions. However, the overall purpose of the CAP Update includes additional, more specific elements. These elements include fulfilling the commitment to update and build upon the original CAP, continuing to make progress toward reducing GHG emissions, evaluating local GHG reduction targets to be consistent with statewide targets, exploring new and/or revised measures to reduce GHG emissions, integrating climate change adaptation, prioritizing social equity and environmental justice, and maintaining compliance with CEQA. Each of these elements is exemplified by this plan and will be practiced over the course of plan implementation.

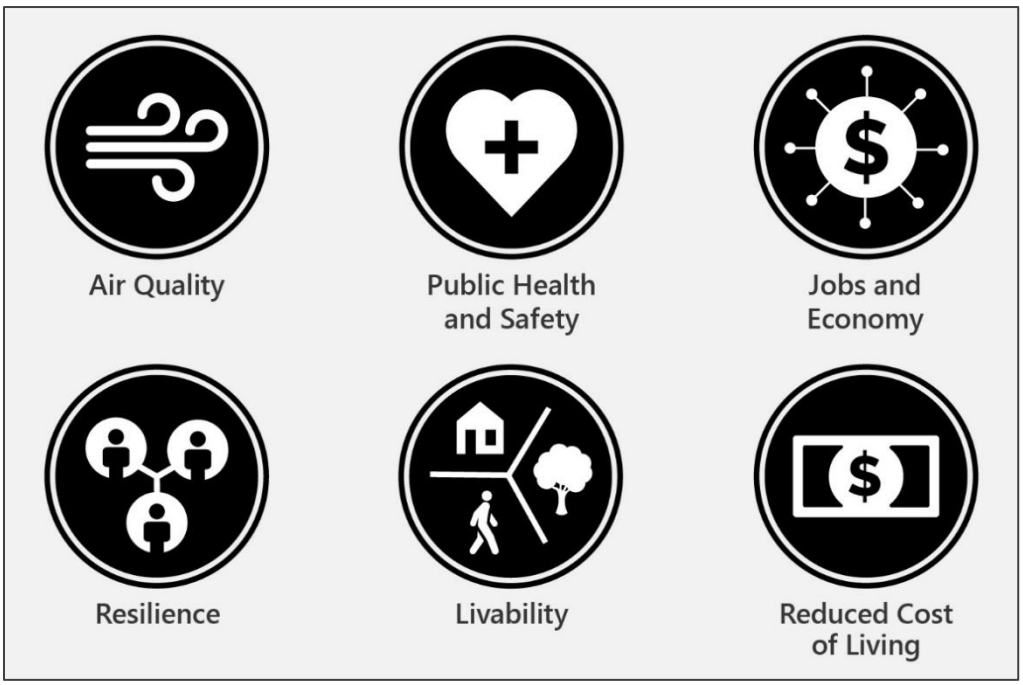
Co-Benefits

While the CAP Update is primarily geared toward reducing GHG emissions and adapting to climate change within the City, implementation of the plan will also result in an array of "co-benefits" beyond climate change mitigation and adaptation. The co-benefit categories identified for this CAP Update, along with a short description of each, are as follows:

- **Air Quality**: Reduces air pollutants such as carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter, and volatile organic compounds leading to cleaner and healthier indoor and outdoor environments.
- **Public Health and Safety**: Promotes healthier lifestyles and reduces exposure to environmental pollutants and other risks to life and property.
- **Jobs and Economy**: Increases economic activity in the City and makes economic activity more environmentally sustainable.
- **Resilience**: Makes the City more prepared and able to quickly recover from climate hazards (e.g., extreme heat, flooding, wildfire, and drought).
- **Livability**: Improves the quality of life experienced by residents and the overall desirability of living in the City.
- **Reduced Cost of Living**: Improves the affordability and resource efficiency of necessary goods and services, such as energy and water.

The co-benefits align with the City's Strategic Plan Goals, which include: Safe Community, Financial Sustainability, Livability, Infrastructure and Amenities, and High-Performing Organization. The Livability co-benefit was created for this CAP Update because the CAP measures and actions support the Livability Strategic Plan goal. Each GHG reduction measure presented in **Chapter 3** of this CAP Update has one or more of these co-benefit categories associated with it, and each co-benefit category is classified with a unique icon, which can be found in **Figure 1.3** below. These co-benefit categories are intended to be larger "umbrella" categories that encompass more specific co-benefits. For example, the "Livability" co-benefit category may include actual co-benefits like public and private space beautification, increased access to recreation and green space, and improved thermal comfort, among others. Again, while they are not the primary purpose of CAP Update, co-benefits are highly important to understand and consider when implementing the plan.

Figure 1.3 Climate Action Plan Update Co-Benefit Categories



Source: **Developed by Ascent in 2024**.

Equity

This CAP Update was developed with equitable outcomes in mind, and as such, plan implementation will prioritize and be rooted in the principles of environmental justice and climate equity. While the City itself does not have formal, locally specific definitions of these terms, implementation of the CAP Update will use the following definitions (as shown in **Table 1.2**) as guideposts for prioritizing environmental justice and climate equity. There are numerous definitions for each of these terms, but most definitions have similar elements, as exemplified in the table.

Table 1.2 Environmental Justice and Climate Equity Definitions

Definition	Source
Environmental Justice	
▶ The just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other activities that affect human health and the environment so that people: (1) are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and (2) have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.	EPA
▶ The fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.	CGC § 65040.12

Definition	Source
Climate Equity	
▸ The goal of recognizing and addressing the unequal burdens made worse by climate change, while ensuring that all people share the benefits of climate protection efforts. Achieving equity means that all people—regardless of their race, color, gender, age, sexuality, national origin, ability, or income—live in safe, healthy, fair communities.	EPA
▸ Addressing historical inequities suffered by people of color, allowing everyone to fairly share the same benefits and burdens from climate solutions and attain full and equal access to opportunities regardless of one's background and identity.	City of San Diego

Notes: § = section; CGC = California Government Code; EPA = United States Environmental Protection Agency

Sources: **EPA 2024a, 2024b; City of San Diego 2019**.

Keeping these terms in mind, there is a vast array of tools that may be used to help with a strategic and prioritized approach to plan implementation to address unequal burdens and historical inequities that have been exacerbated by climate change. These tools include, but are not limited to, the following:

> ***"The impacts of climate change fall most heavily on frontline communities that bear the brunt of extreme heat, drought, wildfires, and other effects. Low-income communities and communities of color are also disproportionately impacted by fossil fuel combustion-related air pollution and related health problems. The continued phaseout of fossil fuel combustion will advance both climate and air quality goals and will deliver the greatest health benefits to the most impacted communities."*** (CARB 2022: 13).

- **California Climate Investments Priority Population Map**: This map, which aggregates data from multiple sources, can be used to identify priority populations (i.e., disadvantaged and low-income communities) as defined for California Climate Investments.
- **California Communities Environmental Screening Tool**: This tool, also known as CalEnviroScreen for short, can be used to identify California communities that are disproportionately burdened by multiple sources of pollution. It was developed by the California Office of Environmental Health Hazard Assessment (OEHHA), an office within the California Environmental Protection Agency (CalEPA).
- **California Healthy Places Index**: This tool, developed by the Public Health Alliance of Southern California and known as HPI for short, can be used to explore the community conditions that impact life expectancy. It combines 25 unique community characteristics, like access to healthcare, housing, education, and more, into a single indexed HPI score for a particular community—the healthier a community, the higher the HPI score.
- **Vulnerable Communities Platform**: This platform, developed by the California Governor's Office of Planning and Research (OPR) and known as VCP for short, can be used to identify communities most vulnerable to the impacts of worsening extreme heat, flooding, sea level rise, drought, and wildfire due to climate change. It also includes a comprehensive climate hazard vulnerability tool that can map combinations of climate hazards and social vulnerability.

For example, one of the GHG reduction measures identified in this CAP Update is Measure U-1: Increase Urban Forest Canopy Cover. Census tract 6073014806, which is bounded by the Kumeyaay Highway to the north and El Cajon Boulevard to the south, is the census tract identified as having the highest CalEnviroScreen score in the City (OEHHA 2021). This may suggest that implementation of the actions under Measure U-1 would have a greater impact if prioritized within this census tract, as opposed to other census tracts in the City, since expanded tree canopy can help reduce pollution burden. While there are other factors to consider, and plenty of other tools to cross-reference, this serves as an example of how these tools may be used to promote environmental justice and climate equity during plan implementation. Additionally, staff is aware of the importance of establishing collaboration frameworks between tribal nations to ensure climate strategies are respectful and integrative of traditional ecological knowledge.

Outreach and Engagement

Local outreach and engagement are essential elements of the climate action planning and development process. Local action on climate change cannot be achieved solely by one entity; it requires active and ongoing partnerships between residents, businesses, local and regional governments, utilities, other organizations and stakeholders. The City understands this, and as such, has conducted various forms of outreach and engagement to: (1) raise awareness of climate change and the need for this CAP Update; (2) inform stakeholders and the public about the CAP Update; (3) gather input at various stages of plan development; and (4) provide meaningful opportunities for feedback and to influence decision making. While outreach and engagement will be ongoing throughout plan implementation, the list below briefly describes some of the notable points of outreach and engagement that have already been conducted for this CAP Update:

- **Public Workshop #1**: The first public workshop for the CAP Update was held on May 3, 2023, at the La Mesa Adult Enrichment Center. The workshop included both a presentation portion and an activity portion. The presentation provided an overview of the CAP Update (i.e., purpose, schedule, components) and the City's GHG emissions inventory. The activity portion of the workshop included a hands-on activity where attendees provided their feedback on existing and preliminary GHG reduction measures.
- **Staff Workshop**: The City hosted a workshop for City staff on May 11, 2023. The goal of the workshop was to engage City staff on the CAP Update. The workshop followed a format similar to public workshop #1 described above.
- **Public Workshop #2**: The second public workshop for the CAP Update was held on October 25, 2023, at the Helix Charter High School library. Similar to the first workshop, this workshop included both a presentation portion and an activity portion. The presentation covered the same components as the presentation for the first workshop, but also included a summary of public feedback received to date and a more in-depth discussion on the GHG reduction measures and actions that were being developed and refined for the CAP Update. The activity portion of the workshop was also similar to the first workshop, where attendees provided feedback on the GHG reduction measures, though the structure of the activity was slightly different.
- **Online Survey**: The City offered 2 public surveys for the community to review and gauge their support for various GHG reduction measures and actions that were, at the time, under development for the CAP Update. The survey responses were considered during the refinement process of the ultimate measures that are presented in this CAP Update.
- **Environmental Sustainability Commission Meetings**: Over the course of CAP Update development, updates and progress have been regularly shared at monthly meetings for the Environmental Sustainability Commission, which: (1) serves as an advisory body to City Council on how actions and policies of the City may preserve and enhance the quality of the local environment; and (2) assists in the identification of measures that will improve environmental sustainability within the City and across the region. The ESC created ad hoc subcommittees to discuss climate equity, co-benefits, and community engagement strategies. At each of the monthly meetings, members of the public have the opportunity to ask questions and pose comments on items pertaining to the CAP Update.

1.3 State, Regional, and Local Efforts

State Efforts

In response to the increase in anthropogenic GHG emissions and the risks posed by climate change, the State has already taken many steps to reduce GHG emissions and build resilience to climate change impacts, notably through legislation. **Table 1.3** below serves as a non-exhaustive list of some of the most important pieces of State climate legislation that provide policy direction and context for this CAP Update. It should be noted that all items are presented in chronological order and that newer legislation may supersede older legislation. Additionally, because this table is meant to serve as a snapshot, there may be additional pieces of legislation referenced throughout this CAP Update that are not mentioned in the table.

Table 1.3 State of California Climate Legislation

Year	Effort	Details
2006	**AB 32**	▶ Codified the targets of reducing statewide GHG emissions to 1990 levels by 2020, which was officially achieved in 2016. Also known as the Global Warming Solutions Act of 2006.
2015	**SB 379**	▶ Required cities and counties within California to integrate climate change vulnerability, adaptation strategies, and emergency response strategies into the safety element of their general plans. ▶ States that jurisdictions that have adopted a climate action and/or adaptation plan separate from the general plan may incorporate that document by reference to comply (if that document meets the requirements outlined in the legislation).
2015	**AB 1482**	▶ Required CNRA to update the statewide climate adaptation strategy by July 1, 2017, and every three years thereafter.
2016	**SB 1383**	▶ Codified the targets of: (1) reducing statewide disposal of organic waste to 75 percent below 2014 levels by 2025; and (2) recovering at least 20 percent of the currently disposed surplus of edible food by 2025. ▶ Identified targets for reducing additional pollutants including HFCs and anthropogenic black carbon. ▶ Required CARB to approve and begin implementing the Short-Lived Climate Pollutant Reduction Strategy.
2016	**SB 32**	▶ Codified EO B-30-15's target of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030, expanding upon AB 32. Also known as the Global Warming Solutions Act of 2016.
2017	**AB 398**	▶ Extended the state's Cap-and-Trade program—a key strategy in reducing statewide GHG emissions—from 2020 to 2030, which sets total allowable emissions for facilities and creates carbon offset credits through carbon sequestration projects.
2022	**AB 1279**	▶ Codified the targets of: (1) reducing statewide anthropogenic GHG emissions to 85 percent below 1990 levels by 2045; and (2) achieving statewide net-zero GHG emissions as soon as possible, but no later than 2045, and to maintain net negative GHG emissions thereafter. Also known as the California Climate Crisis Act.

Notes: AB = Assembly Bill; CARB = California Air Resources Board; CNRA = California Natural Resources Agency; EO = Executive Order; GHG = greenhouse gas; HFC = hydrofluorocarbon; SB = Senate Bill.

Source: **Compiled by Ascent in 2024**.

> ***"Many of California's environmental policies have served as models for similar policies in other U.S. states, and at national and international levels. Moving forward, California will continue its pursuit of collaborations and advocacy for action to address climate change at all levels of government."*** (CARB 2022: 15).

In addition to legislation that has been adopted and codified, the State has also enacted an array of other efforts to address climate change, namely through guidance to and collaboration with local and regional governments. For example, and perhaps most notably, the Climate Change Scoping Plan (Scoping Plan), developed by the California Air Resources Board (CARB), serves as the State's sector-by-sector roadmap for reducing GHG emissions in line with codified GHG emissions reduction targets, and additionally, serves as an important guidance document for local governments in reducing their local emissions. The most recent iteration of the Scoping Plan—the *2022 Scoping Plan for Achieving Carbon Neutrality*—outlines a technologically feasible, cost-effective, and equity-focused path to achieve the GHG reduction and carbon neutrality targets established in AB 1279. Additionally, the *California Adaptation Planning Guide* (APG), developed by the California Governor's Office of Emergency Services (Cal OES), serves as California's official climate change adaptation planning guidance document intended for use by local governments. These documents, in addition to the remaining spectrum of climate-related efforts being led by the State, underscore the importance of addressing climate change at all levels of government (Cal OES 2020).

Regional Efforts

Across the San Diego region, there are many entities involved in addressing climate change at the regional level. Some of these entities, which also serve as key partners to the City and other agencies across the region, are described further below, along with some example projects and initiatives that they have been leading. It should be noted that this list is not exhaustive, and that there are many additional entities and efforts involved in addressing climate change across the region.

- **County of San Diego**: The County of San Diego has demonstrated a commitment to addressing climate change on a regional level, notably through the *Regional Decarbonization Framework* (RDF). The RDF is led by the County's Office of Sustainability and Environmental Justice (OSEJ). OSEJ works alongside communities, as well as local and regional agencies and jurisdictional partners, to steward sustainability solutions that repair systemic and institutional inequities and environmental burdens.
- **San Diego Association of Governments**: The San Diego Association of Governments (SANDAG), is both a metropolitan planning organization and a council of governments that brings together local decision makers to develop solutions to regional issues, including improving equity, transportation, air quality, clean energy, economic development, goods movement, public health and safety, housing, and more—many through the lens of climate change (SANDAG 2024). Regarding climate action planning, SANDAG created the *Regional Climate Action Planning Framework* (ReCAP) in December 2020 to help guide plan development and support consistent implementation for jurisdictions across the region and was recognized as a national model of regional agencies supporting local governments. Additionally, in March 2024, SANDAG published the *San Diego Regional Priority Climate Action Plan*, which was funded through a United States Environmental Protection Agency (EPA) Community Pollution Reduction Grant and identifies measures that can be implemented quickly to reduce GHG emissions and improve air quality across the region. Further, SANDAG has a suite of climate-related projects and programs they are leading, such as those pertaining to shoreline management, active transportation, energy planning, and regional resilience, among many others.
- **San Diego Community Power**: San Diego Community Power (Community Power) is a Community Choice Aggregate (CCA) program, which is a not-for-profit public agency that partners with local investor-owned utillities to deliver cleaner electricity to their communities, including La Mesa. Community Power purchases electricity that is generated from renewable sources (e.g., solar, wind)—enough to cover the needs of its customers—which is then delivered to customers through existing San Diego Gas and Electric (SDG&E) power lines (Community Power 2024). With a primary focus of delivering clean electricity to its customers at

competitive rates, Community Power is commited to ensuring that everyone across the region can enjoy cleaner air and a healthier future as a result of clean electricity use.

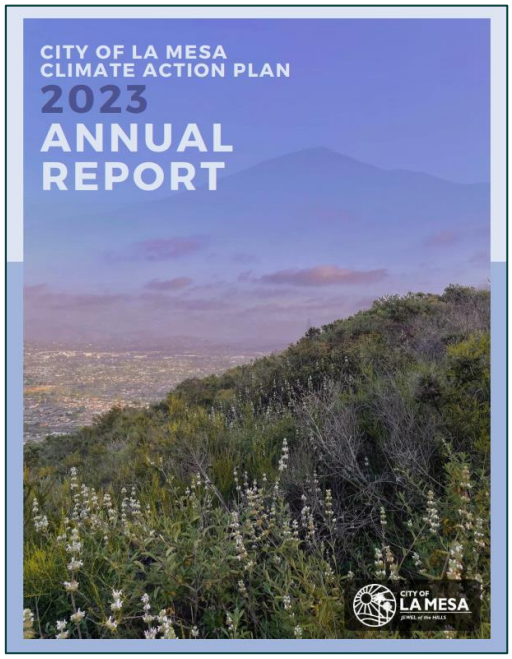
- **San Diego Regional Energy Network:** The San Diego Regional Energy Network (SDREN) application is currently under review with the California Public Utilities Commission. SDREN aims to empower residents and stakeholders through a variety of programs that contribute to local and state energy efficiency and climate goals. SDREN will focus on the principles of environmental equity, collaboration, and community-driven strategies to spur innovation. SDREN's guiding strategy is to focus on the local community as a driving force in meeting State goals. Notwithstanding any legal or administrative barriers, community-based organizations will be compensated and engage in capacity building to maximize non-energy benefits for equity customers. Community-driven program planning with in-language support defines the approach to supporting the County of San Diego's Regional Decarbonization Framework.
- **San Diego Gas and Electric**: SDG&E is the primary electricity provider in San Diego County and Orange County and is responsible for the delivery of electricity and other services. Noting this, SDG&E is already taking steps to promote safety, build resilience, and adapt its systems and assets to the impacts of climate change to ensure that all customers across the region have access to a reliable power supply. More specifically, SDG&E is: (1) conducting a system-wide climate change vulnerability assessment, which will inform adaptation plans for all identified vulnerabilities; and (2) continuing to take steps to be an industry leader in wildfire prevention and mitigation activities; among other efforts (SDG&E 2024). Additionally, SDG&E is playing a role in promoting electric vehicles (EVs) and charging infrastructure, which can reduce GHG emissions from the transportation sector.
- **San Diego Metropolitan Transit System**: The San Diego Metropolitan Transit System (MTS) is the San Diego region's public transit provider and provides bus and rail services directly or by contract with private operators. As a public transit provider, increased ridership and use of MTS' services can inherently reduce GHG emissions by reducing the amount of people driving in personal vehicles. To supplement its goal of increasing ridership across the region, MTS has also demonstrated its commitment to sustainability by continuing to grow its electric bus fleet, with the goal of having a carbon neutral fleet by 2040. In fact, MTS' electric buses eclipsed the 1,000,000-mile marker in July 2024, representing 2,130 metric tons of carbon dioxide equivalent ($MTCO_2e$) not being emitted into the atmosphere (MTS 2024).

- **San Diego Regional Climate Collaborative**: The San Diego Regional Climate Collaborative (Climate Collaborative) —which the City is a member of—was established in 2011 as a network for public agencies to advance climate change solutions that both reduce GHG emissions and advance adaptation to climate change and has since expanded to become a resilience hub and a catalyst for collaborative, cross-jurisdictional work in the San Diego region (USD 2024). The Climate Collaborative has developed a collection of resources to aid the region's climate practitioners, including educational materials, comprehensive and interactive StoryMaps, insightful blogs, identify grant partners and provide technical assistance, and detailed reports that explore the region's climate landscape, and additionally, has been involved in an array of projects, such as the development of the *An Equity-First Approach to Climate Adaptation*.

Local Efforts

A large number of the local efforts in addressing climate change to date are related to implementation of the original CAP. Implementation of the original CAP has been consistently tracked since its adoption in the form of annual reports, and additionally, progress reports that are presented to City Council every six months. The City's website contains a repository of all the annual reports and progress reports that have already been prepared. Some highlights from the most recent 2023 annual report are listed below, organized by the strategies of the original CAP (City of La Mesa 2024):

- **Energy**
  - Within the City, 743 solar permits and 78 battery storage permits were issued—a 10 and 26 percent increase from 2022, respectively.
  - The City continues to encourage residents to monitor energy use at home through the DIY Energy Saving and Sustainability Toolkit program, which contains no-cost giveaways for residents, such as energy efficient lightbulbs, a water-saving showerhead, and four faucet aerators, along with a user guide that includes step-by-step directions so that anyone can easily take advantage of all the tools and items contained in the toolkit.
  - The City kicked off the energy services company (ESCO) project to implement a comprehensive energy program that will include projects for energy efficiency, onsite renewable energy and battery storage, and EV charging infrastructure for City fleet vehicles at City facilities.



- **Transportation and Land Use**
  - Within the City, 27 residential EV charger permits were issued, and additionally, there were 20 newly permitted commercial EV charging ports.
  - The City completed construction of its first high-intensity activated crosswalk at the intersection of El Cajon Boulevard and Jesse Avenue to address a gap in pedestrian crosswalks along the corridor and provide a safe place for pedestrians to cross the street.
  - With support from a Smart Growth Incentive Program grant, the City published the *City of La Mesa Complete Streets Integrated Design Manual*, which serves as a "toolbox" of engineering elements to make it easier to implement smart growth policies on future projects requiring street and sidewalk improvements, ensuring all types of road users are safely accommodated.
- **Solid Waste**
  - The City increased its rate of diverting waste away from landfills to 27 percent.
  - The City launched the *Litter Free La Mesa Cleanup Series* to reduce trash in La Mesa while enhancing environmental awareness and stewardship amongst residents and businesses, which utilized 236 volunteers across six events to remove 1,089 pounds of litter.
  - The City used grant funding from the California Department of Resources Recycling and Recovery (CalRecycle) to purchase and install water refill stations at City facilities and encourage the use of reusable water bottles, instead of single-use plastic bottles.

- **Green Infrastructure**
  - The City planted 155 trees in 2023—a 260 percent increase from 2022, bringing the total amount of public trees maintained by the City to 10,037.
  - The City received its 44th designation as a "Tree City USA" by the Arbor Day Foundation, recognizing the efforts by City staff to maintain the existing urban tree canopy throughout La Mesa.
  - The City continued implementation of the *City of La Mesa Urban Forest Management Plan*, which was originally adopted in 2022, as it maintains and grows its urban tree canopy.
- **Water**
  - The per capita water usage in the City was 86.3 gallons of water per day—a 10 percent decrease from 2022.
  - Phase 1 of the Pure Water Project continued in 2023, which includes the construction of pipelines, pump stations, and treatment facilities. When completed in 2035, the project will convert 83,000,000 gallons of non-potable reused/recycled water into safe, high quality drinking water each day for the San Diego region.
  - Construction began on the new demonstration garden at City Hall. Specific landscape improvements will include drought tolerant plants and a rain barrel to utilize roof runoff.

While implementation of the original CAP represents a large portion of the local efforts in addressing climate change, there are additional efforts that are not tied to the original CAP that are also making a difference. For example, the City offers a local green business network and certification program in partnership with the California Green Business Network (San Diego Region). Through this partnership, the City has established its own Green Business Network as a central hub for businesses within the City that are striving to be sustainable and for businesses that are already actively engaged in sustainable practices. Businesses can join the Green Business Network at no cost with the option to officially become a certified California Green Business, and throughout the certification process, they will receive ongoing assistance with business evaluations, documentation, and promotional initiatives. Additionally, the City has advanced climate change adaptation outcomes through other planning documents, such as the Safety Element of the *La Mesa General Plan*, along with the City's annex to the San Diego County *Multi-Jurisdictional Hazard Mitigation Plan*, among others. Through efforts like these, the City is continuing to demonstrate its creativity in and commitment to addressing climate change and promoting sustainability.

CHAPTER 2

Greenhouse Gas Emissions

2 Greenhouse Gas Emissions

This chapter presents the City of La Mesa's (City's) greenhouse gas (GHG) emissions inventory, forecasts, and reduction targets. More specifically, **Sections 2.1** and **2.2** discuss the need for and present the results of the City's updated GHG emissions inventory using the 2016 baseline year, **Section 2.3** presents both the business-as-usual (BAU) and legislative-adjusted GHG emissions forecasts for 2035 and 2045, **Section 2.4** provides context on the GHG reduction targets set for years 2035 and 2045 as part of this Climate Action Plan Update (CAP Update), and **Section 2.5** discusses the "local emissions gap," or the remaining amount of emissions that need to be reduced by the GHG reduction measures included in this CAP Update to achieve the targets. Further details on each of these items, including methodologies, can be found in **Appendix A**.

2.1 Why Prepare a Greenhouse Gas Emissions Inventory?

A **GHG emissions inventory** is a **snapshot** of the emissions associated with a jurisdiction's **community-wide activities**.

The critical first step in the overall climate action planning process—more specifically, the planning process for reducing GHG emissions—is to prepare a GHG emissions inventory, as shown in **Figure 2.1**. To develop and implement a climate action plan that will effectively reduce GHG emissions, local governments must first have a comprehensive understanding of the emissions generated by sources and activities within their jurisdictions. GHG emissions inventories serve to provide this knowledge and act as the basis for measuring progress and providing local governments a framework to track emissions over time and assess the effectiveness of plan implementation. The City's GHG inventory is presented and discussed further in depth in **Section 2.2.**

Figure 2.1 Planning Process for Reducing Greenhouse Gas Emissions

Note: GHG = greenhouse gas.

Source: **Developed by Ascent in 2024**.

The standard GHG emissions inventory in climate action planning processes estimates GHG emissions generated from sources and activities within a defined geographic boundary during a specified year. It identifies the sectors that are producing these emissions and the relative contribution of each, while also providing a baseline used to forecast emissions trends into the future. This information is used to set reduction targets consistent with State of California government (State) objectives, and ultimately, to develop, memorialize, and implement strategies and measures for reducing emissions consistent with the established targets.

2.2 Baseline Greenhouse Gas Emissions Inventory

Generally, GHG emissions inventories identify the sources, activities, and sectors that generate emissions within a jurisdiction and the relative contributions of each. This CAP Update uses 2016 as the updated baseline year for its GHG inventory (compared to the 2010 baseline year from the original CAP), which provides a snapshot of GHG emissions and may influence related policy decisions to reduce emissions. The GHG inventory was

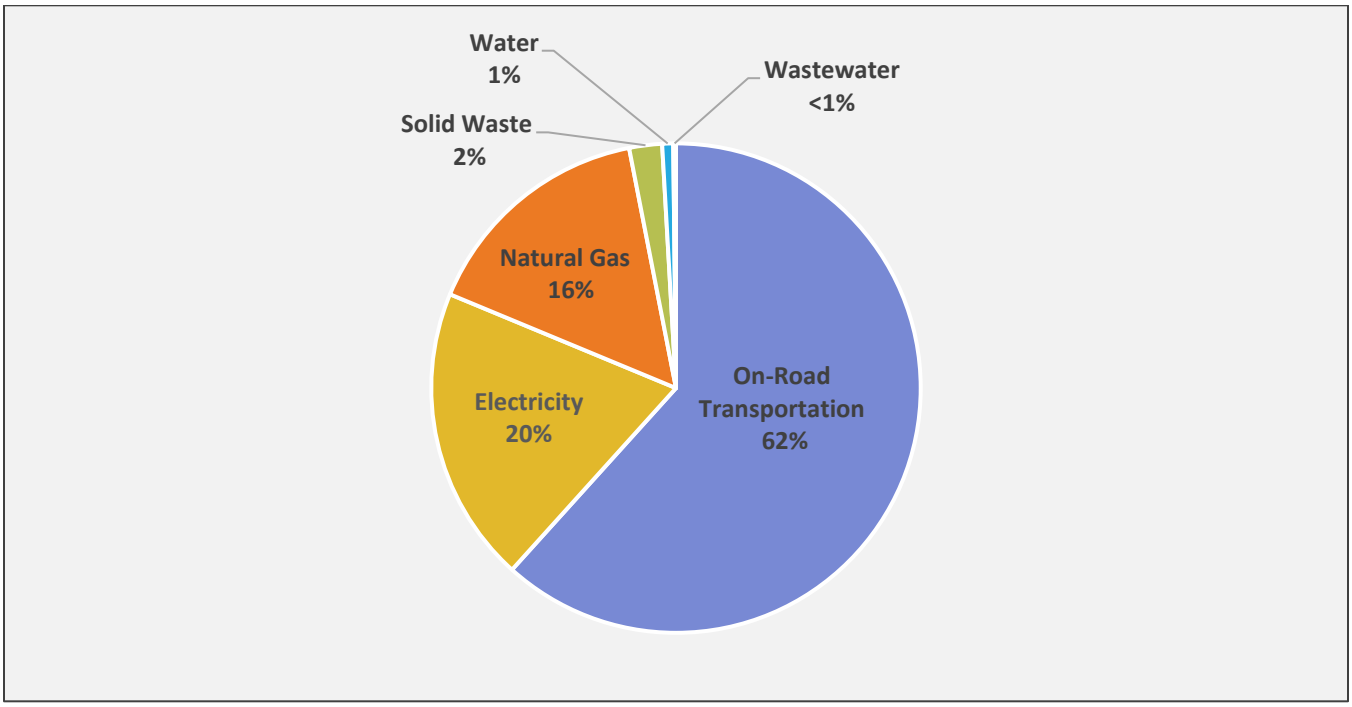
prepared in accordance with the *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions* (Community Protocol), developed by the International Council for Local Environmental Initiatives – Local Governments for Sustainability (ICLEI). The California Air Resources Board (CARB) advises local governments to utilize the Community Protocol for GHG emissions assessments and climate action planning processes. The basic calculation for estimating GHG emissions involves two primary inputs: (1) activity data; and (2) emissions factors. Activity data refers to the amount of GHG emission generating activities that occur within the City's boundary, while emissions factors are the amount of GHG emissions that are produced for each of these activities. Emissions factors are applied to activity data (i.e., the two values are multiplied) to estimate GHG emissions. See **Appendix A** for more details on the methods used to prepare the GHG inventory.

GWPs are used to **allow comparisons** of the **global warming impacts** of different GHGs and to allow policymakers to compare reduction opportunities across sectors and gases—the **larger the GWP,** the **more that a given gas warms the Earth** compared to CO_2 over a given time period.

The three primary GHGs included in the City's GHG inventory are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Emissions of these gases were converted to a comparable unit by multiplying each non-CO_2 gas by its global warming potential (GWP), which enables the reporting of emissions in terms of carbon dioxide equivalent (CO_2e). For example, CH_4 has a GWP value of 25, which means it is 25 times more potent than CO_2—which has a GWP value of one—over a 100-year time period. This conversion allows consideration of all GHGs in comparable terms and makes it easier to communicate how various types of GHG emissions contribute to climate change. GHG emissions are reported in metric tons of CO_2e ($MTCO_2e$), the standard measurement for the amounts of GHG emissions created and released into the atmosphere, using the GWP values derived from the Intergovernmental Panel on Climate Change (IPCC) *Fourth Assessment Report*.

The results of the 2016 GHG emissions inventory, as summarized in **Figure 2.2** and **Table 2.1**, show that total emissions for the City were 398,000 $MTCO_2e$. Emissions from on-road transportation, which includes fossil fuel (e.g., gasoline and diesel) combustion in vehicles, accounted for approximately 62 percent of emissions. The second largest sector in 2016 was electricity, which contributed approximately 20 percent of the City's emissions, followed by the natural gas sector at 16 percent. The three remaining sectors of solid waste, water, and wastewater each accounted for 2 percent or less of the City's emissions.

Figure 2.2 City of La Mesa 2016 Greenhouse Gas Emissions Inventory Pie Chart



Notes: % = percent; < = less than.

Source: **Developed by EPIC in 2024**.

Table 2.1 City of La Mesa 2016 Greenhouse Gas Emissions Inventory

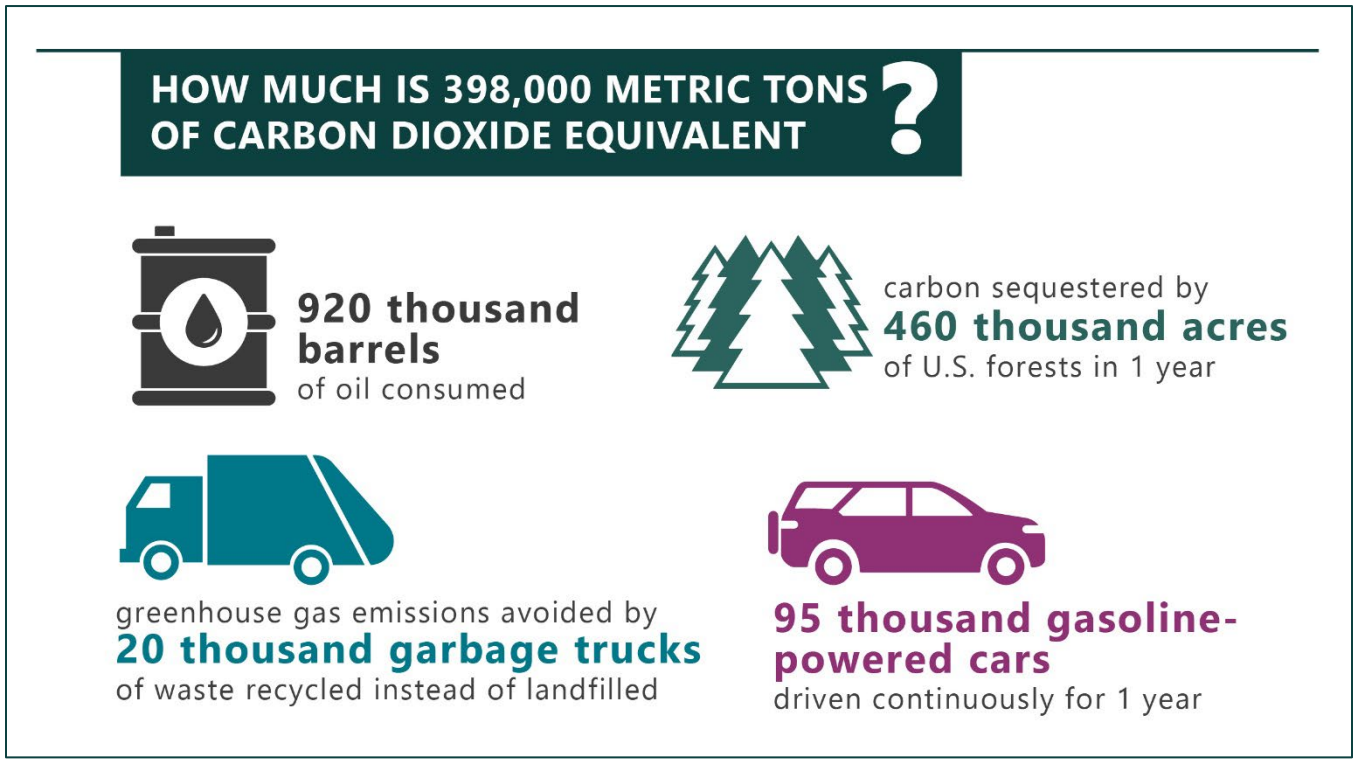
Sector	2016 GHG Emissions ($MTCO_2e$)	Percent of Total GHG Emissions (%)
On-Road Transportation	246,000	62
Electricity	78,000	20
Natural Gas	62,000	16
Solid Waste	9,000	2
Water	3,000	1
Wastewater	1,000	<1
Total	**398,000**	**100**

Notes: Actual GHG emissions have been rounded to the nearest thousand and percentages have been rounded to the nearest whole percent. Rounding was conducted independently after all calculations were made. / % = percent; < = less than; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: **Analysis conducted by EPIC in 2024**.

As shown in Figure 2.3 below for illustrative purposes, the City's total GHG emissions in 2016 of approximately 398,000 MTCO2e are equivalent to: (1) roughly 920,000 barrels of oil consumed; (2) the GHG emissions avoided by 20,000 garbage trucks of waste that has been recycled instead of landfilled; (3) the carbon sequestered by 460,000 acres of forest in one year; and (4) about 95,000 gasoline-powered cars driven continuously for one year (EPA 2024).

Figure 2.3 Greenhouse Gas Emissions Equivalencies



Source: **EPA 2024; adapted by Ascent in 2024**.

2.3 Greenhouse Gas Emissions Forecasts

GHG emissions forecasts provide a modeled estimate of future emissions levels based on a continuation of current trends in activity, population, and job growth, while also accounting for known regulatory actions by State and Federal agencies (i.e., "legislative" actions) that are expected to reduce emissions in the future. Emissions forecasts provide insights into the scale of local reductions needed to achieve GHG emissions reduction targets after applying anticipated reductions from regulatory actions.

This CAP Update includes two forecast scenarios: (1) a BAU scenario; and (2) a legislative-adjusted scenario. The BAU scenario is based on a variety of scaling factors for each sector and assumes no additional State or Federal actions will occur in the future. It serves as a basis for understanding how GHG emissions levels may change with growth, and how far GHG emissions will need to be reduced in future years to meet GHG reduction targets (which are discussed further in **Section 2.4**). In the legislative-adjusted scenario, the BAU forecast is "adjusted" to account for the effects of Federal and State regulations on forecasted emissions, and additionally, it shows how they will help the City make progress towards its local GHG reduction targets (also discussed further in **Section 2.4**). For this CAP Update, each of these forecasts estimate emissions for the years 2035 and 2045.

Business-as-Usual Greenhouse Gas Emissions Forecast

The BAU forecast estimates GHG emissions based on an assessment of how emissions generated by community activities will change over time without additional Federal, State, regional, or local actions. The forecast considers projected changes in population, housing, and job growth within the City. Based on 2016 GHG emissions levels (i.e., 398,000 $MTCO_2e$) and post COVID-19 pandemic (2021-2022) activity trends, the BAU forecast (as shown in **Table 2.2**), projected starting 2021, estimates annual GHG emissions in the City to decrease slightly to 391,000 $MTCO_2e$ by 2035 but increase to 409,000 $MTCO_2e$ by 2045. In other words, if all activities in the City continued as usual without any additional governmental interventions, GHG emissions would increase over time.

Table 2.2 City of La Mesa Business-as-Usual Greenhouse Gas Emissions Forecast

Sector	GHG Emissions ($MTCO_2e$)		
	2016	2035	2045
On-Road Transportation	246,000	204,000	211,000
Electricity	78,000	94,000	99,000
Natural Gas	62,000	79,000	83,000
Solid Waste	9,000	11,000	11,000
Water	3,000	3,000	3,000
Wastewater	1,000	1,000	1,000
Total	**398,000**	**391,000**	**409,000**

Notes: Actual GHG emissions have been rounded to the nearest thousand. Rounding was conducted independently after all calculations were made. / GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: **Analysis conducted by EPIC in 2024**.

Legislative-Adjusted Greenhouse Gas Emissions Forecast

The legislative-adjusted forecast evaluates how the City's GHG emissions would change over time accounting for legislative actions at the federal and State levels, such as regulatory requirements to increase vehicle fuel efficiency. This forecast provides the City with the information needed to focus efforts on certain emissions sectors and sources that have the most GHG reduction opportunities. **Table 2.3** includes the federal and State regulations that will result in quantifiable GHG emissions reductions for this CAP Update's forecast years of 2035 and 2045. Further details on these federal and State regulations can be found in **Appendix A**.

Table 2.3 Greenhouse Gas Emissions Reductions from Federal and State Regulations

Federal and State Regulations	GHG Emissions Reduction ($MTCO_2e$)	
	2035	2045
Federal and California Vehicle Efficiency Standards	81,000	141,000
California Energy Efficiency Programs	4,000	3,000
Renewables Portfolio Standard	68,000	91,000
California Solar Policies and Programs	33,000	37,000
Total	**186,000**	**272,000**

Notes: Actual GHG emissions have been rounded to the nearest thousand. Rounding was conducted independently after all calculations were made. / GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: **Analysis conducted by EPIC in 2024**.

After applying the reductions from federal and State regulations (as shown in **Table 2.3**) to the BAU GHG emissions forecast, the City's legislative-adjusted forecast can be found in **Table 2.4** below. As shown, the legislative-adjusted forecast results in much lower emissions estimates for 2035 and 2045 compared to the BAU forecast. For comparison, the legislative-adjusted emissions for 2035 and 2045 are 206,000 and 137,000 $MTCO_2e$, respectively, while the BAU emissions for 2035 and 2045 are 391,000 and 409,000 $MTCO_2e$, respectively.

Table 2.4 City of La Mesa Legislative-Adjusted Greenhouse Gas Emissions Forecast

Sector	GHG Emissions ($MTCO_2e$)		
	2016	2035	2045
On-Road Transportation	246,000	112,000	40,000
Electricity	78,000	4,000	2,000
Natural Gas	62,000	75,000	79,000
Solid Waste	9,000	11,000	11,000
Water	3,000	3,000	3,000
Wastewater	1,000	1,000	1,000
Total	**398,000**	**206,000**	**137,000**

Notes: Actual GHG emissions have been rounded to the nearest thousand. Rounding was conducted independently after all calculations were made. / GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: **Analysis conducted by EPIC in 2024**.

2.4 GHG Emissions Reduction Targets

A core component of this CAP Update is establishing GHG reduction targets to determine the reductions needed from the GHG reduction measures developed for this plan (see **Section 3.1** for the GHG reduction measures). The CAP Update targets were developed to align with the statewide GHG reduction targets established by Senate Bill (SB) 32 and Assembly Bill (AB) 1279. As directed in SB 32 and AB 1279, the State aims to reduce annual GHG emissions to:

- **40 percent below 1990 levels by 2030**; and
- **85 percent below 1990 levels by 2045**, with net-zero emissions achieved through CO_2 removal.

While State legislative targets are based on 1990 statewide GHG emissions levels, La Mesa, like most jurisdictions in California, does not have an inventory from the year 1990 and must apply a more recent inventory to 1990 levels using statewide GHG emissions data. In 2016, the California's statewide GHG emissions inventory showed that total statewide GHG emissions levels were nearly equivalent to 1990 levels (CARB 2019). As such, it is reasonable to assume that local GHG emissions have evolved on a similar trend. Estimating equivalent reductions needed from the 2016 baseline, the City aims to reduce community GHG emissions to:

- **50 percent below 2016 levels by 2035** (aligned with and extrapolated from SB 32), and
- **85 percent below 2016 levels by 2045** (aligned with AB 1279).

Noting these locally specific GHG reduction targets, the City must reduce emissions to 199,000 $MTCO_2e$ in 2035, and to 60,000 $MTCO_2e$ in 2045, as shown in **Table 2.5** below. While a net-zero GHG target for the year 2045 is not yet feasible for the City, based on local conditions and the current state and cost-effectiveness of available technologies, as the CAP Update is implemented and more guidance is available from State agencies, the City will reassess the applicability and feasibility of a local net-zero target and update the plan as appropriate. For context, the State's current strategy for achieving net-zero emissions by 2045 indicates that this would be achieved through both carbon sequestration in natural lands and mechanical carbon capture and storage technologies (CARB 2022). Because the City does not have the ability to substantially increase carbon sequestration on natural lands to the levels required to offset all emissions due to factors like lack of remaining open space, and because carbon capture and storage technologies are an emerging technology being evaluated by the State, it is not yet feasible for La Mesa to show achievement of a local net-zero target.

The City's local **GHG emissions reduction targets are aligned** with the State's targets, despite being based on **different baseline years**.

Table 2.5 City of La Mesa Greenhouse Gas Emissions Reduction Targets

Year	GHG Emissions ($MTCO_2e$)	Target GHG Emissions ($MTCO_2e$)	Target GHG Emissions Below 2016 Baseline (%)
2016	398,000	N/A	N/A
2035	391,000	199,000	50
2045	409,000	60,000	85

Notes: Actual GHG emissions have been rounded to the nearest thousand. / % = percent; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent; N/A = not applicable.

Source: **Analysis conducted by EPIC in 2024**.

2.5 Local Emissions Gap

While federal and State regulations will contribute to achieving the City's GHG reduction targets, they alone will not be sufficient to achieve them. The City will need to implement additional actions to close the remaining "gap" and achieve its reduction targets. **Table 2.6** displays this gap for 2035 and 2045, which is determined by the difference between the GHG reductions needed to meet the targets and the total reductions from federal and State regulations. As displayed, there is about a 6,000 $MTCO_2e$ gap remaining for 2035 and a 77,000 $MTCO_2e$ gap remaining for 2045. The additional actions the City will take (i.e., the GHG reduction strategies, measures, and actions) to close the gap and ultimately achieve its local targets are discussed in **Chapter 3**.

Table 2.6 City of La Mesa Local Emissions Gap

Analysis	GHG Emissions ($MTCO_2e$)	
	2035	2045
Total BAU GHG Emissions	391,000	409,000
GHG Emissions Target	199,000	60,000
GHG Reductions Needed to Meet Target	192,000	349,000
Total Reductions from Federal and State Regulations	186,000	272,000
Remaining Gap to Target	6,000	77,000

Notes: Actual GHG emissions have been rounded to the nearest thousand. Rounding was conducted independently after all calculations were made. / BAU = business-as-usual; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: **Analysis conducted by EPIC in 2024**.

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CHAPTER 3

Climate Action Strategies and Measures

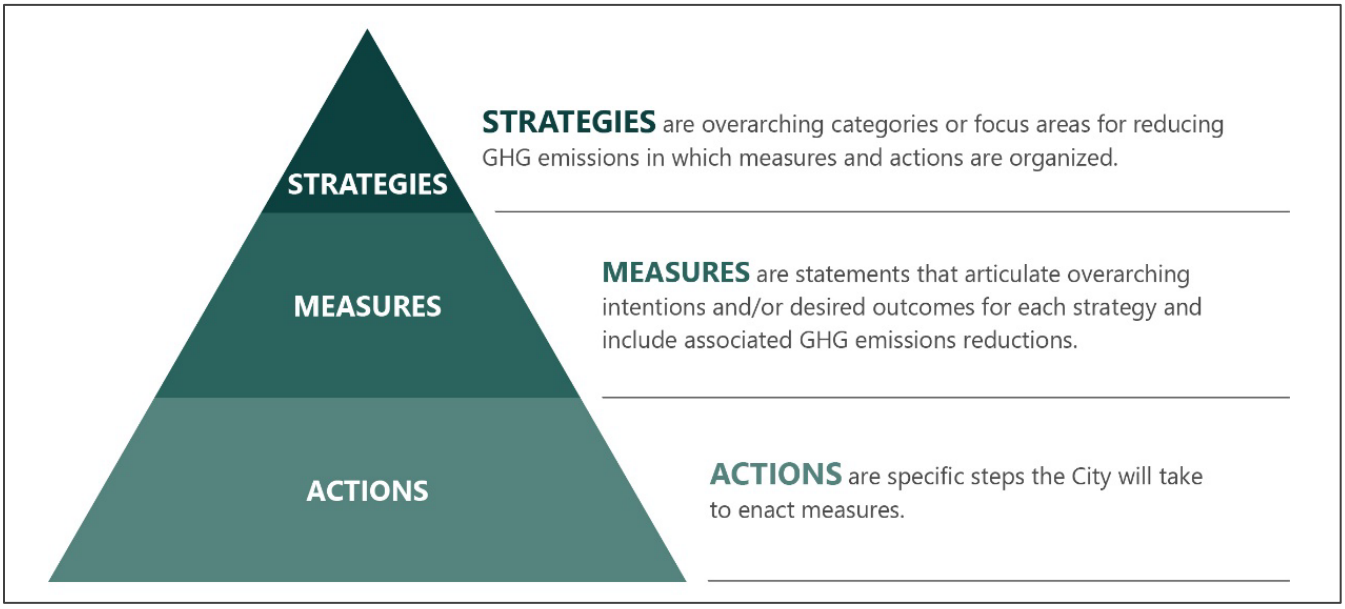
3 Climate Action Strategies and Measures

This chapter presents all the climate action strategies and measures that are included in this Climate Action Plan Update (CAP Update). Specifically, it includes: (1) a suite of greenhouse gas (GHG) reduction strategies, measures, and actions, which are contextualized and discussed in depth throughout **Section 3.1**; and (2) a set of high-level adaptation strategies presented in **Section 3.2** that are informed by the primary climate hazards the City of La Mesa (City) will face—and is already facing—because of climate change. Upon implementation of the strategies, measures, and actions included in this chapter, the City of La Mesa (City) will have meaningfully reduced citywide GHG emissions and bolstered its resilience to climate change.

3.1 Greenhouse Gas Reduction Strategies and Measures

The overall structure and approach for reducing citywide GHG emissions is based on a framework that consists of strategies, measures, and actions, where strategies are at the broadest level of the framework and actions are the most specific piece of the framework. Strategies are the overarching categories or focus areas for reducing GHG emissions. Each strategy contains a set of measures, which are statements that articulate an overarching intention and/or desired outcome of the associated strategy, and additionally, include associated GHG emissions reductions. Actions are the specific steps the City will take to enact and implement each measure. This framework and hierarchy of strategies, measures, and actions is presented visually in **Figure 3.1** below.

Figure 3.1 Hierarchy of Greenhouse Gas Reduction Strategies, Measures, and Actions



Notes: City = City of La Mesa; GHG = greenhouse gas.

Source: **Developed by Ascent in 2024**.

Successful implementation of all GHG reduction measures included in this CAP Update will allow the City to **achieve its GHG emissions reduction target for 2035**. Additional efforts will be needed to achieve the 2045 target, however.

Table 3.1 below shows the GHG quantification analysis that was conducted to show if the GHG reduction measures are sufficient to meet the local GHG reduction targets that were first established in **Section 2.4**. As shown in the table, the forecasted business-as-usual (BAU) GHG emissions for 2035 and 2045 are 391,000 and 409,000 metric tons of carbon dioxide equivalent ($MTCO_2e$), while the associated targets are 199,000 and 60,000 $MTCO_2e$, respectively. This means that the GHG emissions reductions that are needed to reach the 2035 and 2045 targets are 192,000 and 349,000 $MTCO_2e$, respectively. As touched upon in both **Sections 2.3** and **2.5**, Federal and State regulations will result in some of the reductions that are needed to make progress towards the 2035 and 2045 targets. Through successful implementation of the GHG reduction measures prepared for this CAP Update, the City of La Mesa (City) will be able to achieve its GHG reduction target for 2035 with a surplus of reductions. However, even though the GHG reduction measures make meaningful progress towards the 2045 target, the estimated GHG emissions reductions do not quite achieve the target. As part of the ongoing monitoring that will be conducted as part of CAP Update implementation, the City will carefully track its progress towards the 2045 target, while also staying up to date on new technologies, cost effectiveness of new/expanded measures, and new Federal and State regulations that may contribute further towards ultimately achieving the 2045 target.

Table 3.1 City of La Mesa Greenhouse Gas Emissions Quantification Analysis

Analysis	GHG Emissions ($MTCO_2e$)			
	2035		2045	
Total BAU GHG Emissions	391,000		409,000	
GHG Emissions Target	199,000		60,000	
GHG Reductions Needed to Meet Target	192,000		349,000	
Total Reductions from Federal and State Regulations	186,000	= 223,000	272,000	= 311,000
Total Reductions from GHG Reduction Measures	37,000		39,000	
Remaining Gap to Target	(31,000)[1]		38,000	
Target Met?	Yes		No	

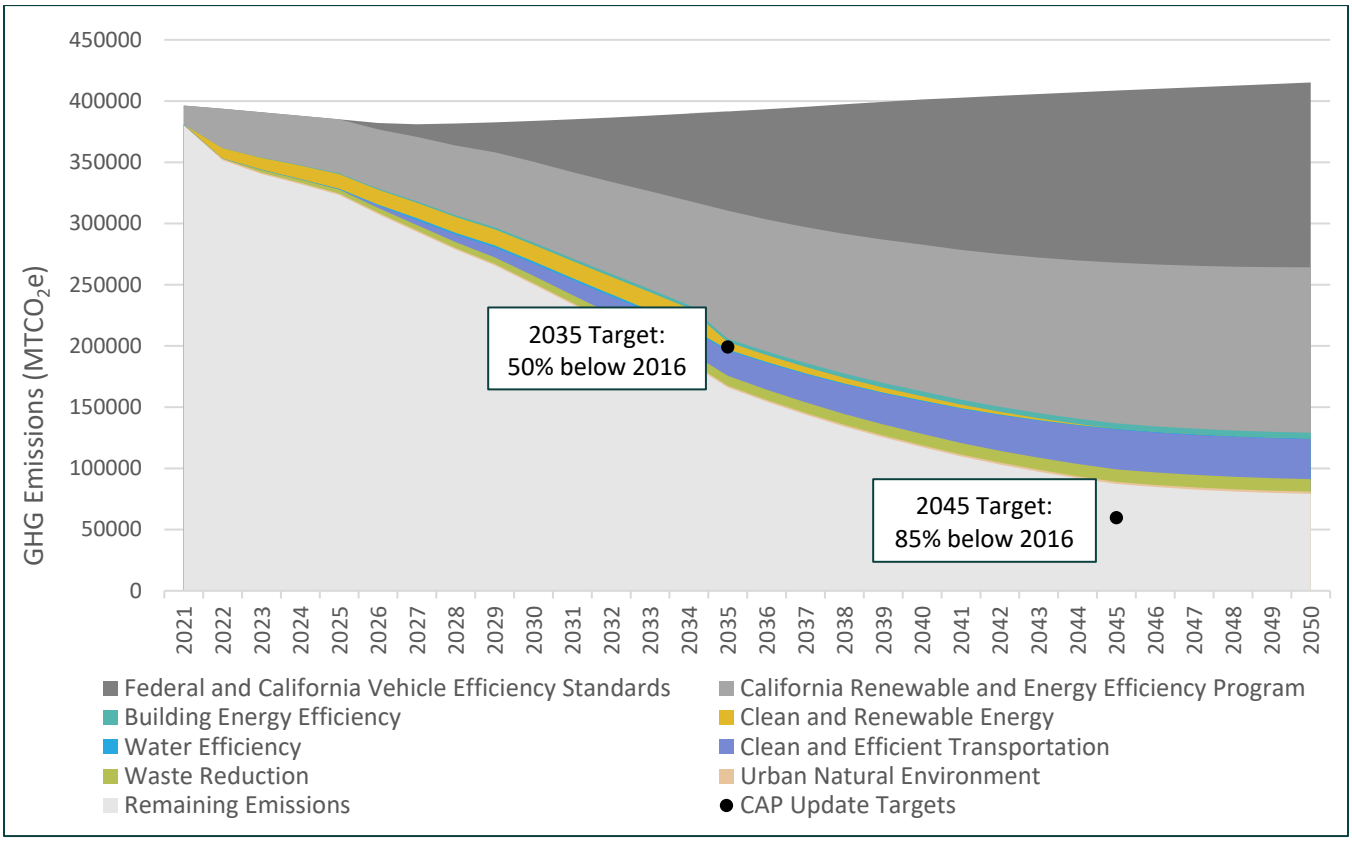
Notes: Actual GHG emissions have been rounded to the nearest thousand. Rounding was conducted independently after all calculations were made. / BAU = business-as-usual; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

[1] Indicates target has been achieved with a surplus of reductions.

Source: **Analysis conducted by EPIC in 2024**.

This CAP Update includes 21 GHG reduction measures—spread across six strategies—that will reduce GHG emissions in the City, which each contain a set of one or more actions that serve to implement the measure. The six strategies in which the measures are organized include: (1) Building Energy Efficiency; (2) Clean and Renewable Energy; (3) Clean and Efficient Transportation; (4) Water Efficiency; (5) Waste Reduction; and (6) Urban Natural Environment. Successful implementation of all the measures within each strategy will serve to reduce emissions from all inventory sectors. **Figure 3.2** below displays graphically how implementation of all the measures within each strategy will reduce GHG emissions (i.e., the colored wedges)—achieving the 2035 target and making meaningful progress towards the 2045 target—and **Table 3.2** summarizes all the GHG reduction strategies and measures included in this CAP Update, along with the GHG emissions reductions associated with each measure.

Figure 3.2 City of La Mesa Business-as-Usual Greenhouse Gas Emissions Forecast and Reductions from Measures



Notes: "Federal and California Vehicle Efficiency Standards" and "California Renewable and Energy Efficiency Program" represent all the Federal and State regulations that will result in GHG emissions reductions, which are further described in Appendix A. / % = percent; CAP Update = Climate Action Plan Update; GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: **Developed by EPIC in 2024**.

Table 3.2 Summary of Greenhouse Gas Reduction Strategies and Measures

Strategy	Measure	GHG Emissions Reductions ($MTCO_2e$)	
		2035	2045
Building Energy Efficiency (BE)	BE-1: Existing Building Retrofit Program	1,069	1,654
	BE-2: High Energy Performance Standards for New Construction	1,605	2,498
	BE-3: Municipal Facility Energy Retrofit Program	54	269
Clean and Renewable Energy (RE)	RE-1: Increase Renewable Energy and Energy Storage at Municipal Facilities	135	N/A
	RE-2: Increase Citywide Renewable Energy and Energy Storage	5,970	N/A
Clean and Efficient Transportation (T)	T-1: Bicycle and Pedestrian Infrastructure Development	1,937	2,227
	T-2: Transportation Demand Management Program	3,967	6,296
	T-3: Municipal Transportation Demand Management Program	21	12
	T-4: Mixed-Use and Transit-Oriented Development	10,425	12,727
	T-5: Alternative Refueling Infrastructure Development	N/A	N/A
	T-6: Municipal Fleet Transition	387	216
	T-7: Develop a Flexible Fleets Program	N/A	N/A
	T-8: Improve Traffic Flow	978	745

Strategy	Measure	GHG Emissions Reductions ($MTCO_2e$)	
		2035	2045
Water Efficiency (W)	W-1: Water Efficiency	581	581
	W-2: Local Water Supply Resilience	285	N/A
Waste Reduction (WR)	WR-1: Organic Waste Diversion	8,096	10,172
	WR-2: Construction and Demolition Waste Diversion Program		
	WR-3: Increase Waste Diversion and Encourage Circular Economy		
	WR-4: Recycled and Recovered Product Procurement		
	WR-5: Local Food Systems and Food Recovery		
Urban Natural Environment (U)	U-1: Increase Urban Forest Canopy Cover	1,461	1,689
	Total GHG Emissions Reductions from Measures	**36,970**	**39,086**

Notes: GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent; N/A = not applicable.

Source: **Analysis conducted by EPIC in 2024**.

The following subsections present each of the 21 GHG reduction measures in further detail, ordered by the way in which they are presented in **Table 3.2** above. Each measure is presented on its own individual page or series of pages where the header is color-coded to match the color of the strategy associated with that measure (also shown in **Table 3.2** above). The information that is presented for each measure includes:

- **Measure Description**: This is a short narrative that helps to explain or provide additional context on the measure, including how implementation of the measure will reduce GHG emissions, among other measure-specific considerations.
- **Co-Benefits**: Each measure has been analyzed to determine which co-benefit categories apply, directly or indirectly, to that measure. The applicable co-benefit categories for each measure are identified with the related co-benefit category icon, which were first identified in **Section 1.2** of this CAP Update.
- **GHG Emissions Reduction**: This represents the amount of GHG emissions, measured in $MTCO_2e$, that would be avoided through successful measure implementation for the CAP Update's target years of 2035 and 2045. Certain measures do not have a quantified GHG emissions reduction estimate for one or both target years, which may be due to reasons such as, but not limited to, lack of quantification methodologies or avoidance of double-counting GHG emissions reductions. Regardless of whether there are quantified GHG emissions reduction values for each measure, it is important to note that successful implementation of each measure will result in real and meaningful reductions of GHG emissions. Further details on quantification methods and results can be found in **Appendices A** and **B**.
- **Table of Actions**: Each measure includes one or more actions that will be taken to implement the measure. The actions are presented in the form of a table that includes each of the following sub-bullets.
  - **Action Number**: There are three types of actions that may be included for each measure: (1) main actions; (2) implementation actions; and (3) supporting actions. Main actions are the actions that represent a broad, quantifiable goal and are denoted with a simple letter and number combination (e.g., Action BE-3.1). Implementation actions are the more specific actionable tasks needed to implement a main action but are not necessarily quantifiable or trackable on their own. These actions are denoted with the same letter and number combination as their associated main action but are followed by an "IA" and a number (e.g., Action BE-3.1 IA-1). Lastly, supporting actions are actions that are not necessarily required to successfully or fully implement a main action but can increase the chances of successful implementation. Similar to implementation actions, supporting actions are also denoted with the same letter and number combination as their associated main action, but are followed by an "SA" and a number (e.g., BE-3.1 SA-1).

- **Action Description**: The action description briefly explains what the action is and what it will do.
- **Action Status**: Action status represents whether the action is (1) existing; (2) expanded; or (3) new. More specifically, an existing action refers to one that was listed in the original Climate Action Plan (CAP) with no modifications made for this CAP Update; an expanded action refers to one that was listed in the original CAP but has been expanded or modified in some way; and a new action refers to one that was not listed in the original CAP. Identifying action status aims to display the nexus between the original CAP and this CAP Update.
- **Lead Department/Division**: Each action identifies a lead City department (and often, a division within each department) to lead implementation of the action. While many actions will require collaboration across multiple departments and/or with community partners, the lead department is responsible for guiding implementation of the action. Each lead department (and division) is denoted with a one or two letter abbreviation, as identified in the callout box to the right.

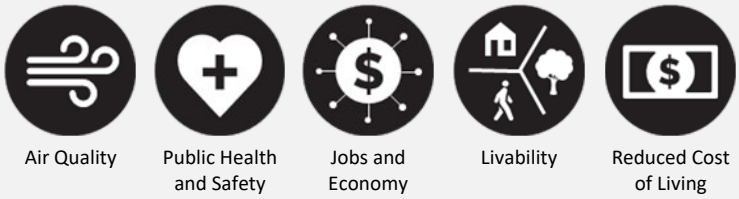
Departments and Divisions

B = Building
CD = Community Development
CM = City Manager
EN = Engineering
ES = Environmental Services
F = Finance
O = Operations
PL = Planning
PU = Purchasing
PW = Public Works

Full implementation details for all measures and actions (e.g., timescale, performance metrics/benchmarks, collaborating departments, funding status), in addition to those presented throughout this chapter, can be found in the forthcoming Implementation Cost Analysis (ICA), which is being prepared for and in conjunction with this CAP Update.

Measure BE-1: Existing Building Retrofit Program

Co-Benefits



GHG Emissions Reduction

2035: **1,069 $MTCO_2e$**
2045: **1,654 $MTCO_2e$**

Building energy use, which includes electricity and natural gas, collectively makes up more than one-third of the City's 2016 GHG inventory (as discussed in **Chapter 2**). As such, this measure, Measure BE-1, aims to address the challenge of reducing energy use comprehensively in existing buildings across the City. By promoting energy benchmarking, education, and targeted retrofits, among other activities, implementing the existing building retrofit program as called for in this measure can help transform the City's building stock into models of efficiency and sustainability. **Table 3.3** below includes all the actions the City will take to implement Measure BE-1, and more broadly, to empower the community with the knowledge and tools they need to make informed decisions about their energy use and to embrace a culture of energy awareness.

Table 3.3 Actions Under Measure BE-1

Action Number	Action Description	Action Status	Lead Department / Division
BE-1.1	Work with regional energy organizations, such as Community Power and SDG&E, to encourage La Mesa residential and non-residential energy users to participate in the existing statewide energy benchmarking program.	Expanded	PW / ES
BE-1.1 IA-1	Promote online energy benchmarking tools for residential and non-residential property owners, tenants, and managers to build awareness of their energy use, GHG footprint, and options for improving energy efficiency.	Existing	PW / ES
BE-1.1 IA-2	Provide building energy performance educational workshops and information to community members through City outreach channels.	New	PW / ES
BE-1.1 IA-3	Analyze energy program participation data to identify focus areas for increased outreach.	Existing	PW / ES
BE-1.1 IA-4	Conduct an analysis of building and housing stock and funding gap for existing building decarbonization opportunities annually.	New	CD / B
BE-1.2	Amend Title 14 of the La Mesa Municipal Code to require energy efficiency audits prior to building permit issuance for remodels and renovations and encourage and incentivize energy retrofits for those projects.	New	CD / B
BE-1.2 IA-1	Provide home energy efficiency outreach to identified priority residential property owners, managers, and tenants to ensure energy efficiency programs are implemented equitably.	New	PW / ES

Action Number	Action Description	Action Status	Lead Department / Division
BE-1.2 IA-2	Increase participation of the DIY Energy Saving & Sustainability Toolkit and develop a new outreach program that identifies quick-payback or high-impact retrofit projects that would be suitable in identified priority neighborhoods; include projects supported by current rebate and incentive programs and home energy audits.	Existing	PW / ES
BE-1.2 IA-3	Continue to partner with regional energy service providers such as Community Power and SDG&E, and other regional organizations to conduct home energy upgrade and energy efficiency outreach to community members with examples of local case studies demonstrating actual energy and cost savings, simple payback calculations, challenges faced, and lessons learned.	Existing	PW / ES
BE-1.2 IA-4	Partner with organizations that provide assistance to priority populations, such as low-income and elderly households, to develop targeted outreach program that promotes federal, state, and regional weatherization programs, including development of education materials that highlight co-benefits.	Existing	PW / ES
BE-1.2 IA-5	Increase visibility and community familiarity with home weatherization and energy efficiency programs through City outreach channels.	Existing	PW / ES
BE-1.2 IA-6	Develop partnerships with regional energy service providers and other organizations to encourage information sharing on number and type of retrofit installations performed annually community-wide.	Expanded	PW / ES
BE-1.2 IA-7	Explore possible cost-effective citywide policies to further decarbonize existing building stock.	New	CD/B

Notes: City = City of La Mesa; DIY = do-it-yourself; GHG = greenhouse gas; Community Power = San Diego Community Power; SDG&E = San Diego Gas and Electric; State = State of California government.

Source: **Developed by EPIC in 2024**.

Measure BE-2: High Energy Performance Standards for New Construction

Co-Benefits

Air Quality | Public Health and Safety | Jobs and Economy | Livability | Reduced Cost of Living

GHG Emissions Reduction

2035: **1,605 $MTCO_2e$**
2045: **2,498 $MTCO_2e$**

Measure BE-2 shifts the focus from existing buildings, as discussed in Measure BE-1, to new buildings—specifically on raising the bar for energy performance in new construction and major renovation projects. By establishing ambitious high energy performance-based standards more efficient than State energy standards, promoting all-electric appliances, and equipping City staff with the latest knowledge on incentives and best practices, among other activities, this measure will help to reduce GHG emissions from the City's stock of new buildings and become a testament to the City's commitment to a low-carbon future. **Table 3.4** below includes all the actions the City will undertake to implement Measure BE-2.

Table 3.4 Actions Under Measure BE-2

Action Number	Action Description	Action Status	Lead Department / Division
BE-2.1	Develop and adopt a performance-based standard for new residential construction projects.	New	CD
BE-2.2	Explore a performance-based standard for major renovations and new non-residential construction projects.	New	CD
BE-2.2 IA-1	Develop, or partner with an organization to, provide an electric home appliance program such as cooktops.	New	PW / ES
BE-2.2 IA-2	Continue to provide training and resources to Planning Division and Building Division staff regarding available sources for rebates/financing/incentives, as well as printed pamphlets or FAQ sheets for distribution to customers seeking permitting for new construction or major renovation projects.	Existing	PW / ES

Note: FAQ = frequently asked questions.

Source: **Developed by EPIC in 2024**.

Measure BE-3: Municipal Facility Energy Retrofit Program

Reducing GHG emissions from energy use throughout the community starts first with the City exemplifying initiative and being proactive in facilitating more sustainable retrofits for its own buildings, facilities, and assets. This measure, Measure BE-3, calls for the implementation of a comprehensive municipal facility energy retrofit program intended to ensure that all City buildings, facilities, and assets are energy efficient and/or built in a way that minimizes energy use through activities such as lighting system upgrades, and energy use optimization, among others. Successful implementation of this measure will result in notable reductions in GHG emissions; all the actions under Measure BE-3 are presented in **Table 3.5** below.

Co-Benefits

Jobs and Economy | Livability

GHG Emissions Reduction

2035: **54 $MTCO_2e$**
2045: **269 $MTCO_2e$**

Table 3.5 Actions Under Measure BE-3

Action Number	Action Description	Action Status	Lead Department / Division
BE-3.1	Work with an ESCO to complete a comprehensive energy program to reduce municipal energy usage.	Existing	PW / O
BE-3.1 IA-1	Develop building energy efficiency policy that sets a LEED Platinum target for construction of new City facilities and assets.	New	PW / EN
BE-3.1 IA-2	Work with an ESCO to develop a financing strategy for projects (e.g., utility rebates and incentives, grants, on-bill financing, low interest loans).	Existing	PW / O
BE-3.1 IA-3	Develop an internal strategy for retrofit projects that accounts for building/facility retrofit work and incorporates energy efficiency components into these planned projects.	Expanded	PW / O
BE-3.1 IA-4	Revisit retrofit opportunities and municipal efficiency goal during the biennial budget and CIP processes.	Expanded	PW / EN
BE-3.1 IA-5	Share case study on municipal efficiency projects through City's outreach channels to encourage residents and businesses to explore efficiency strategies in their buildings.	Expanded	PW / ES
BE-3.1 IA-6	Work with an ESCO to develop energy-efficient lighting replacement strategy at City-owned facilities and recreation areas (e.g., parks, pathways, restroom facilities, area lighting, sports field lighting).	Existing	PW / O
BE-3.1 IA-7	Work with an ESCO to develop a financing strategy for projects (e.g., utility rebates and incentives, grants, on-bill financing, low interest loans, etc.) to retrofit identified public lighting opportunities.	Existing	PW / O
BE-3.1 IA-8	Continue to monitor advancements in lighting technology, rebate/financing programs, and other factors that could prompt City to pursue deeper energy savings in municipally owned streetlights.	Existing	PW / ES
BE-3.1 SA-1	Highlight additional co-benefits of projects through City outreach channels, such as improved building occupant comfort, energy security, public health, and community resilience.	Expanded	PW / ES

Action Number	Action Description	Action Status	Lead Department / Division
BE-3.1 SA-2	Work with recognized energy financing providers to increase awareness and participation among residents and businesses.	Existing	PW / ES
BE-3.1 SA-3	Leverage regional collaboration efforts, including SDRCC and SANDAG, to share local successes and best practices in energy retrofits.	Existing	PW / ES
BE-3.1 SA-4	Support and participate in regional efforts that identify and pursue regional funding opportunities for energy efficiency or other GHG emission reduction projects.	Existing	PW / ES

Notes: CIP = Capital Improvement Program; City = City of La Mesa; ESCO = energy service company; GHG = greenhouse gas; LEED = Leadership in Energy and Environmental Design; SANDAG = San Diego Association of Governments; SDRCC = San Diego Regional Climate Collaborative.

Source: **Developed by EPIC in 2024**.

Measure RE-1: Increase Renewable Energy and Energy Storage at Municipal Facilities

Co-Benefits

Air Quality

Jobs and Economy

GHG Emissions Reduction

2035: **135 $MTCO_2e$**
2045: **N/A**

The City recognizes the importance of leading by example in the transition towards clean and renewable energy. Measure RE-1 focuses on increasing renewable energy generation and use and energy storage capabilities at City facilities, exemplifying the City's commitment to sustainability and GHG emissions reduction. This measure aims to reduce the carbon footprint of local government operations by ensuring that all electricity used by the City is procured from 100 percent renewable sources, and additionally, by identifying City-owned sites that are suitable for on-site renewable energy generation and battery storage. By generating renewable energy on-site, the City can reduce its reliance on grid electricity, potentially lowering operational costs (in addition to reducing GHG emissions). Battery storage is also key as it will allow the City to store excess renewable energy generated during peak production times for later use. The actions outlined in **Table 3.6** detail how the City will implement Measure RE-1.

Table 3.6 Actions Under Measure RE-1

Action Number	Action Description	Action Status	Lead Department / Division
RE-1.1	Continue to enroll all new municipal electricity accounts into existing Community Power Power100 (100% renewable energy program) including buildings, streetlights, and other municipal facilities.	Existing	PW / O
RE-1.1 IA-1	Work with an ESCO to identify opportunity sites on City buildings or parking lots for municipal on-site renewable energy and battery storage installation and begin planning for construction.	Existing	PW / EN

Notes: % = percent; City = City of La Mesa; ESCO = energy service company; Community Power = San Diego Community Power.

Source: **Developed by EPIC in 2024**.

Measure RE-2: Increase Citywide Renewable Energy and Energy Storage

Building upon the City's efforts to increase renewable energy and energy storage at municipal facilities, as discussed in Measure RE-1, Measure RE-2 is focused on increasing renewable energy and energy storage across the City for both residential and commercial properties. Through implementation of the actions detailed in **Table 3.7**, Measure RE-2 will allow the City to create a supportive environment for renewable energy and energy storage adoption through educational initiatives, streamlined permitting processes, and incentive programs, among others. This citywide approach aligns with California's ambitious clean energy goals and positions La Mesa as a leader in local climate action, while potentially offering long-term energy cost savings for residents and businesses.

Co-Benefits

Air Quality | Jobs and Economy | Resilience

GHG Emissions Reduction

2035: **5,970 $MTCO_2e$**
2045: **N/A**

Table 3.7 Actions Under Measure RE-2

Action Number	Action Description	Action Status	Lead Department / Division
RE-2.1	Continue to enroll new residents and businesses into existing default Community Power PowerOn (55% renewable energy program).	Existing	PW / ES
RE-2.1 IA-1	Design an education program for residents and businesses to encourage upgrading to Community Power Power100 (100% renewable electricity program).	Expanded	PW / ES
RE-2.1 IA-2	Upon completion of the discretionary review, further streamline permitting process (e.g., building, electric, plumbing) for on-site renewable energy and battery storage.	Expanded	CD / B
RE-2.1 IA-3	Train City's Building Division staff in City's solar permitting process in order to provide informational materials and assist community members through process.	Existing	CD / B
RE-2.1 IA-4	Provide on-site renewable energy and battery storage information and La Mesa success stories on City's website and other City outreach channels.	Existing	PW / ES
RE-2.1 IA-5	Review all applicable building, zoning, and other codes and ordinances that are potential regulatory barriers to the installation of on-site renewable energy and battery storage in residential and non-residential construction.	Existing	CD / B
RE-2.1 IA-6	Offer permit incentives for permit applicants that demonstrate meeting the building energy thresholds developed in Measure BE-2 by reducing costs associated with City requirements.	New	CD
RE-2.1 IA-7	Continue to provide training to City's Building Division staff regarding available sources for on-site renewable energy and battery storage rebates and incentives for residents and businesses.	Existing	CD

Action Number	Action Description	Action Status	Lead Department / Division
RE-2.1 SA-1	Identify and work with regional partners to develop comprehensive outreach campaign to increase participation in renewable energy and battery storage installation programs, including directory of existing rebates/incentive programs, explanation of simple-payback calculations for renewable energy systems, and technical assistance.	Existing	PW / ES
RE-2.1 SA-2	Leverage existing on-site renewable energy and battery storage informational materials from regional, State, and Federal organizations.	Existing	PW / ES

Notes: % = percent; City = City of La Mesa; Community Power = San Diego Community Power; State = State of California government.

Source: **Developed by EPIC in 2024**.

Measure T-1: Bicycle and Pedestrian Infrastructure Development

Co-Benefits

GHG Emissions Reduction

2035: **1,937 $MTCO_2e$**
2045: **2,227 $MTCO_2e$**

Of all the sectors included in the state's GHG inventory, the transportation sector accounts for about 38 percent of California's total GHG emissions—the most of any sector (CARB 2023). As reported in **Chapter 2**, this sector is also the largest in the City's inventory. Most of these transportation-related emissions come from on-road vehicles (i.e., passenger and heavy-duty vehicles), which is a result of historic, car-focused transportation planning. One of the most meaningful ways in which transportation-related emissions can be reduced is by promoting active transportation through bicycle and pedestrian infrastructure improvements, which is what this measure, Measure T-1, seeks to accomplish. By creating safe, accessible, and well-connected networks of bike lanes, sidewalks, and other features meant to enhance bicycle and pedestrian use, it could encourage a widespread modal shift from cars to active transportation for short- and medium-distance trips, thus reducing vehicle miles traveled (VMT) and associated GHG emissions. Additionally, investing in robust bicycle and pedestrian infrastructure can create a positive feedback loop, where active transportation becomes increasingly normalized within the community, leading to greater demand for such infrastructure. **Table 3.8** below includes all of the actions the City will undertake to implement the bicycle and pedestrian infrastructure improvements called for in this measure, Measure T-1.

Table 3.8 Actions Under Measure T-1

Action Number	Action Description	Action Status	Lead Department / Division
T-1.1	Prioritize implementation of pedestrian enhancements as identified in City's Complete Streets Integrated Design Manual, Vision Zero Policy, Complete Streets Plan, Local Road Safety and Improvement Plan, Sidewalk Master Plan, Urban Trails Mobility Plan, and Parks Master Plan.	Existing	PW / EN
T-1.1 IA-1	Evaluate sidewalk infrastructure in La Mesa and identify sidewalk improvements such as extensions, corner extensions, raised intersections, raised crosswalks, pavers, and road closures.	Expanded	PW / EN
T-1.1 IA-2	Identify traffic calming measures that can improve pedestrian or bicycling experience including corner extensions and bulb-outs, mini-roundabouts, raised intersection, pavers, and roadway reconfigurations.	Existing	PW / EN
T-1.2	Prioritize bicycle infrastructure improvements as identified in City's Bicycle Facilities and Alternative Transportation Plan.	Existing	PW / EN
T-1.2 IA-1	Install new and upgrade existing bicycle facilities to be bike paths (Class 1), bike lanes (Class 2), or cycle tracks (Class 4).	Expanded	PW / EN

Action Number	Action Description	Action Status	Lead Department / Division
T-1.2 IA-2	Prioritize the installation of separated bike lanes (Class 1) and cycle tracks (Class 4) where feasible.	Existing	PW / EN
T-1.2 IA-3	Evaluate streets in La Mesa that could be re-designed with designated bicycle facilities as well as support other active transportation modes.	Expanded	PW / EN
T-1.2 IA-4	Encourage businesses to provide end of trip amenities for bicycle riders (e.g., showers, lockers) by supporting programs such as SANDAG's sustainable transportation services to support employees' alternative transportation options.	Existing	PW / ES
T-1.2 IA-5	Identify and install bicycle parking locations at public locations, e.g., in front of retail, restaurants, multi-family residential properties, and employment centers.	Existing	PW / EN
T-1.2 IA-6	Develop a map to visualize existing bicycle facilities in and around La Mesa and circulate to community members.	New	PW / EN
T-1.2 IA-7	Improve existing bicycle facilities through enhanced signage, striping, surface changes, and paint color.	Expanded	PW / EN
T-1.2 IA-8	Work with SANDAG and other regional organizations to continue to increase bicycle safety and bicycle-conscious driving education activities and events throughout the community and at local schools.	Existing	PW / ES
T-1.2 IA-9	Work with community organizations to provide additional bicycle riding courses targeting youth (e.g. bike rodeos, trainings at schools).	Existing	PW / ES
T-1.2 IA-10	Solicit comments from community members and local cycling clubs/advocacy groups to identify locations in need of bicycle improvements in La Mesa, as part of regular implementation of Bicycle Facilities and Alternative Transportation Plan.	Expanded	PW / ES

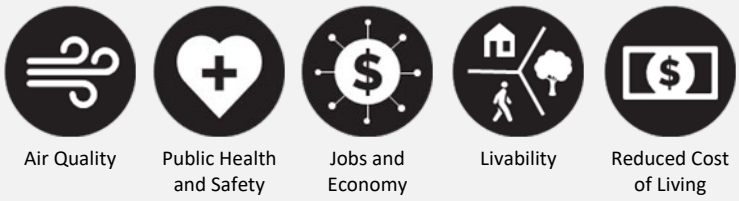
Notes: City = City of La Mesa; SANDAG = San Diego Association of Governments.

Source: **Developed by EPIC in 2024**.

Measure T-2: Transportation Demand Management Program

Transportation demand management (TDM) is another important way to address transportation-related GHG emissions. According to the San Diego Association of Governments (SANDAG), TDM refers to policies and programs that help reduce vehicular, commute-related traffic congestion by maximizing travel options, which may include those that promote carpooling, vanpooling, taking transit, biking, and walking to work (SANDAG 2020). When used widely, these alternatives to using passenger vehicles, combined with telework and compressed work schedules, can significantly reduce congestion on roadways and reduce GHG emissions. **Table 3.9** below includes all of the community-focused TDM actions the City will undertake to implement this measure, Measure T-2.

Co-Benefits



GHG Emissions Reduction

2035: **3,967 $MTCO_2e$**

2045: **6,296 $MTCO_2e$**

Table 3.9 Actions Under Measure T-2

Action Number	Action Description	Action Status	Lead Department / Division
T-2.1	Develop outreach campaign in partnership with SANDAG's Sustainable Transportation Services program to increase TDM program participation from businesses (e.g., large employers, hospitals) in La Mesa.	Existing	PW / ES
T-2.1 IA-1	Provide incentives for new developments to incorporate TDM strategies.	New	CD
T-2.1 IA-2	Identify employers that would benefit from customized commuter benefits program offered through SANDAG's Sustainable Transportation Services.	New	PW / ES
T-2.1 IA-3	Identify local employers currently offering commuter benefits programs, and host knowledge-sharing workshops with identified local businesses, and regional agency representatives to discuss program structures and cost/benefit considerations.	New	PW / ES
T-2.2	Develop and adopt TDM ordinance effecting multi-family and commercial new construction for commuters as part of development review to include transportation benefits such as carpool/vanpool priority parking areas, electric vehicle charging stations, secure bicycle parking, access to locker room/shower facilities, and possibly subsidized transit passes.	New	CD
T-2.2 IA-1	Integrate TDM practices into City's development review process with City's Community Development department.	New	CD
T-2.2 IA-2	Provide information to residents, businesses, and building developers on the definition of TDM, strategies used, and potential benefits through City outreach channels.	Expanded	PW / ES

Notes: City = City of La Mesa; SANDAG = San Diego Association of Governments; TDM = transportation demand management.

Source: **Developed by EPIC in 2024**.

Measure T-3: Municipal Transportation Demand Management Program

Co-Benefits

Air Quality | Public Health and Safety | Livability | Reduced Cost of Living

GHG Emissions Reduction

2035: **21 $MTCO_2e$**
2045: **12 $MTCO_2e$**

While Measure T-2 is focused on TDM for the broader community, this measure, Measure T-3, emphasizes TDM for City staff. As noted previously, TDM plays a crucial role in reducing GHG emissions, and implementing a municipal TDM program for City staff allows the City to set a standard for broader TDM execution throughout the community. By maximizing and encouraging alternate commute options (e.g., public transit, telework) for City staff, the City will be exemplifying its commitment to sustainability. Additionally, it recognizes that City staff are not just policymakers and service providers, but also members of the community and commuters who contribute to local traffic patterns and emissions. **Table 3.10** below includes all the actions under Measure T-3, detailing the City's approach for implementing a municipal TDM program.

Table 3.10 Actions Under Measure T-3

Action Number	Action Description	Action Status	Lead Department / Division
T-3.1	Develop employee commuter program for City staff to reduce single-occupancy vehicle trips during commute to and from work, such as free or reduced public transit fares.	New	CM
T-3.1 IA-1	Develop hybrid telecommute schedule for City staff to reduce vehicle miles traveled.	New	CM
T-3.1 IA-2	Provide flexible fleet options for City employees to use alternative modes of transportation as fleet vehicles.	New	PW / ES
T-3.1 IA-3	Provide transportation marketing services and communication campaigns to City staff in partnership with SANDAG's Sustainable Transportation Services program to increase TDM program participation.	Existing	PW / ES

Notes: City = City of La Mesa; SANDAG = San Diego Association of Governments; TDM = transportation demand management.

Source: **Developed by EPIC in 2024**.

Measure T-4: Mixed-Use and Transit-Oriented Development

Measure T-4 focuses on promoting mixed-use and transit-oriented development within the City, which is an effective medium for reducing transportation-related GHG emissions. Mixed-use development blends multiple uses, such as residential and commercial (among other uses) into one space, while transit-oriented development features high-density and walkable areas around transit hubs. When combined, these types of development can result in vibrant, connected, and thriving communities that put people first. Encouraging these development patterns can foster communities where residents can live, work, shop play, and access services within close proximity, maximizing the use of public transit infrastructure and reducing the need for long commutes and personal vehicle use. **Table 3.11** below displays how the City will implement Measure T-4, outlining its approach in supporting mixed-use and transit-oriented development.

Co-Benefits

GHG Emissions Reduction

2035: **10,425 $MTCO_2e$**
2045: **12,727 $MTCO_2e$**

Table 3.11 Actions Under Measure T-4

Action Number	Action Description	Action Status	Lead Department / Division
T-4.1	Continue to identify areas that could support increase in population or employment within 1/4-to-1/2-mile walking distance to transit stops (e.g., trolley station areas). Support high density affordable housing in the vicinity of Amaya Trolley Station and Spring Street Trolley Station.	Existing	CD / PL
T-4.1 IA-1	Continue to work with SANDAG, MTS, and other regional jurisdictions to enhance local transit service and micro-mobility options in designated higher-density, mixed-use development areas to take advantage of proximity to new potential transit riders.	Existing	CD
T-4.1 IA-2	Participate in future regional planning efforts and programs that continue to support long-term VMT reduction opportunities in La Mesa.	Existing	CD
T-4.1 IA-3	Evaluate infrastructure capacity for higher-density development areas and develop prioritization and funding strategies to complete necessary infrastructure improvements, along with amenities that could be constructed to attract investment.	Existing	PW / EN
T-4.1 IA-4	Conduct parking surveys in areas with good transit access (e.g., downtown La Mesa) to determine if existing parking is adequate in quantity and location for future increased development density.	New	CM
T-4.1 IA-5	Pending conclusions of parking analysis (i.e., if existing parking standards are found to be too high), reduce off-street parking requirements in these areas for transit-oriented and mixed-use developments, for developments providing shared parking, and/or for developments that incorporate certain travel demand management measures.	New	CD

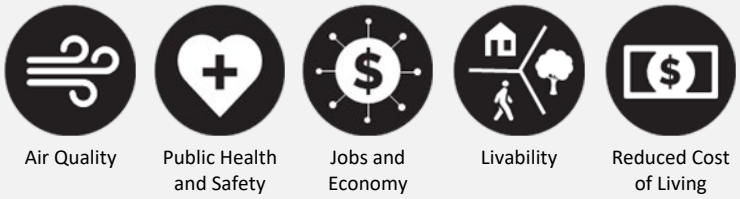
Action Number	Action Description	Action Status	Lead Department / Division
T-4.1 IA-6	Adopt ordinance amendments to allow parking reductions where appropriate, in conjunction with adjusting pricing of public parking spaces.	New	CD
T-4.1 IA-7	Partner with SANDAG and regional organizations to encourage and identify opportunities to incentivize public transit.	Expanded	PW / ES

Notes: MTS = San Diego Metropolitan Transit System; SANDAG = San Diego Association of Governments; VMT = vehicle miles traveled.

Source: **Developed by EPIC in 2024**.

Measure T-5: Alternative Refueling Infrastructure Development

Co-Benefits



GHG Emissions Reduction

2035: **N/A**
2045: **N/A**

Part of reimagining transportation to become more sustainable within the City and across the state requires an understanding that the need for on-road vehicles will not be fully eliminated in the near future. In cases where on-road vehicle use is necessary, accelerating the adoption of electric vehicles (EVs), and zero-emission vehicles (ZEVs) more broadly, in place of fossil-fuel powered vehicles is the most effective way of reducing associated GHG emissions. For widespread EV and ZEV adoption, however, there needs to be adequate charging and refueling infrastructure in place, which is what this measure, Measure T-5, is centered on. **Table 3.12** below includes all of the actions the City will undertake to implement Measure T-5 and to ensure that there are plenty of charging and refueling options for residents and visitors to use for their EVs and ZEVs.

Table 3.12 Actions Under Measure T-5

Action Number	Action Description	Action Status	Lead Department / Division
T-5.1	Require electric vehicle charging infrastructure installation for new multi-family and non-residential constructions per Tier 1 (or 2) CALGreen Code.	Expanded	CD / B
T-5.2	Offer incentives to encourage installation of public-use EV charging units in parking lots of new non-residential and specified multi-family property construction.	New	CD
T-5.2 IA-1	As alternative fueling and recharging station options become available throughout City and region, provide links to maps showing their location on City's website and outreach channels.	Existing	PW / ES
T-5.2 IA-2	Include regularly updated information on available clean vehicle rebate and incentive programs on City's website and outreach channels.	Existing	PW / ES
T-5.3	Develop and implement the Electric Vehicle Charging Station Master Plan to increase installations of public available EV charging infrastructure in non-residential and multi-family buildings.	Expanded	PW / ES
T-5.3 IA-1	Provide resources to assist property owners to evaluate options for EV charging station locations.	Expanded	PW / ES
T-5.3 IA-2	Partner with regional agencies and other jurisdictions in exploring cost-effective ways to increase alternative vehicle charging /refueling infrastructure available to public use within community, through grant-funded opportunities or partnerships with technology providers (e.g., EV charging infrastructure providers).	Expanded	PW / ES

Action Number	Action Description	Action Status	Lead Department / Division
T-5.3 IA-3	Participate in regional discussions on technical aspects of alternative refueling strategies such as infrastructure development, as it relates to increased electricity demand and long-term infrastructure development strategies to support broad regional transition towards alternative fuel vehicle options.	Existing	PW / ES
T-5.3 IA-4	Install EV charging stations at City facilities available for public use.	New	PW / ES

Notes: CALGreen = California Green Building Standards Code; City = City of La Mesa; EV = electric vehicle.

Source: **Developed by EPIC in 2024**.

Measure T-6: Municipal Fleet Transition

Co-Benefits

Air Quality | Public Health and Safety | Resilience

GHG Emissions Reduction

2035: **387 $MTCO_2e$**
2045: **216 $MTCO_2e$**

In addition to expanding charging and refueling options for EVs and ZEVs across the City to promote their use over fossil-fuel powered vehicles, as clarified in Measure T-5, Measure T-6 puts the City in the metaphorical "driver's seat" of sustainable transportation by gradually transitioning the municipal on-road vehicle fleet to EVs and ZEVs. Implementation of this measure combines strategic planning, regional collaboration, and responsible procurement practices, and additionally, it will demonstrate the City's commitment to reducing GHG emissions from the transportation sector. As City vehicles cruise the streets of La Mesa, they will do more than just transport City staff—they will showcase the potential of clean transportation and serve as an example to encourage the broader community to follow. **Table 3.13** below outlines all the actions the City will take to implement Measure T-6.

Table 3.13 Actions Under Measure T-6

Action Number	Action Description	Action Status	Lead Department / Division
T-6.1	Conduct a municipal fleet assessment to support a zero-emissions municipal fleet low-carbon target.	Existing	PW / EN
T-6.1 IA-1	Develop standardized municipal fleet replacement schedule and refer to vehicle fleet assessment when deciding which vehicles to replace with alternative-fuel vehicles.	Existing	PW / O
T-6.1 IA-2	Update fleet assessment regularly to identify opportunities for future vehicle replacement as part of the City's budget process.	Existing	PW / O
T-6.1 IA-3	Explore joint procurement options with other area jurisdictions to leverage regional shift towards cleaner municipal fleets into lower per vehicle costs.	Existing	PW / O
T-6.1 IA-4	Connect with professional and vendor associations to identify partnership opportunities, competitive vendor pricing, and industry best management practices.	Existing	PW / O
T-6.1 IA-5	Pursue grant funding, vendors' promotional offers, or regional joint-procurement partnerships to install alternative fuel charging stations at City facilities for use by municipal vehicles and public.	Existing	PW / ES
T-6.1 IA-6	Include new vehicles' carbon emissions and fuel efficiency as regular procurement criteria.	Existing	F / PU

Note: City = City of La Mesa.

Source: **Developed by EPIC in 2024**.

Measure T-7: Develop a Flexible Fleets Program

Measure T-7 reimagines urban mobility for the City by bridging gaps in the existing transit network and offering flexible, on-demand solutions that cater to the diverse needs of the community. By embracing innovative mobility options (e.g., micro-transit) and seeking ways to expand these options, this measure aims to further reduce the reliance on personal vehicles, which can help reduce GHG emissions. **Table 3.14** below includes a range of actions the City will take to implement this Measure T-7.

Co-Benefits

GHG Emissions Reduction

2035: **N/A**
2045: **N/A**

Table 3.14 Actions Under Measure T-7

Action Number	Action Description	Action Status	Lead Department / Division
T-7.1	Collaborate with regional agencies to determine the types of flexible fleet (e.g., micro-transit or neighborhood electric vehicle shuttles) that connect popular destinations (downtown village) in the City.	New	PW / ES
T-7.1 IA-1	Identify ways for Flexible Fleets to supplement existing fixed-route transit service and how best to design transfers between modes.	New	PW / EN
T-7.1 IA-2	Develop a marketing and outreach plan that adequately informs community members of Flexible Fleet services.	New	PW / ES
T-7.1 IA-3	Identify partners within and around the City (e.g., large employers, universities/institutions, public agencies) to assist with marketing and coordination with public transit and other TDM efforts.	New	PW / ES
T-7.1 SA-1	Adopt a no-idling City policy for internal combustion engine vehicles to prevent vehicles from unnecessarily idling in municipal parking lots.	New	PW / ES
T-7.1 SA-2	Collaborate with LMSVSD, Helix Charter High School, Grossmont Union High School, and private schools to improve the safety and efficiency of the drop-off and pick-up process at La Mesa schools to reduce internal combustion engine vehicle idling time.	Expanded	PW / ES
T-7.1 SA-3	Identify areas in La Mesa that can be transformed into pedestrian friendly, car-free zones or zero emission zones.	New	PW / ES
T-7.2	Connect with vendors and other potential regional partners to develop a citywide bicycle or electric bicycle share program.	New	PW / ES
T-7.2 IA-1	Identify space requirements within the public right-of-way and assess the location and design of docking stations and corrals.	New	PW / EN

Notes: City = City of La Mesa; LMSVSD = La Mesa-Spring Valley School District; TDM = transportation demand management.

Source: **Developed by EPIC in 2024**.

Measure T-8: Improve Traffic Flow

Measure T-8 focuses on improving traffic flow throughout the City by minimizing vehicle idling time and improving overall transportation efficiency. Specifically, by periodically evaluating and adjusting traffic light timing to respond to changing traffic patterns, and by establishing more roundabouts, this measure seeks to decrease congestion, reduce travel times, and ultimately lower GHG emissions. **Table 3.15** below outlines all the actions the City will take to implement Measure T-8.

Co-Benefits

Air Quality | Public Health and Safety | Jobs and Economy | Livability

GHG Emissions Reduction

2035: **978 $MTCO_2e$**
2045: **745 $MTCO_2e$**

Table 3.15 Actions Under Measure T-8

Action Number	Action Description	Action Status	Lead Department / Division
T-8.1	Improve traffic flow by retiming traffic lights and installing roundabouts at select intersections throughout the City.	New	PW / EN
T-8.1 IA-1	Periodically evaluate traffic light timing and adjust timing to improve vehicular flow, as needed.	New	PW / EN
T-8.1 IA-2	Identify grant opportunities or other funding to install roundabouts.	New	PW / EN
T-8.1 IA-3	Establish and implement capital improvement project(s) to install roundabouts.	New	PW / EN

Note: City = City of La Mesa.

Source: **Developed by EPIC in 2024**.

Measure W-1: Water Efficiency

The first measure in the City's broader water strategy is Measure W-1, which recognizes that wise water use is not just about conservation; it is also a powerful tool in efforts to reduce GHG emissions and ensure longer-term sustainability of water supplies. Generally, reducing water consumption also reduces the energy required for pumping, treating, and distributing water, thereby reducing related GHG emissions. Successful implementation of this measure will result in a City where water-wise practices are the norm, from homes and businesses to parks and municipal facilities. It combines community engagement, technological innovation, and policy development to create a culture of water consciousness, which are all exemplified in the actions listed in **Table 3.16** below.

Co-Benefits

Reduced Cost of Living | Resilience

GHG Emissions Reduction

2035: **581 $MTCO_2e$**
2045: **581 $MTCO_2e$**

Table 3.16 Actions Under Measure W-1

Action Number	Action Description	Action Status	Lead Department / Division
W-1.1	Participate in and collaborate with Helix Water District outreach programs to increase community awareness and activity in water conservation and efficiency programs.	Existing	PW / ES
W-1.1 IA-1	Continue to work with Helix Water District to assist in the promotion of free water audits for residents and local businesses.	Existing	PW / ES
W-1.1 IA-2	Include information related to rebates, incentives, and financing options for water conserving retrofits on the City's website and outreach channels.	Existing	PW / ES
W-1.1 IA-3	Include La Mesa success stories that used water conservation rebates, incentives, or financing options to demonstrate what types of improvements are possible.	New	PW / ES
W-1.1 IA-4	Develop and implement a La Mesa Rainwater Collection rebate program.	New	PW / EN
W-1.1 IA-5	Develop an education program to inform residents about using runoff and rainwater capture basins and swales in all planting projects.	New	PW / ES
W-1.1 IA-6	Provide graywater education program resources and continue hosting workshops with local environmental groups, Helix Water District, and other community organizations, and enlist their help in advertising program and benefits of graywater systems.	Existing	PW / ES
W-1.1 IA-7	Prepare informational material on graywater system designs for Building Division staff to share during building design and permitting phase; provide links to graywater education program informational materials on City's website.	Expanded	PW / ES

Action Number	Action Description	Action Status	Lead Department / Division
W-1.2	Establish a water reduction target for City buildings and facilities to be achieved through education, indoor plumbing and appliance retrofits, use of advanced irrigation systems, installation and use of rainwater harvesting, and installation of low water use landscapes in medians, parks, and around City buildings and facilities.	New	PW / ES
W-1.2 IA-1	Establish operational framework for benchmarking, tracking, and reviewing municipal water use for City buildings and facilities at the meter level to allow identification of improper irrigation system use, leaks, or other wasteful water activities.	New	PW / ES
W-1.2 IA-2	Track sudden rises in water use for City buildings and facilities through smart water meters or through monthly bills.	Expanded	PW / ES
W-1.2 IA-3	Educate City employees on how to identify and report leaks; post signs in restrooms and kitchens to encourage reporting of leaks.	New	PW / ES

Note: City = City of La Mesa.

Source: **Developed by EPIC in 2024**.

Measure W-2: Local Water Supply Resilience

Measure W-2 charts a course towards water independence and sustainability for La Mesa, embracing technological innovation to maintain resilient and diversified water supplies in the City. At its core, this measure supports the innovative Pure Water Program, which will create a new, local, and drought-proof safe, high quality drinking water supply by purifying recycled water and will ultimately produce up to 30 percent of the region's drinking water by 2035. This shift will not only bolster the City's water security but will also reduce reliance on the process of importing and transporting water from more distant sources, thereby reducing GHG emissions. As climate change threatens traditional water sources, the City and other partners across the region are positioning themselves at the forefront of sustainable water management. The actions the City will undertake to implement this measure are listed in **Table 3.17** below.

Co-Benefits

Jobs and Economy

Resilience

GHG Emissions Reduction

2035: **285 $MTCO_2e$**

2045: **N/A**

Table 3.17 Actions Under Measure W-2

Action Number	Action Description	Action Status	Lead Department / Division
W-2.1	Support Pure Water San Diego Program.	Existing	PW / EN
W-2.1 IA-1	Participate in the Metro Wastewater Joint Powers Authority Pure Water San Diego Program to convert wastewater to potable drinking water and reduce need of importing water from other regions.	Existing	PW / EN

Source: **Developed by EPIC in 2024**.

Measure WR-1: Organic Waste Diversion

As part of the City's broader waste reduction strategy, Measure WR-1 is focused on the critical task of diverting organic waste away from landfills. Organic materials, such as yard trimmings and food scraps, release methane (CH_4)—a potent GHG—when they decompose in landfills. By ensuring compliance with existing law, working with the City's waste management partner, and conducting related outreach and education, the City can further redirect organic materials into more sustainable pathways. The actions listed in **Table 3.18** below reflect these initiatives and will serve to implement Measure WR-1.

Co-Benefits

Air Quality | Public Health and Safety | Jobs and Economy

GHG Emissions Reduction
(Aggregate of all WR Measures)

2035: **8,096 $MTCO_2e$**
2045: **10,172 $MTCO_2e$**

Table 3.18 Actions Under Measure WR-1

Action Number	Action Description	Action Status	Lead Department / Division
WR-1.1	Ensure compliance with SB 1383 residential and commercial organic waste recycling in conjunction with the franchise waste hauler, EDCO.	Existing	PW / ES
WR-1.1 IA-1	Provide information to residents and businesses about organic waste and organics collection service.	Existing	PW / ES
WR-1.1 IA-2	Work with franchise waste hauler, EDCO, to encourage 100% residential and commercial organic waste services participation through public outreach campaign.	Existing	PW / ES
WR-1.1 IA-3	Conduct outreach to diverse community groups (including youth, faith-based, cultural, lower income), about the importance of organic waste diversion from landfill.	Existing	PW / ES
WR-1.1 IA-4	Provide free compost and mulch made with recovered organic product to the community.	Existing	PW / ES

Notes: % = percent; SB = Senate Bill.

Source: **Developed by EPIC in 2024**.

Measure WR-2: Construction and Demolition Waste Diversion Program

Measure WR-2 addresses the significant challenge of managing construction and demolition (C&D) waste, a notable component of the City's overall waste stream. Similar to organic waste, by diverting C&D materials away from landfills, the City can reduce GHG emissions— specifically CH_4—since many C&D materials are technically organic materials, such as wood and cardboard. Additionally, the potential for recycling and reusing C&D materials (e.g., metal and concrete) conserves energy and resources that would be required for manufacturing new construction materials, which often requires raw materials to be extracted from the Earth. The actions outlined in **Table 3.19** below serve as the City's mechanism for implementing Measure WR-2 and reducing C&D waste.

Co-Benefits

Air Quality | Public Health and Safety | Jobs and Economy

GHG Emissions Reduction
(Aggregate of all WR Measures)
2035: **8,096 $MTCO_2e$**
2045: **10,172 $MTCO_2e$**

Table 3.19 Actions Under Measure WR-2

Action Number	Action Description	Action Status	Lead Department / Division
WR-2.1	Continue to implement City's 75% C&D waste diversion requirement for applicable projects, as defined in City's Construction and Demolition Debris Diversion Ordinance and in alignment with State C&D regulations.	Existing	CD
WR-2.1 IA-1	Participate in regional waste diversion discussions and monitor participation levels from neighboring area C&D diversion ordinances.	Existing	CD
WR-2.1 IA-2	Revise City's diversion requirements to address smaller renovation projects.	New	CD

Notes: % = percent; C&D = construction and demolition; City = City of La Mesa; State = State of California government.

Source: **Developed by EPIC in 2024**.

Measure WR-3: Increase Waste Diversion and Encourage Circular Economy

Measure WR-3 represents a comprehensive approach to waste reduction and resource management in La Mesa, aiming to transition the City towards a more sustainable and circular economy. This measure focuses on increasing waste diversion rates while simultaneously promoting practices that minimize waste generation at its source. By emphasizing the entire lifecycle of materials, from production to consumption and disposal, the City will reduce GHG emissions and its overall environmental impact. Through the actions listed in **Table 3.20** below, the City will conduct a range of activities to implement this measure, such as those related to enhancing waste characterization, reducing single-use items, and conducting related and targeted outreach activities.

Co-Benefits

Public Health and Safety | Jobs and Economy | Livability

GHG Emissions Reduction

(Aggregate of all WR Measures)

2035: **8,096 $MTCO_2e$**

2045: **10,172 $MTCO_2e$**

Table 3.20 Actions Under Measure WR-3

Action Number	Action Description	Action Status	Lead Department / Division
WR-3.1	Prepare a sustainable resource management plan that identifies interim steps toward achieving a circular economy, including 75% waste diversion by 2035 in alignment with State regulations such as AB 341 and SB 1383.	New	PW / ES
WR-3.1 IA-1	Work with regional partners (e.g., neighboring cities, non-profit organizations, and regional waste haulers) to prepare residential and commercial waste characterization studies or route audits to identify La Mesa- or San Diego region-specific opportunities for additional waste diversion.	New	PW / ES
WR-3.1 IA-2	Use study results to develop outreach campaigns that increase participation in City's existing waste management programs, targeting specific waste types and/or sources.	New	PW / ES
WR-3.1 IA-3	Implement an internal City policy to reduce single-use disposable items, including at internal city meetings, functions, and events.	New	PW / ES
WR-3.1 IA-4	Conduct internal educational campaign to raise City staff awareness about existing and new internal waste reduction programs, including using reusable items at events.	New	PW / ES
WR-3.1 IA-5	Develop a robust outreach campaign to ensure community-wide understanding of materials management service offerings, drive behavior change focused on lifecycle of materials (i.e. source reduction, materials reuse, end-of-life), and facilitate access to emerging materials management support tools and programs.	Expanded	PW / ES
WR-3.1 IA-6	Continue to install additional water bottle filling stations in public spaces to encourage residents to use reusable bottles instead of plastic bottles.	Expanded	PW / ES

Action Number	Action Description	Action Status	Lead Department / Division
WR-3.1 IA-7	Research, develop, adopt, and implement an ordinance for citywide single-use plastic reduction measures (e.g. reduction of plastic bags and containers from retail establishments and restaurants, prohibition of polystyrene food ware, etc.) and provide educational materials and programs to businesses.	New	PW / ES
WR-3.1 IA-8	Ensure City and business compliance with State packaging and single-use disposable item regulations, such as AB 1276 (foodware accessories), SB 1167 (single use drinking vessels), SB 270 and SB 1053 (single-use and recycled paper carryout bags), and AB 847 (electrically conductive balloons).	Expanded	PW / ES

Notes: % = percent; AB = Assembly Bill; City = City of La Mesa; SB = Senate Bill; State = State of California government.

Source: **Developed by EPIC in 2024**.

Measure WR-4: Recycled and Recovered Product Procurement

In addition to organic waste diversion, C&D waste diversion, and encouraging a circular economy, as described in Measures WR-1, WR-2, and WR-3, Measure WR-4 focuses on leveraging the City's purchasing power to promote the use of recycled and recovered materials as part of the broader waste reduction strategy. By prioritizing products made from post-consumer content, the City aims to create a sustainable demand for recycled materials, which in turn encourages more robust recycling programs and reduces waste sent to landfills. While the singular action under this measure, listed in **Table 3.21** below, only pertains to internal City policy and is not applicable to the broader community, it sets an example that residents and businesses may be encouraged to follow in order to better integrate sustainability into day-to-day life.

Co-Benefits

Public Health and Safety

Livability

GHG Emissions Reduction

(Aggregate of all WR Measures)

2035: **8,096 $MTCO_2e$**

2045: **10,172 $MTCO_2e$**

Table 3.21 Actions Under Measure WR-4

Action Number	Action Description	Action Status	Lead Department / Division
WR-4.1	Develop internal City policy to prioritize procurement of recycled and recovered product that is made of post-consumer content (e.g. trash liners with recycled plastic content, janitorial products made from majority post-consumer fiber, etc.).	New	PW / ES

Note: City = City of La Mesa.

Source: **Developed by EPIC in 2024**.

Measure WR-5: Local Food Systems and Food Recovery

According to the California Department of Resources Recycling and Recovery (CalRecycle), Californians send over 11 billion pounds of food to landfills each year, much of which was still fresh enough to be recovered and feed people in need (CalRecycle 2024). Acknowledging how much food is wasted across the state, and recognizing the significant impact food waste, food choices, and local food production have on GHG emissions, Measure WR-5 seeks to take a holistic approach in addressing everything from the origin of food to its consumption and disposal. This measure envisions La Mesa as a community where local food production thrives, food recovery initiatives are successful and meaningful, and the overall cycle of food is managed more sustainably through education, outreach, and partnerships. **Table 3.22** below includes all the actions the City will undertake to implement Measure WR-5.

Co-Benefits

GHG Emissions Reduction
(Aggregate of all WR Measures)
2035: **8,096 $MTCO_2e$**
2045: **10,172 $MTCO_2e$**

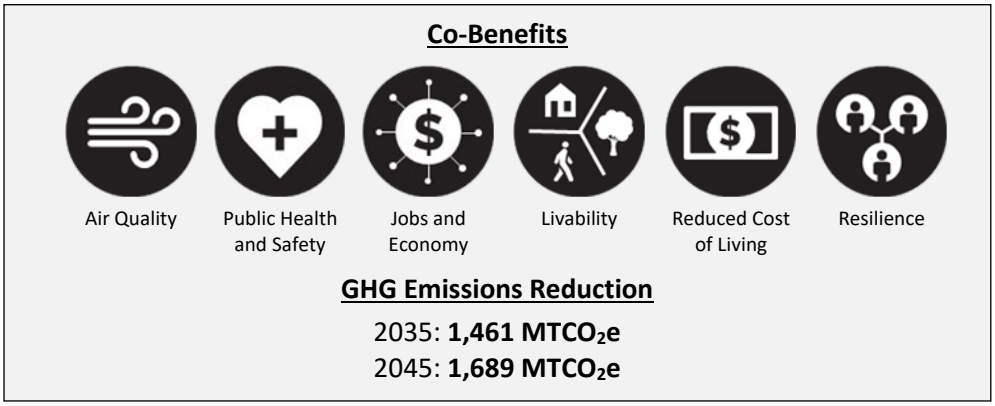
Table 3.22 Actions Under Measure WR-5

Action Number	Action Description	Action Status	Lead Department / Division
WR-5.1	Implement citywide food recovery program in alignment with SB 1383 and as a part of regional efforts by community organizations and other jurisdictions.	Existing	PW / ES
WR-5.1 IA-1	Distribute educational resources to the community on the climate and health impacts of food systems.	New	PW / ES
WR-5.1 IA-2	Partner with consultants and community organizations to implement programs to reduce food waste and support food recovery efforts in the region (e.g. backyard gleaning).	New	PW / ES
WR-5.1 IA-3	Distribute educational resources to the community on the benefits of consuming locally grown food.	New	PW / ES
WR-5.1 IA-4	Support the La Mesa Community Garden and other local food resilience efforts, including providing educational information about growing produce at home.	Expanded	PW / ES
WR-5.1 SA-1	Develop an educational program in partnership with the La Mesa Farmers Market to raise awareness on the benefits of supporting local farms, ways to reduce organic materials waste, and the importance of soil health.	Expanded	PW / ES

Notes: City = City of La Mesa; SB = Senate Bill.

Source: **Developed by EPIC in 2024**.

Measure U-1: Increase Urban Forest Canopy Cover



Urban forests play a crucial role in mitigating climate change and improving the overall quality of life in cities, and Measure U-1 is intended to increase and sustain the City's urban forest canopy cover. By expanding and maintaining a robust urban forest, this measure addresses several environmental and social objectives, such as carbon sequestration, air quality improvement, urban heat island effect reduction, and enhancement of community well-being (in addition to the co-benefits identified for this measure). **Table 3.23** below includes all the actions the City will undertake to implement Measure U-1, not only to help achieve GHG emissions reduction targets, but also to foster a greener, healthier, and more livable urban environment for all residents.

Table 3.23 Actions Under Measure U-1

Action Number	Action Description	Action Status	Lead Department / Division
U-1.1	Implement the Urban Forest Management Plan recommendations, which serves as a strategic, long-range guide to proactively grow, improve, and manage City's urban forest.	Existing	PW / ES
U-1.1 IA-1	Hire a certified arborist, or fund existing staff to become certified arborists, to oversee the maintenance and growth of the City's Urban Forest, ensure planting rates are outpacing removal rates, track tree health, and provide helpful planting information to the community.	New	PW / O
U-1.1 IA-2	Continue to implement and support policies outlined in Tree Policy Manual and Urban Forest Management Plan, including landscaping requirements for new municipal facilities, parking lots, and public rights-of-way.	Existing	PW / O
U-1.1 IA-3	Implement the City's design standards for parking lot shade trees; identify and implement best practices to monitor and enforce parking lot shade requirements.	New	CD
U-1.1 IA-4	Partner with neighborhood groups, community organizations, and local business community to encourage tree planting on private property.	Existing	PW / ES
U-1.1 IA-5	Host Urban Forestry Workshops and invite representatives from SDG&E and Public Works staff to provide technical assistance regarding appropriate species selection, proper siting and safe planting practices, and strategies to avoid damage to sidewalks, driveways, and underground utilities.	Existing	PW / ES

Action Number	Action Description	Action Status	Lead Department / Division
U-1.1 IA-6	Identify partners (including jurisdictions, community organizations, residents, academic institutions) to develop and implement a regional urban forest strategy to increase percentage of tree canopy coverage. Seek and incorporate feasible input from State and Federal agencies, including CDFW, on tree maintenance and urban forestry management strategies to avoid adverse impacts to sensitive species.	Existing	PW / ES
U-1.1 IA-7	Explore working with MTS to increase shaded space at bus stops.	New	PW / ES
U-1.2	Develop a free tree program to implement other avenues, like free tree giveaways or tree rebates on private property.	New	PW / ES
U-1.2 IA-1	Partner with organizations to develop a shade tree give-away program or other incentives to encourage planting of shade trees for existing residential and non-residential sites.	Existing	PW / ES
U-1.2 IA-2	Expand existing tree planting program to include private properties.	Expanded	PW / ES
U-1.2 IA-3	Add more native and non-invasive trees, shrubs, pollinator plants, and fruit trees along pathways to promote healthier outdoor environments, to make it more comfortable for residents to walk, and provide habitat for birds, butterflies, bees, and other pollinators.	Expanded	PW / O
U-1.2 IA-4	Develop a list of priority native plants (including trees, shrubbery, grasses, flowers) to plant in City-owned spaces such as road mediums, public rights-of-way and parks. Focus on those that support biodiversity and are drought tolerant.	New	PW / ES
U-1.2 IA-5	Develop educational program for residents on benefits of growing native, non-invasive plants.	New	PW / ES
U-1.2 IA-6	Analyze City-owned space to establish baseline acreage of native plants and based on that, commit to a percent increase in native plants.	New	PW / ES
U-1.2 IA-7	Establish native planting program based on findings of native plant space analysis in the City.	New	PW / ES
U-1.2 IA-8	Research and implement healthy soils program to increase atmospheric carbon capture methods.	New	PW / ES
U-1.2 IA-9	Collect and share related informational materials on City's webpage and outreach platforms, such as shade tree planting guides, recommended tree species for San Diego with watering requirements, and current tree giveaways or rebates.	Expanded	PW / ES
U-1.2 IA-10	Make shade tree program information available to the public and provide informational materials to customers during the building permit process for all new and existing construction or major retrofits.	New	PW / ES
U-1.2 IA-11	Develop shade tree planting program to encourage residents to plant shade trees on private property by providing educational resources, tree-planting instructions, proper tree maintenance, and rebates.	New	PW / ES
U-1.2 IA-12	Identify regional partners to collaborate on development of outreach campaign to highlight benefits of shade trees and provide outreach information to residents.	Existing	PW / ES

Action Number	Action Description	Action Status	Lead Department / Division
U-1.2 SA-1	Analyze City-owned land for existing impermeable surfaces and convert the identified locations where surfaces can be made permeable.	New	PW / EN
U-1.2 SA-2	Identify opportunities to capture stormwater runoff and precipitation and identify implementation feasibility.	New	PW / EN

Notes: CDFW = California Department of Fish and Wildlife; City = City of La Mesa; MTS = San Diego Metropolitan Transit System; SDG&E = San Diego Gas and Electric.

Source: **Developed by EPIC in 2024**.

3.2 Adaptation Strategies

As the City continues to combat climate change through reducing local GHG emissions, it must also adapt and prepare for the impacts of climate change, and additionally, bolster the resilience of its communities to climate hazards. Climate hazards refer to natural hazards that are exacerbated or altered due to the effects of climate change (e.g., rising temperatures, changing precipitation patterns). The four primary climate hazards that the City is already experiencing and will continue to experience in the future are: (1) extreme heat; (2) flooding; (3) wildfire; and (4) drought. **Table 3.24** below includes a snapshot of some relevant climate indicators, including their modeled historic averages and future projections at the mid-century (2035-2064) and late-century (2070-2099) timescales. Each of these climate indicators are either directly or indirectly related to the primary climate hazards within the City and provide some high-level insights as to what the City may experience in the future, depending on current and future global GHG emissions levels.

> ***"Over the next several decades, San Diego County and its neighboring California and cross-border regions will very likely experience substantial warming, sea level rise, a precipitation regime with continued Mediterranean seasonality but with even greater variability, increasing dryness, and continued dry wind weather episodes that will heighten wildfire danger"*** (OPR, CEC, and CNRA 2019).

Table 3.24 Local Climate Change Snapshot for City of La Mesa

Climate Indicator	Modeled Historic (1961-1990)	Mid-Century (2035-2064)		Late-Century (2070-2099)	
		RCP 4.5[1]	RCP 8.5[2]	RCP 4.5[1]	RCP 8.5[2]
Maximum Temperature (°F)	74.2	77.8	78.6	78.9	82.0
Maximum Temperature Difference from Historic (± °F)	N/A	+ 3.6	+ 4.4	+ 4.7	+ 7.8
Minimum Temperature (°F)	52.8	56.1	57.1	57.3	60.5
Minimum Temperature Difference from Historic (± °F)	N/A	+ 3.3	+ 4.3	+ 4.5	+ 7.7
Number of Extreme Heat Days[3]	2	9	11	11	24
Number of Extreme Heat Days[3] Difference from Historic (± days)	N/A	+ 7	+ 9	+ 9	+ 22
Precipitation (inches)	12.5	12.1	11.9	12.2	11.5
Precipitation Difference from Historic (± inches)	N/A	- 0.4	- 0.6	- 0.3	- 1.0
Maximum 1-Day Precipitation (inches)	1.3	1.4	1.4	1.4	1.4
Maximum 1-Day Precipitation Difference from Historic (± inches)	N/A	+ 0.1	+ 0.1	+ 0.1	+ 0.1
Maximum Length of Dry Spell[4] (days)	125	129	133	133	138
Maximum Length of Dry Spell[4] (± days)	N/A	+ 4	+ 8	+ 8	+ 13
KBDI[5] > 600 (days)	19	65	82	79	133
KBDI[5] > 600 Difference from Historic (± days)	N/A	+ 46	+ 63	+ 60	+ 114

Notes: °F = degrees Fahrenheit; ± = plus/minus; KBDI = Keetch-Byram Drought Index; N/A = not applicable; RCP = Representative Concentration Pathway.

[1] RCP 4.5 represents a medium global GHG emissions scenario.

[2] RCP 8.5 represents a high global GHG emissions scenario.

[3] Extreme heat thresholds are unique to any location. According to Cal-Adapt, the threshold for an extreme heat day in the City is 95.6 °F.

[4] A dry spell refers to the number of consecutive days with precipitation under 1 millimeter.

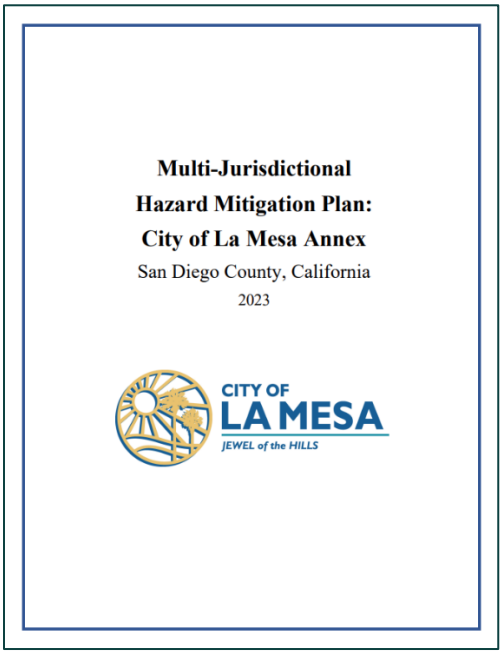
[5] KBDI provides an estimate for how dry the soil and vegetative detritus is and serves as a simplified proxy for favorability of occurrence and spread of wildfire (but is not itself a predictor of fire). A KBDI value greater than 600 indicates a severe drought with extreme wildfire risk.

Source: **CEC 2024**.

When it comes to climate change adaptation planning, the *California Adaptation Planning Guide* (APG)—developed by the California Governor's Office of Emergency Services (Cal OES) in June 2020—serves as the state's recommended guidance document to support local, regional, and tribal governments in California with climate change adaptation planning (Cal OES 2020). It outlines a formal planning process for adapting to climate change, which is included and slightly modified in **Figure 3.3** below.

Figure 3.3 Planning Process for Adapting to Climate Change

Source: **Developed by Ascent in 2024**.



While the City did not engage in the full adaptation planning process for the purposes of this CAP Update, the City has already undertaken an array of efforts to effectively adapt and bolster its resilience to the effects of climate change. For example, the City's annex to the San Diego County *Multi-Jurisdictional Hazard Mitigation Plan*, which was last updated in 2023, serves as a comprehensive resource that identifies risks and ways to minimize damage by natural and human-caused disasters—including those that are worsened or exacerbated by climate change. Additionally, the Safety Element of the *La Mesa General Plan*, includes a suite of goals, objectives, and policies intended to minimize the risks associated with various hazards within the City, including those that are influenced by climate change like flood and fire hazards. To further support these existing efforts in adapting to climate change, the City has prepared an array of high-level adaptation strategies as part of this CAP Update. These strategies, which are listed in **Table 3.25** below, are organized into five types of strategies: (1) interdisciplinary (2) extreme heat; (3) flooding; (4) wildfire; and (5) drought. The cross-cutting strategies refer to strategies that are inherently broad and that largely address or overlap with all climate hazards, while the other four types of strategies are specific to each of the primary climate hazards that the City is exposed to. Additionally, the adaptation strategies presented here intentionally do not align with the "strategies" identified in the framework of GHG reduction strategies, measures, and actions (which are discussed earlier in this chapter). These strategies, as mentioned previously, are meant to be high-level and advisory in nature; the City will need to determine implementation details and consider other specifics separately.

Table 3.25 Climate Change Adaptation Strategies

Strategy
Interdisciplinary
▶ Use the SANDAG Regional Resilience Framework's Adaptation Project Checklist to incorporate climate resilience in infrastructure project planning.
▶ Coordinate with neighboring cities and other partners to explore the establishment of a countywide Climate Resilience District to fund or finance climate adaptation projects and programs, in alignment with SB 852.
▶ Improve climate adaptation and hazard mitigation coordination and communication with Federal, State, local, and tribal governments.
▶ Promote and push towards the widespread adoption of local and regional emergency notification systems, such as the "SD Emergency" mobile application and "Alert San Diego," to help ensure residents are informed before, during, and after a climate hazard event.
▶ Prioritize making emergency services more accessible to vulnerable populations, such as those with access and functional needs.
▶ Continue hosting Community Disaster Planning Seminars and other community-focused preparedness workshops to help bolster resilience to climate-related hazards at the household level.
▶ Maintain up-to-date emergency preparedness and evacuation plans and procedures in coordination with appropriate State, regional, county, and local agencies and departments.
▶ Coordinate with MTS and other relevant partners to ensure the redundancy, continuity, and resilience of transit services (e.g., bus, trolley) and the overall transportation system during climate hazard events.
▶ Embed climate adaptation principles across City plans, manuals, guidelines, programs, and activities to account for changing hazard profiles and their associated impacts.
▶ Conduct a detailed, citywide climate change vulnerability assessment in accordance with the APG and using local guidance from SANDAG Regional Resilience Framework resources.
▶ Ensure that critical facilities have reliable, energy efficient systems and backup power, including solar and battery storage to operate during an outage or a Public Safety Power Shutoff event.
▶ Support the installation of solar and battery storage in existing residential and nonresidential development.
Extreme Heat
▶ Promote the use of "cool" or "green" roofs on both new and existing residential and nonresidential buildings; pilot and monitor effectiveness of "cool" pavement in residential neighborhoods.
▶ Explore opportunities to further increase shading of buildings and parking lots using trees and/or solar canopies (consistent/supportive to actions under GHG Measure U-1).
▶ Explore opportunities to further increase shading of public amenities, such as bus stops (consistent/supportive to actions under GHG Measure U-1).
▶ Periodically conduct a mapping exercise to determine and reassess locations around the City that experience the greatest impact from the urban heat island effect. Utilize this information to prioritize implementation locations for heat mitigation projects (e.g., tree plantings and sustained tree maintenance, cool pavement, cool/green roofs).
▶ Continue to promote, expand, and establish new City programs that support the growth of its urban tree canopy in public and private spaces (consistent/supportive to actions under GHG Measure U-1).

Strategy
▸ Preserve, enhance, increase, and establish community green areas, such as parks, recreational facilities, and open space (consistent/supportive to actions under GHG Measure U-1).
▸ Work with the San Diego County Health and Human Services Agency and SDG&E to further promote the "Cool Zone" program and expand access through extended hours, additional locations, and transparent transportation options for those who need it. Additionally, coordinate to establish less stringent eligibility criteria for the related free electric fan program.
▸ Support employers to protect worker health from extreme heat, especially those working in vulnerable occupations, through targeted outreach and information-sharing about extreme heat risks, applicable regulations, and strategies to reduce risk.
▸ Develop a "Cool Buddy" program where local volunteers are trained to build neighborhood networks, identify heat-vulnerable neighbors, and set up systems to check in on each other during extreme heat events.
▸ Support a comprehensive outreach campaign to prevent heat-related illnesses among vulnerable populations, including, but not limited to, children, seniors, people experiencing homelessness, people with disabilities in the care of licensed facilities, and workers in vulnerable occupations (consistent/supportive to actions under GHG Measure U-1).
▸ Implement infrastructure upgrades in public spaces that would help mitigate the impacts of extreme heat, such as hydration/water-filling stations.
Flooding
▸ Identify low-trafficked, flood prone locations to pilot and monitor the effectiveness of permeable pavement in reducing flood risk, lessening the strain on drainage systems, and recharging groundwater (consistent/supportive to actions under GHG Measure U-1).
▸ Continue to require that all new development in flood prone areas be elevated to or above the 100-year floodplain.
▸ Continue regular maintenance and clearing of storm drains in low lying areas, such as the Alvarado Creek drainage channel; ensure that existing and new storm drain and street capacities are adequate to manage a 100-year flood event.
▸ Continue to participate in the National Flood Insurance Program and encourage residents to obtain insurance through the program.
▸ Prioritize the implementation and use of green infrastructure to manage future flood risk.
▸ Coordinate with landowners to manage stormwater runoff through sustainable land conservation practices.
▸ Utilize vacant lots to build flood control detention basins and replace undersized culverts to better address flooding from future extreme precipitation events.
Wildfire
▸ Develop and implement a wildfire smoke protection outreach strategy.
▸ Ensure local employers are in compliance with the State's *Protection from Wildfire Smoke Standard* (California Code of Regulations, Title 8, Section 5141.1), which requires employers to protect workers who may be exposed to wildfire smoke.
▸ Take steps to ensure that the City's building stock is outfitted with indoor air purification systems capable of enhancing and protecting public health from wildfire smoke and poor air quality.

Strategy
▸ Maintain GIS mapping to continually monitor and best reflect potential vulnerability of the City's populations and assets to wildfire.
▸ Encourage the use of fire-resistant building and roof materials in new development and in retrofits of existing development.
Drought
▸ Continue and expand the promotion of existing water conservation/efficiency rebates through the City and other partners.
▸ Continue promoting water conservation tips and measures across the City's websites and social media platforms; conduct community outreach about the benefits and water conservation potential of rainwater catchment and graywater systems (consistent/supportive to actions under GHG Measures U-1 and W-1).
▸ Support and promote Helix Water District's water conservation programs, including their water efficient landscaping workshops, water use evaluations, and school programs (consistent/supportive to actions under GHG Measure W-1).
▸ Coordinate with Helix Water District to conduct further extended drought scenario analyses as part of future updates to the Urban Water Management Plan and Water Shortage Contingency Plan.
▸ Coordinate with appropriate partners via the Pure Water San Diego program to continue treating recycled wastewater for potable uses, reduce dependence on imported water, and ensure a drought-resistant water supply (consistent/supportive to actions under GHG Measure W-1).
▸ Develop and implement programs offering assistance to residents for drought-tolerant landscapes, such as a "Cash for Grass" lawn replacement program (consistent/supportive to actions under GHG Measure U-1).
▸ Update the City's water efficient landscape standards to go beyond State and County requirements for drought-tolerant and water-conserving landscaping in new development projects (consistent/supportive to actions under GHG Measure U-1).
▸ Coordinate with Helix Water District to establish and monitor progress on a citywide per capita water use reduction target (consistent/supportive to actions under GHG Measure W-1).
▸ Promote the installation of water-efficient fixtures, appliances, and equipment in new development and as part of retrofits for existing development.

Notes: APG = *California Adaptation Planning Guide*; City = City of La Mesa; GHG = greenhouse gas; GIS = geographic information system; MTS = San Diego Metropolitan Transit System; SANDAG = San Diego Association of Governments; SB = Senate Bill; SD = San Diego; SDG&E = San Diego Gas and Electric; State = State of California government.

Sources: **Developed by Ascent in 2024**.

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CHAPTER 4

Implementation and Monitoring

4 Implementation and Monitoring

This chapter presents additional background on implementation and monitoring information for the Climate Action Plan Update (CAP Update). Specifically, **Section 4.1** provides additional details on the City of La Mesa's (City's) implementation strategy for the CAP Update, along with how it will be monitored and how updates will be provided for transparency. **Section 4.2** discusses implementation costs and funding mechanisms at a high level, with reference to the separate Implementation Cost Analysis (ICA) that is being prepared in conjunction with the CAP Update. And lastly, **Section 4.3** outlines how this CAP Update will continue to serve as a resource for California Environmental Quality Act (CEQA) streamlining.

4.1 Implementation Strategy

Once the CAP Update is adopted, the City will begin implementing the climate action strategies, measures, and actions, and additionally, will begin collecting any necessary data needed for monitoring. First, City staff will prepare a CAP Update work plan that aligns with the City's budget cycle (i.e., every two years beginning with the FY 2026/2027 cycle in 2025). This work plan will identify the near-term activities the City will pursue, considering existing staff capacity, City resources, grants, and other potential funding opportunities. Upon implementation, City staff will need to evaluate and monitor the CAP Update's performance over time and alter or amend the plan if it is not following the greenhouse gas (GHG) emissions trends needed to meet its 2035 target and make meaningful progress towards the 2045 target.

Like the original CAP, **progress** on CAP Update implementation **will be disseminated** in the form of **annual reports**, along with **progress reports to City Council** every six months.

The CAP Update aims to create measures that are feasible with the City's existing resources and cost effective for community members. The quantified reductions from these measures are designed to support substantial near-term implementation efforts. According to the recommended measures, the City is projected to meet the 2035 target by reducing GHG emissions to 60% below 2016 levels. However, the 2045 target is unlikely to be achieved with the proposed quantified measures. The City did consider the impacts of requiring energy efficiency retrofits for existing buildings but determined that the requirement would put a significant cost burden onto lower-income residents residing in older homes and such an effort would create inequities. The City will continue to monitor state and federal policy changes as well as funding opportunities and will attempt to reach all relative targets in future CAP updates (i.e., 2030, 2035).

To help track emissions, and by partnering with the San Diego Association of Governments (SANDAG)—through the *Regional Climate Action Planning Framework* (ReCAP)—the City received an updated snapshot of the citywide GHG emissions inventory every two years, which, up to this point, SANDAG has provided for all its member agencies at no cost. GHG inventory updates are a critical piece of CAP Update implementation, and without SANDAG's technical assistance, the City would need to separately contract and pay for these inventory updates. Additionally, ReCAP provides best practices for monitoring and implementing climate action plans, with additional technical appendices that assist in target selection, cost-benefit analyses, and calculating GHG emissions reductions.

In addition to GHG inventory updates, the City will need to track the implementation and performance of individual measures and actions. Like the original Climate Action Plan (CAP), and as touched upon in **Section 1.3**, the CAP Update will continue to be monitored and updates will continue to come in the form of annual reports—which will provide status details for each individual measure—along with progress reports that will be presented to City Council every six months. As technologies and markets change and as the City makes implementation progress, these reports will also be used to identify actions that need to be improved, adjusted, or removed. These reports also serve to provide transparency and promote engagement with the public for CAP Update implementation, as the success of implementation will partially depend on the participation of residents, businesses, and other stakeholders across the City. Further, though this CAP Update serves as the first comprehensive update of the original CAP, the City will continue to conduct these comprehensive updates every five years. The next update to the CAP Update is anticipated to occur in 2029. Future updates will be necessary to account for any new State and Federal legislation or relevant findings and recommendations from the City's annual reports or progress reports.

4.2 Implementation Costs and Funding Mechanisms

The City will incur costs to implement some of the initiatives included in this CAP Update. These may include costs related to initial start-up, ongoing administration, staffing, and enforcement costs. Capital improvement, investment, and increased operation and maintenance costs will be incurred during successful CAP Update implementation. While some initiatives will only require funding from the City and other public entities, others would result in cost impacts for businesses, developers, and residents. However, in general, implementation of CAP Update initiatives will result in substantial cost savings for the City, residents, and businesses in the long term. To better understand the potential costs of implementation, an ICA was developed alongside the CAP

The **ICA**, though not an appendix to a CAP Update, is a critical document that will **help inform CAP Update implementation**—and provides more implementation details than those found throughout Chapter 3.

Update. The ICA assesses the potential costs of implementation to the City for the GHG reduction measures presented in this CAP Update, including those pertaining to initial start-up, ongoing administration, enforcement, and potential infrastructure improvement.

Noting that the City will incur some costs related to CAP Update implementation, there are several funding options available from a variety of sources to help alleviate the burdens of these costs, including those from regional and State agencies and other organizations. A summary of some common funding mechanisms, along with respective potential opportunities, is presented in **Table 4.1** below. It is important to note that the potential opportunities listed below are subject to change, are not all-encompassing, and should serve as examples of the types of opportunities that the City may pursue to help fund CAP Update implementation. Overall, the City will be proactive in ensuring that the CAP Update is implemented successfully in the most cost-effective way possible.

Table 4.1 Implementation Funding Mechanisms and Potential Opportunities

Funding Mechanism Description	Potential Opportunities
Grants	
Grants can provide a substantial source of repayment-free capital if local governments have the staff capacity to invest in grant management. Grants make the most sense for local governments with the necessary staff capacity to track grant opportunities, craft meaningful proposals that link to the goals and mission of the donors, submit applications, and track results required for ongoing reporting.	▶ CalRecycle Grants ▶ State Transportation Grants ▶ DOE Energy Efficiency and Conservation Block Grant Program
Partnerships	
Partnerships often tap resources and secure capital from non-governmental and corporate actors, which can spread the cost of a project across multiple public, private, and/or nonprofit entities. Partnerships may allow the City to share ownership of certain measures and actions identified in the CAP Update, while also sharing possible cost savings and revenue generation with a third party.	▶ Helix Water District ▶ MTS ▶ SANDAG ▶ Community Power ▶ SDG&E ▶ SDREN
Loans	
Loans give local governments access to upfront capital, whose principal and interest must be repaid over the duration of the loan. While the City should first consider grants and private partners that can provide repayment-free capital for implementation of CAP Update actions, when those pathways are unavailable, loans are a dependable alternative. In many cases, municipal borrowers and impact-driven projects can find financing with low-interest rates.	▶ Infrastructure State Revolving Fund Program Loans ▶ Energy Conservation Assistance Act Low-Interest Loans ▶ State Water Resources Control Board Loans
Bonds	
Bonds provide dependable, predictable financing for local governments looking to capitalize large infrastructure projects. A local government can issue a bond directly or apply for funds from a State bonding program. These bonds can be backed either by general local government funds, or specific revenue sources. There are multiple types of bond structures including general obligation, revenue, and conduit bonds, as well as certifications like “green” bonds for climate and sustainability that communicate what types of projects bond proceeds are being used for.	

Funding Mechanism Description	Potential Opportunities
Budget	
Budget refers to using money in a local government's general fund to capitalize projects. Every year, local governments collect tax revenue and other fees to populate their general funds, portions of which are appropriated to new capital projects and infrastructure investments. However, financial mechanisms beyond budget must begin covering a larger share of the load, and other financial mechanisms should be fully explored before local governments turn to budget funding. There are also opportunities for climate action to take higher priority in local governments' budgeting processes and for budgets to fund appropriate climate-related expenditures. If using local government budget is an option, well-suited projects tend to have total costs that are small enough to fit into one to three years of the budget, and/or have costs incurred in a dispersed manner, ideally evenly distributed over a number of years or decades, like the costs of staffing for a new program.	
Taxes and Fees	
Taxes and fees, as well as cost savings and other revenues, can create flows of capital to fund climate action. Most often, however, ongoing revenue generation is not earmarked for a particular project and is accumulated in a reserves account. Rather, new revenue flows are funneled into local governments' general funds, or leveraged through financing, as is the case with revenue bonds. Revenue generation via taxes and fees makes sense for local governments that have not significantly raised taxes or fees on residents in the past year or two, for projects that do not need immediate upfront capital, or for local governments pursuing a revenue bond that needs a source of project-based revenues.	

Notes: CalRecycle = California Department of Resources Recycling and Recovery; CAP Update = Climate Action Plan Update; City = City of La Mesa government; DOE = United States Department of Energy; MTS = San Diego Metropolitan Transit System; SANDAG = San Diego Association of Governments; Community Power = San Diego Community Power; SDG&E = San Diego Gas and Electric; State = State of California government. SDREN = San Diego Regional Energy Network

Source: **Compiled by Ascent in 2024**.

4.3 California Environmental Quality Act

The original CAP, which was adopted in 2018, was developed to implement Mitigation Measure GHG-1 from Section 4.5.5 of the *City of La Mesa General Plan Environmental Impact Report*, which required the adoption of a climate action plan in conformance with the provisions of Section 15183.5 of the CEQA Guidelines (i.e., Title 14, Division 6, Chapter 3 of the California Code of Regulations), which are identified in **Table 4.2** below. This CAP Update will continue to serve as a resource for CEQA streamlining, where a project that is subject to discretionary review can streamline its GHG analysis under CEQA by demonstrating consistency with applicable GHG reduction measures in the CAP Update.

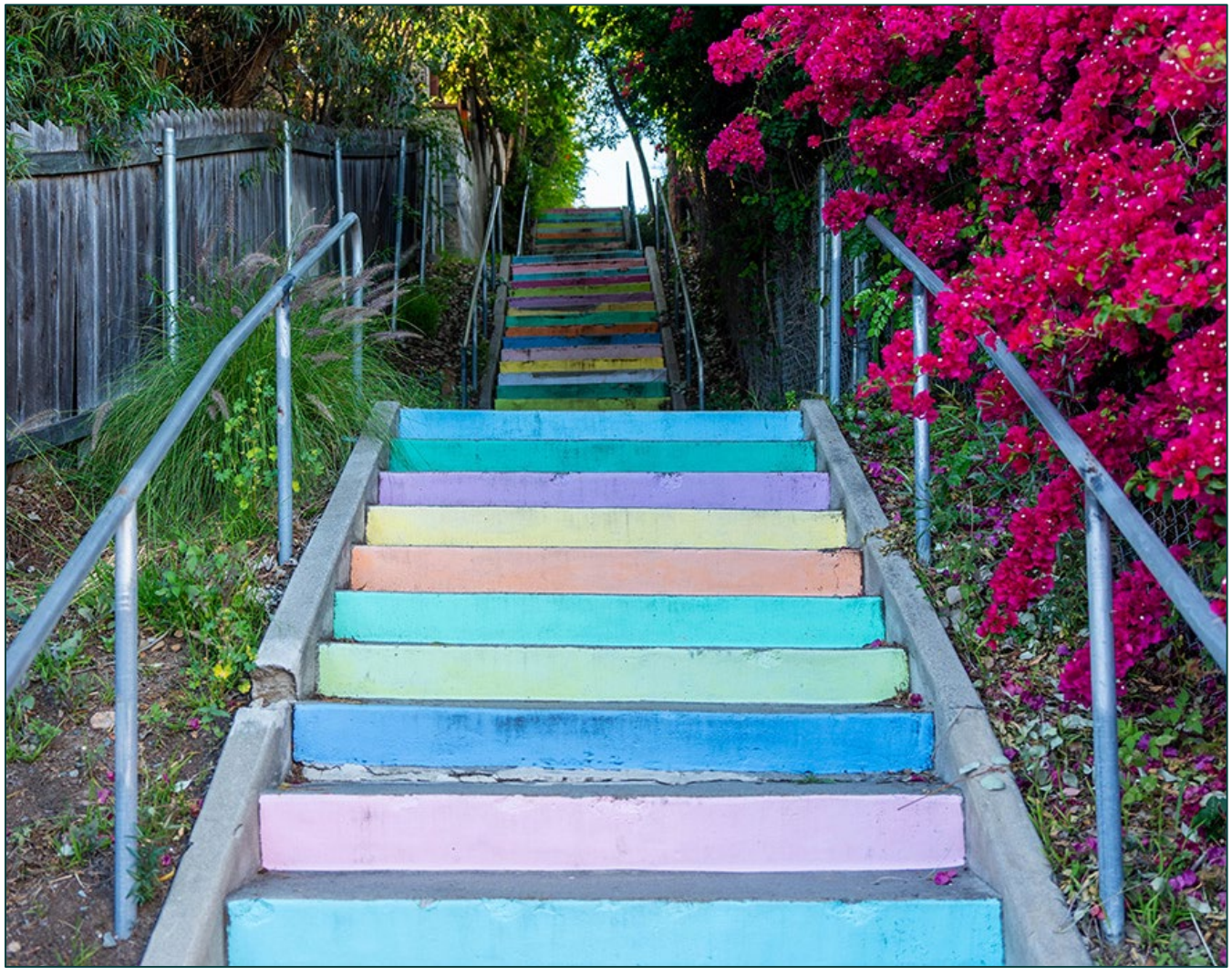
A "qualified" climate action plan, or a GHG reduction plan consistent with Section 15183.5 of the CEQA Guidelines, will allow project-specific environmental documents, if eligible, to tier from and/or incorporate by reference the plan's programmatic review of GHG impacts in their cumulative impact analyses for GHGs. Streamlined projects fulfill the City's strategic approach to environmental sustainability, expediting environmental review while meeting the demand for sustainable development. The City's existing development review process will serve as the mechanism for demonstrating consistency with the CAP Update and to ensure that projects are incorporating all applicable measures to support achievement of GHG reduction targets. A project's incremental contribution to cumulative GHG emissions may be determined not to be cumulatively considerable based on consistency with the forecasts and GHG reduction measures presented within the CAP Update.

Table 4.2 Elements of a Qualified Greenhouse Gas Reduction Plan under the California Environmental Quality Act

Element	Description	Does this CAP Update Comply?
A	Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area.	✓
B	Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable.	✓
C	Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.	✓
D	Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level.	✓
E	Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels.	✓
F	Be adopted in a public process following environmental review.	✓

Note: GHG = greenhouse gas.

Source: **Compiled by Ascent in 2024**.



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CHAPTER 5

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5 Works Cited

Executive Summary

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Chapter 4: Implementation and Monitoring

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Appendix A

Methods for Estimating Greenhouse Gas Emissions and Emissions Reductions

Appendix A: Methods for Estimating Greenhouse Gas Emissions and Emissions Reductions

September 2024

Prepared for the City of La Mesa

Prepared by the Energy Policy Initiatives Center

About EPIC

The Energy Policy Initiatives Center (EPIC) is a non-profit research center of the University of San Diego School of Law that studies energy policy issues affecting California and the San Diego region. EPIC's mission is to increase awareness and understanding of energy- and climate-related policy issues by conducting research and analysis to inform decision makers and educate law students.

For more information, please visit the EPIC website at www.sandiego.edu/epic.

Table of Contents

Tables

Figures

1 OVERVIEW

This Appendix provides a summary of the 2016 greenhouse gas (GHG) emissions inventory for the City of La Mesa (referred to as "La Mesa" or "the city"), the business-as-usual (BAU) emissions projections through 2045, and the methods used to calculate the GHG emissions reductions from the measures and actions included in the city's Climate Action Plan (CAP) Update.

This Appendix includes the following sections:

- Section 2 describes the background sources used for this Appendix;
- Section 3 provides the 2016 GHG emissions inventory results summary;
- Section 4 provides a summary of the emissions projections for 2035 and 2045, and the methods used to prepare projections for each emissions category;
- Section 5 describes this CAP Update's 2035 and 2045 targets;
- Section 6 provides a summary of emissions impacts from federal, State (California), and local CAP strategies; and
- Section 7 details the common data sources and methods used to estimate emissions reductions, and the methods used to estimate emissions reductions from federal, State, regional, and non-transportation local measures. The methods to estimate the GHG reduction associated with the transportation measures are described in a separate technical memorandum.[1]

Unless stated otherwise, all activity data, GHG emissions, and GHG emissions reductions reported in this Appendix are annual values for the calendar year, and all emission factors reported in this document are annual average values for the calendar year.

Rounding is used for the final GHG values within the tables and figures throughout the document. Values are not rounded in the intermediary steps in any calculation. Because of rounding, some totals may not equal the values summed in any table or figure.

2 BACKGROUND

2.1 Greenhouse Gases

The primary GHGs included in the city's emissions estimates are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Each GHG has a different capacity to trap heat in the atmosphere, known as its global warming potential (GWP), which is normalized relative to CO_2 and expressed in carbon dioxide equivalents (CO_2e). In general, the 100-year GWPs reported by the Intergovernmental Panel on Climate Change (IPCC) are used to estimate GHG emissions. The GWPs used in this inventory are from the IPCC Fourth Assessment Report (AR4),[2] provided in Table 1.

[1] CR Associates: *La Mesa Climate Action Plan - GHG Reduction Determination – Technical Memorandum* (September 1, 2024).
[2] IPCC Fourth Assessment Report: Climate Change 2007: Direct Global Warming Potentials (2013).

Table 1 Global Warming Potentials

Greenhouse Gas	Global Warming Potential
Carbon dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous oxide (N_2O)	298
IPCC 2013.	

2.2 Demographics

The San Diego Association of Governments (SANDAG) estimates and forecasts population, housing, and jobs estimates for all jurisdictions in the San Diego region. The estimates for La Mesa are provided in Table 2.[3]

Table 2 Population, Housing, and Jobs Estimates in La Mesa

Year	Population	Housing Units	Jobs
2016	59,620	25,705	30,188
2035	71,455	32,282	34,145
2045	74,772	34,398	36,059
Housing unit types include single detached units, single attached units, two to four units, five plus or apartment units, and mobile homes. SANDAG 2021, Energy Policy Initiatives Center, University of San Diego 2024			

3 BASELINE 2016 GREENHOUSE GAS EMISSIONS INVENTORY

SANDAG created the Regional Climate Action Planning Framework (ReCAP) to guide CAP development and support consistent CAP implementation across the San Diego region.[4] SANDAG has supported CAP implementation monitoring through ReCAP Snapshots, biannual reports of GHG inventory and climate monitoring data. La Mesa received a 2016 GHG inventory (released in 2019), a 2018 GHG inventory (released in 2021), and a partial 2020 GHG inventory (released in 2023, transportation emissions were omitted due to data availability during the COVID pandemic).[5] Data year 2016 was chosen as the CAP Update baseline year, even if more recent GHG inventories are available, e.g., the 2018 GHG inventory, because 2016 has the best available vehicle miles traveled (VMT) data.

The ReCAP *Technical Appendix I: GHG Inventories, Projections, and Target Selection* document provides the GHG inventory calculation method used for all GHG inventories in the Snapshots, based on U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (U.S. Community

[3] 2016 estimates are from SANDAG: Demographic & Socio-Economic Estimates for La Mesa (July 23, 2021 Version). SANDAG Data Surfer, accessed November 1, 2022. The estimates for the same year vary by version. 2035 and 2045 data are based on SANDAG Series 14 2021 Regional Plan Growth Forecast, provided by SANDAG (June 2021). The forecast in the 2021 Regional Plan was based on the Sustainable Communities Strategy land use pattern, which may be different from jurisdiction's general plan land use pattern.

[4] SANDAG: Climate Action Planning Framework for Local Governments.

[5] The GHG inventories and CAP monitoring data are in SANDAG Climate Action Data Portal.

Protocol), developed by ICLEI USA.[6] The U.S. Community Protocol requires a minimum of five basic emissions-generating activities to be included in a Protocol-compliant community-scale GHG inventory. These categories are electricity, natural gas, on-road transportation, water and wastewater, and solid waste. GHG emissions are calculated by multiplying activity data (e.g., kilowatt-hours of electricity) by an emission factor (e.g., pounds of CO_2e per unit of electricity). The activity data and emission factors are regional- or city-specific data when available.

A few revisions were made to the original ReCAP 2016 GHG inventory due to newly available data and data sources since 2019: (1) updated vehicle miles emission rates from the latest models and (2) updated water emissions based on latest local water energy intensity data.

The revised GHG emissions from La Mesa in 2016 were approximately 398,300 metric tons CO_2e (MT CO_2e), distributed into categories as shown in Table 3 and Figure 1.

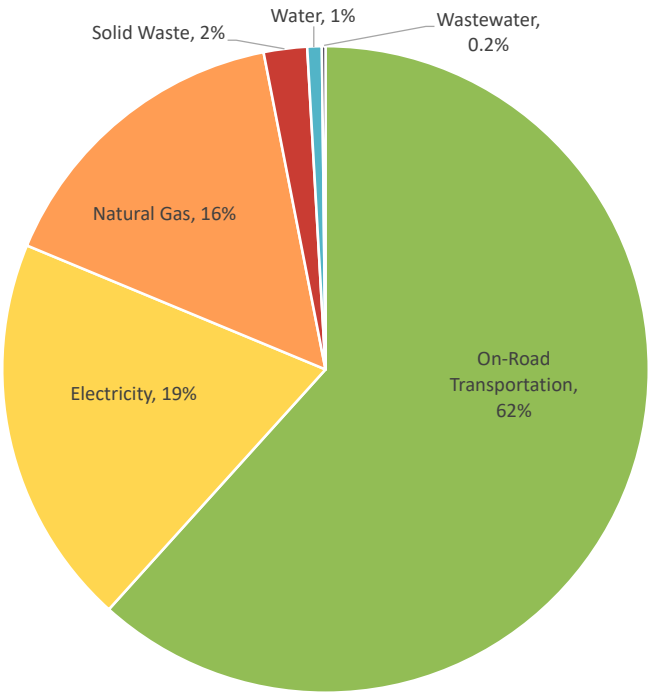
Table 3 2016 Greenhouse Gas Emissions in La Mesa

Emissions Category	2016 Inventory	
	GHG Emissions (MT CO_2e)	Distribution (%)
On-Road Transportation	245,700	62%
Electricity	78,000	20%
Natural Gas	62,400	16%
Solid Waste	8,600	2%
Water	2,900	1%
Wastewater	700	0.2%
Total	**398,300**	**100%**

Sums may not add up to totals due to rounding. GHG emissions for each category are rounded to the nearest thousand. Values are not rounded in the intermediary steps in the calculation.

Energy Policy Initiatives Center, University of San Diego 2024

[6] SANDAG: Climate Action Planning Framework for Local Governments. ReCAP Technical Appendix I: GHG Inventories, Projections, and Target Selection (Version 1.1: October 2020). ICLEI – Local Governments for Sustainability USA: U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1.2 (2019).

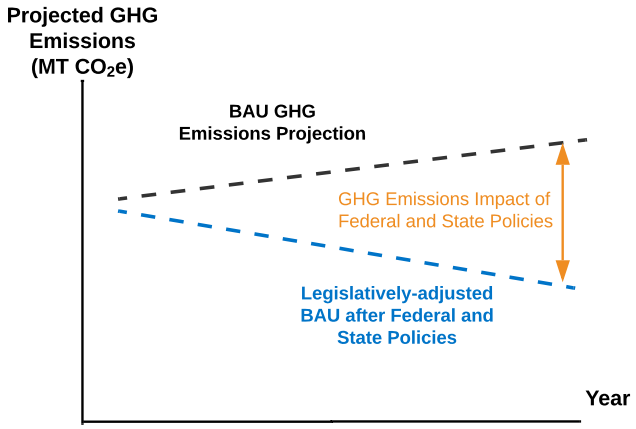


Percentage may not add to totals due to rounding.
Energy Policy Initiatives Center, University of San Diego, 2024

Figure 1 2016 Greenhouse Gas Emissions in La Mesa

4 BUSINESS-AS-USUAL EMISSIONS PROJECTION

To inform the development of GHG reduction measures within the CAP Update, GHG emissions are projected using the 2016 baseline year GHG inventory, latest available activity data and emission factors, as well as population, housing, and job growth in the city. This is used to develop a BAU projection, which demonstrates emissions growth in the absence of any new policies and programs. Next, future emissions reductions expected from applicable federal and State policies and programs are applied, creating a legislatively-adjusted BAU. Figure 2 provides an illustrative example of the difference between a BAU projection and a legislatively-adjusted BAU projection.



Energy Policy Initiatives Center, 2024

Figure 2 Example of Business-As-Usual and Legislatively-Adjusted Business-As-Usual Emissions Projections

The total BAU projected emissions for 2035 and 2045 are presented in Table 4 and Figure 3.

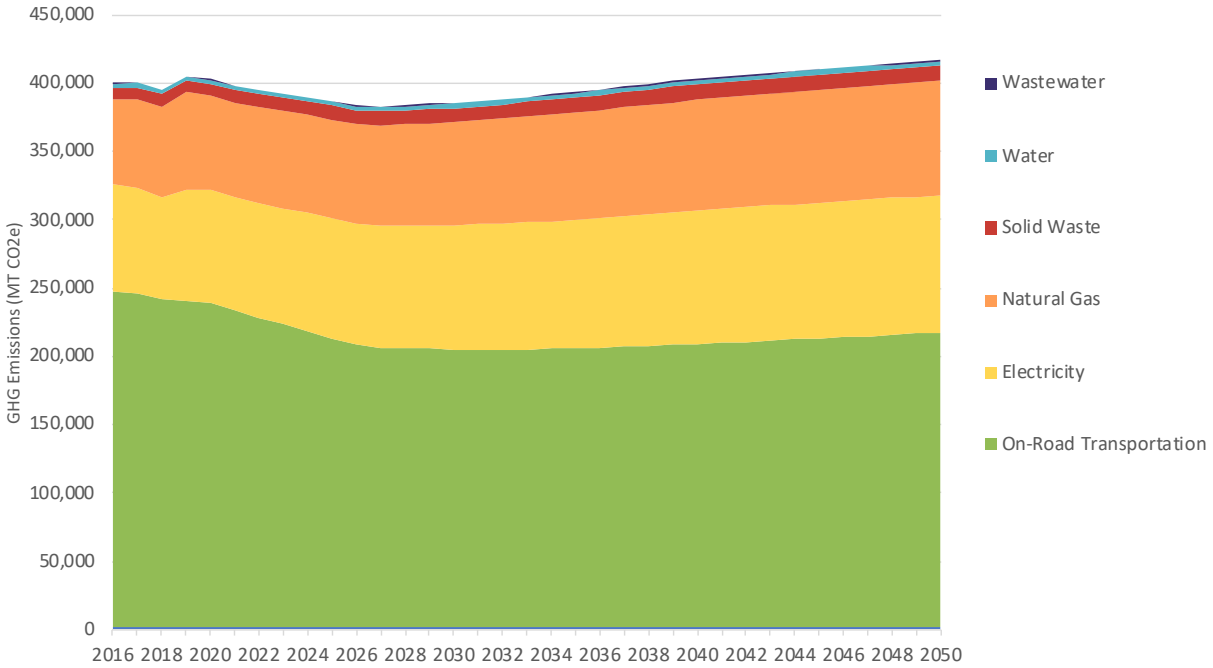
Table 4 Business-As-Usual Emissions Projections

Emissions Category	Projected GHG Emissions (MT CO_2e)	
	2035	2045
On-Road Transportation	203,700	211,300
Electricity	94,400	99,300
Natural Gas	78,500	82,500
Solid Waste	10,800	11,300
Water	3,100	3,200
Wastewater	1,000	1,000
Total	**391,500**	**408,700**

Sum may not add up to totals due to rounding.
Projected GHG emissions for each category are rounded. Values are not rounded in the intermediary steps in the calculation.

Energy Policy Initiatives Center, University of San Diego 2024

Figure 3 Greenhouse Gas Inventory and Business-As-Usual Emissions Projections



Business-as-usual GHG emissions projection with population, jobs, and housing units growth, not including future impacts of adopted federal, state, or regional policies.
Energy Policy Initiatives Center, University of San Diego 2024

The methods used to project activity level and emission factors for each emissions category are described in Table 5.

Table 5 Method to Project Business-as-usual Emissions

Emissions Category	Activity	Method to Project Activity Level	Emission Factor	Method to Project Emission Factor
On-Road Transportation	VMT	Direct results from SANDAG Activity Based Model (ABM 2+ v14.2.2)	Average vehicle emission factor	All new vehicles have the same emission rate as new vehicles in baseline year

Emissions Category	Activity	Method to Project Activity Level	Emission Factor	Method to Project Emission Factor
Electricity	Net energy for load	Residential: Population increase Non-Residential: Jobs increase	City-specific emission factor	Fixed at the latest year with data available (2020)
Natural Gas	Natural gas end-use	Residential: Population increase Non-Residential: Jobs increase	Natural gas emission factor	0.00545 MT CO_2e/ therms
Solid Waste	Waste disposal	Population Increase	Mixed waste emission factor	0.98 MT CO_2e/short ton
Water	Potable and recycled water supply	Potable water: Population increase Recycled water: No recycled water data available	Energy intensity and electricity emission factor	Fixed at the latest year with data available (2020)
Wastewater	Wastewater generation	Population increase	Wastewater emission factor	1.37 MT CO_2e/ million gallon

Method to project business-as-usual emissions only
Population and jobs are provided in Table 2
Energy Policy Initiatives Center, University of San Diego 2024

5 2035 AND 2045 REDUCTION TARGETS

Table 6 shows the BAU emissions projections and the 2035 and 2045 GHG reduction targets.

Table 6 Emissions Projections, Reduction Targets, and Target Emission Level

Year	Business-as-usual Projection* (MT CO_2e)	Target Emissions Level (% below baseline)	Target Emissions Level (MT CO_2e)
2016	398,300	-	-
2035	391,500	50%	199,200
2045	408,700	85%	59,700

Emissions projections and targets are rounded.
*BAU projection without impact of federal, State, regional, and local CAP Update strategies.

Energy Policy Initiatives Center, University of San Diego 2024

6 SUMMARY OF EMISSIONS REDUCTION ESTIMATES

This section summarizes the GHG emissions reductions identified for each strategy and measure included in the CAP Update. Table 7 below presents a summary of emissions reductions from each strategy, including the reductions from federal and State regulations.

Table 7 2035 and 2045 GHG Emissions Reductions by Strategy

CAP Strategy	Emissions Reductions (MT CO_2e)	
	2035	2045
Building Energy Efficiency	2,728	4,421
Clean and Renewable Energy	6,104	--
Clean and Efficient Transportation	17,715	22,223
Water Efficiency	866	581
Waste Reduction	8,096	10,172
Urban Natural Environment	1,461	1,689
Total Reduction from Federal and State Regulations	185,642	271,920
Total Reduction (Federal, State and CAP Measures)*	**223,000**	**311,000**

*Total emissions reduction values in 2035 and 2045 are rounded. The total includes values from federal, State, regional, and local CAP Update strategies.

Energy Policy Initiatives Center, University of San Diego 2024

Each pathway has several measures and actions. Table 8 presents a detailed summary of the emissions reductions from each CAP measure and action, including the impact from federal and State actions. The supporting actions in the CAP are not presented here.

Table 8 2035 and 2045 GHG Emissions Reductions by Measure and Action

CAP Pathway	Federal and State Regulations and CAP Measures and Action	Emissions Reduction (MT CO_2e)	
		2035	2045
Building Energy Efficiency	BE-1: Existing Building Retrofit Program	1,069	1,654
	BE-2: High Energy Performance Standard for New Construction	1,605	2,498
	BE-3: Municipal Facility Energy Retrofit Program	54	269
Clean and Renewable Energy	RE-1: Increase Renewable Energy and Energy Storage at Municipal Facilities	135	-
	RE-2: Increase Citywide Renewable Energy and Energy Storage	5,970	-
Clean and Efficient Transportation	T-1: Bicycle and Pedestrian Infrastructure Development	1,937	2,227
	T-2: Transportation Demand Management Program	3,967	6,296
	T-3: Municipal Transportation Demand Management Program	21	12
	T-4: Mixed-Use and Transit-Oriented Development	10,425	12,727
	T-5: Alternative Refueling Infrastructure Development	-	-
	T-6: Municipal Fleet Transition	387	216
	T-7: Develop a Flexible Fleets Program	-	-
	T-8: Signal Optimization & Install Roundabouts	978	745
Water Efficiency	W-1: Water Efficiency	581	581
	W-2: Local Water Supply Resilience	285	-
Waste Reduction	WR-1 to WR-5: Waste Reduction	8,096	10,172

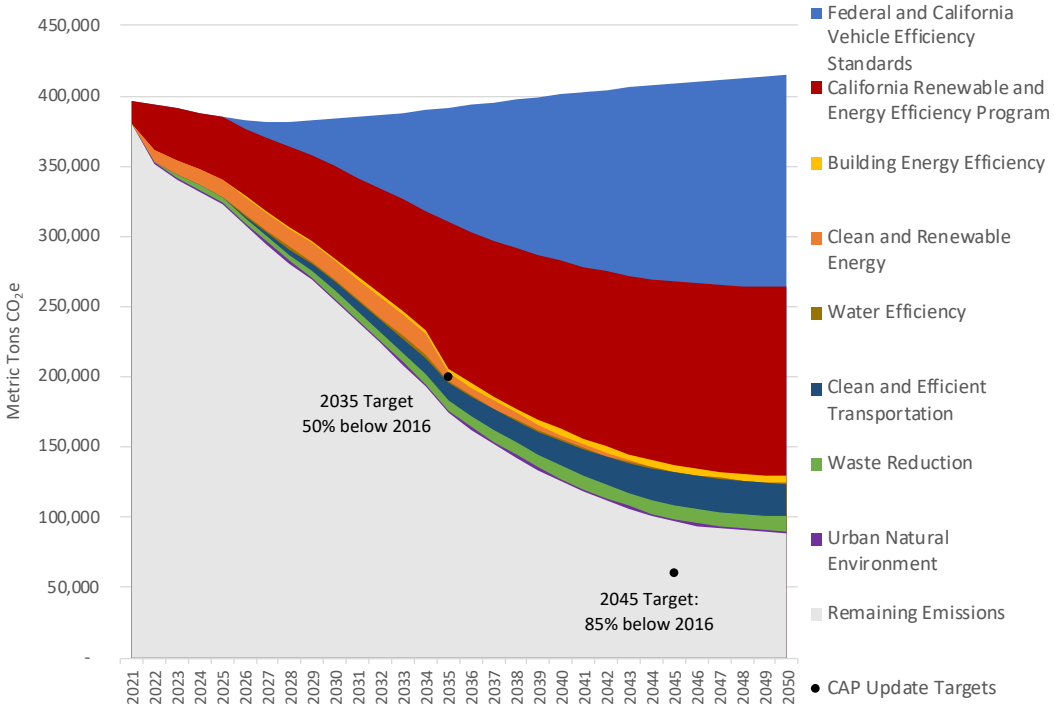
CAP Pathway	Federal and State Regulations and CAP Measures and Action	Emissions Reduction (MT CO_2e)	
		2035	2045
Urban Natural Environment	U-1: Increase Urban Forest Canopy Cover	1,461	1,689
Federal and State Regulations	Federal and California Vehicle Efficiency Standards (Include Advanced Clean Car Zero-emission Vehicle Regulation)	81,009	140,608
	California Energy Efficiency Programs	3,626	3,485
	Renewables Portfolio Standard	67,992	90,598
	California Solar Policy, Programs and Mandates	33,015	37,229
Total Reduction from Federal and State Regulations		185,642	271,920
Total Reduction from CAP Measures		36,970	39,086
Total Reduction (Federal, State and CAP Measures)*		**223,000**	**311,000**

*Total emissions reductions values in 2035 and 2045 are rounded. The total includes reductions from federal, State, and CAP Update measures.

Energy Policy Initiatives Center, University of San Diego 2024

Figure 4 provides a visualization of the emissions trends through 2045 by strategy. In Figure 4, the colored wedges represent the reduction from each pathway and from federal and State actions. Each wedge represents the cumulative GHG reduction from through 2045. The grey area beneath the colored wedges represents the remaining emissions after all the actions have taken place.

Figure 4 Greenhouse Gas Emissions Trend by Pathway (2021–2045)



Energy Policy Initiatives Center, University of San Diego 2024

7 METHODS TO ESTIMATE GREENHOUSE GAS EMISSIONS REDUCTIONS

The following subsections describe the methods used to estimate GHG emissions reductions:

- Section 7.1 through Section 7.3 discuss a set of common assumptions and sources used to calculate emissions reductions in energy and on-road transportation categories;
- Section 7.4 describes the emissions reductions from federal and State actions; and
- Section 7.5 describes the emissions reductions from the CAP Update measures.

7.1 Common Assumptions and Methods for Calculating Electricity Emissions Reductions

The following overall assumptions and methods are used in the calculation of emissions reductions related to electricity, including those from federal and State actions as well as CAP Update measures.

7.1.1 GHG Emission Factor for Electricity

The electricity emission factors in La Mesa (i.e., citywide electricity emission factors) are the weighted average emission factors of gross generation from four sources of supply: (1) SDG&E; (2) the electric retail suppliers for SDG&E's Direct Access (DA) customers; (3) San Diego Community Power (SDCP); and (4) behind-the-meter photovoltaic (PV) systems. The citywide electricity emission factors are different from the emission factors used in the GHG inventory because the electricity generated from behind-the-meter PV systems are assumed to be zero emissions and not accounted for in the GHG inventory. However, all sources are considered to estimate the effects of State actions and CAP measures that increase the grid-supply of renewable and zero-carbon electricity. Considering behind-the-meter PV as a source that contributes to the citywide electricity emission factor reflects the effects of energy efficiency programs that may reduce behind-the-meter electricity use, or the effects from additional electric vehicle (EV) charging load, which may come from behind-the-meter electricity sources and not just from grid supply.

The citywide electricity emission factor is calculated based on the percentage of renewable content in and the percentage of gross generation from each supply source as described below. This method is applied to 2020 onward when the projection from the electricity category starts. As the percentage of renewable and zero-carbon supply in the mix increases, the citywide electricity emission factor decreases.

7.1.1.1 Supply from San Diego Gas & Electric

As of 2020, SDG&E's bundled power mix is 31% renewable.[7] It is assumed SDG&E will meet the 45% renewable by 2024, 60% renewable by 2030, 90% renewable and zero-carbon by 2035, and 100% renewable and zero-carbon by 2045 as required by the Renewables Portfolio Standard (RPS) under SB 100 (de León) and SB 1020 (Laird).[8] Estimates in this Appendix assume that 100% renewable and zero-carbon means supplying every hour of the year with renewable and carbon-free electricity resources. The legislative mandates are discussed in detail in Section 7.4.1.

7.1.1.2 Supply from Electric Retail Suppliers of San Diego Gas & Electric Direct Access Customers

Like SDG&E, electric retail suppliers of SDG&E DA customers are required to meet RPS targets.

[7] SDG&E: 2020 Power Content Label.
[8] SB 100 (de León) California Renewables Portfolio Standard Program: emissions of greenhouse gases (2017–2018). The interim RPS targets are 44% by 2024 and 52% by 2027 from eligible renewable energy resources. SB 1020 (Laird) Clean Energy, Jobs, and Affordability Act of 2022 (2021-2022).

7.1.1.3 Supply from San Diego Community Power

SDCP would increase its renewable and zero-carbon electricity supply beyond the current RPS mandates. This is discussed in detail in 7.4.1.

Because all of California's retail electricity suppliers need to meet the RPS requirement, a portion of the emissions reduction from RPS compliance is credited to State actions. The remaining portion of reductions is attributed to CAP Action RE-2.1.

7.1.1.4 Supply from Behind-the-Meter Photovoltaic Systems

Electricity generation from behind-the-meter PV systems, including residential and non-residential PV, is considered part of the overall electricity supply. Electricity generation from PV is considered 100% zero-carbon (i.e., GHG-free). The State's solar policies, programs, and mandates are discussed in Section 7.4.1.1.

7.1.1.5 Citywide Electricity Emission Factors

The citywide electricity emission factor is based on the percentage of gross generation from each supply, as well as the percentage of renewable and zero-carbon content in each supply.

Table 9 shows the contribution from each supply to gross generation, its renewable and zero-carbon content, and the overall citywide electricity emission factors for 2020, 2035, and 2045.

Table 9 La Mesa Citywide Electricity Emission Factors

Year		2020	2035	2045
San Diego Community Power (SDCP)	% of Gross Generation Supplied	-*	57%	58%
	Renewable and Zero-Carbon Content in Supply	-*	100%	100%
Other Electric Retail Suppliers	% of Gross Generation Supplied	12%	10%	10%
	Renewable and Zero-Carbon Content in Supply	33%	90%	100%
SDG&E	% of Gross Generation Supplied	71%	2%	2%
	Renewable and Zero-Carbon Content in Supply	31%	90%	100%
Behind-the-meter PV	% of Gross Generation Supplied	16%	31%	30%
	Renewable and Zero-Carbon Content in Supply	100%	100%	100%
Citywide	Renewable and Zero-Carbon Content in Supply	42%	99%	100%
	Electricity Emission Factor (lbs CO_2e/MWh)	535	11	0

*San Diego Community Power was launched in 2021
The overall citywide emission factors here are different from the emission factors used in the GHG inventories. The emission factors used in GHG inventories do not include behind-the-meter supplies.
2020 is the latest year with utility data available. 2035 and 2045 data are projections based on CAP Update assumptions, current status, and future impact of State policies and programs.

Energy Policy Initiatives Center, University of San Diego 2024

In 2020, SDG&E and other electric retail suppliers supplied 84% of the projected gross generation, and behind-the-meter PV systems supplied the remainder. In 2035, the projected electricity supply from behind-the-meter PV systems is estimated to be 31% of gross generation. To comply with the mandated renewable and zero-carbon targets for 2035, the renewable content in electricity from both SDG&E and other electric retail suppliers will increase to 90%. This Appendix assumes the renewable and zero-

carbon supply is fixed at the RPS mandate level to avoid overestimating the emissions reductions from these supplies. Based on the target for CAP Action RE-2.1, the city will set SDCP's 100% renewable option as the primary electricity rate for La Mesa. Based on these supply contributions, the citywide annual weighted electricity emission factor in 2035 is projected to be 11 lbs CO_2e/MWh (99% renewable and zero-carbon) and zero lbs CO_2e/MWh in 2045 (100% renewable and zero-carbon).

The citywide electricity emission factors are used to calculate the emissions reductions from electricity savings, as well as State actions and CAP measures that increase renewable supply.

7.1.2 GHG Emissions Reductions from Actions that Increase Renewables in Electricity

The projected citywide electricity emission factor is used to estimate the GHG emissions reductions from any actions that increase the overall renewable and zero-carbon supply. The total reduction from State and local CAP measures that increase renewable supply is given in Table 10, calculated using the projected gross generation in target years and the difference in the 2035 and 2045 citywide emissions and BAU emission factors.

Table 10 GHG Emissions Reductions from Actions Increasing Renewable and Zero-Carbon Supply

Year	Gross Generation (GWh)	BAU Projections		Projections with State and Local CAP Update Actions in Increasing Renewable and Zero-Carbon Supply		GHG Emissions Reductions from Increased Renewable and Zero-Carbon Supply (MT CO_2e)
		BAU Electricity Emission Factor (lbs CO_2e/MWh)	BAU Emissions from Electricity (MT CO_2e)	Projected Electricity Emission Factor (lbs CO_2e/MWh)	Projected Emissions from Electricity (MT CO_2e)	
2035	446	535	108,154	11	2,284	105,870
2045	520	535	126,120	-	-	126,120

The projections with increasing renewable and zero-carbon supply are based on CAP Update assumptions and State policies and programs, including the additional electric load from electric vehicles due to California's Advanced Clean Cars II regulations.

Energy Policy Initiatives Center, University of San Diego 2024

The BAU emission factor for 2020 is kept constant through the year 2045. The total emissions reductions from increasing renewable supply, as calculated in Table 10, is attributed to each supply based on its renewable and zero-carbon content compared to the total renewable and zero-carbon content. This is shown in Table 11.

Table 11 GHG Emissions Reductions by Supply

Year	Electricity Supply	Total	SDCP	Other Electric Retail Suppliers	SDG&E	Behind-the-meter PV
2035	% of Gross Generation Supplied by Renewables Sources	99%	57%	9%	2%	31%
	Emissions Reduction from Increased Renewables Supply (MT CO_2e)	105,870	61,042	9,458	2,355	33,015
2045	% of Gross Generation Supplied by Renewables Sources	100%	58%	10%	2%	30%
	Emissions Reduction from Increased Renewables Supply (MT CO_2e)	126,120	73,106	12,654	3,131	37,229

SDCP: San Diego Community Power
2035 and 2045 data are the projections based on CAP Update assumptions and the future impact of State policies and programs.

Energy Policy Initiatives Center, University of San Diego 2024

7.2 Common Assumptions and Methods for Calculating Natural Gas Emissions Reductions

The default natural gas emission factor of 0.00545 MT CO_2e per therm is used for all years to estimate the emissions reductions for the CAP Update measures that reduce natural gas use. The natural gas emission factor is based on the heat content of the fuel and the fuel's CO_2, CH_4, and N_2O emissions, from the CARB's statewide inventory.[9]

7.3 Common Assumptions and Methods for Calculating On-Road Transportation Emissions Reductions

The following assumptions and methods are used to calculate emissions reductions for strategies related to on-road transportation, including federal and State actions and local CAP measures.

7.3.1 GHG Emission Factor for On-Road Transportation

The GHG emission factor for on-road transportation is used in several ways throughout the Appendix: (1) to estimate the effect of federal and State actions that increase the vehicle fuel efficiency standard and increase zero-emission vehicles (ZEVs); and (2) the impact of VMT reduction.

7.3.1.1 Impact of Federal and State Actions on Average Vehicle Emission Rates

The latest CARB EMFAC2021 model includes the effects of federal and State regulations related to tailpipe GHG emissions reductions that were adopted by the end of 2020.[10] In August 2022, CARB adopted the Advanced Clean Cars II (ACCII) regulations that established standards for new post-2026 model year light-duty vehicles. ACCII amended: (1) the low-emission vehicle (LEV) regulations to strengthen standards for light-duty vehicles and trucks to reduce smog-forming emissions; and (2) the ZEV regulations to require an increasing number of ZEVs to meet air quality and climate change emissions standards.[11] The ZEV amendments support Governor Newsom's Executive Order N-79-20 that requires all new passenger vehicles sold in California to be ZEVs by 2035.[12]

[9] CARB: GHG Current California Emission Inventory Data. 2000–2021 GHG Inventory (2023 Edition).
[10] CARB: EMFAC2021 Volume III Technical Document, Version 1.0.1 (April 2021). Section 1.3.5 Regulations and Policies includes a list of polices and regulations covered in EMFAC2021.
[11] CARB: Advanced Clean Cars II.
[12] *Id.*

Starting in 2026, ACCII has a significant impact on the percentage of new ZEVs and plug-in hybrid electric vehicles (PHEVs). However, EMFAC2021 default outputs do not include the effect of ACCII. The pending update of the EMFAC model, EMFAC202Y, will include the impact of ACCII and other light-duty and heavy-duty vehicle regulations passed after the adoption of EMFAC2021.[13]

Figure 5 shows the differences in projected ZEV and PHEV sales as required by ACCII and in EMFAC2021.

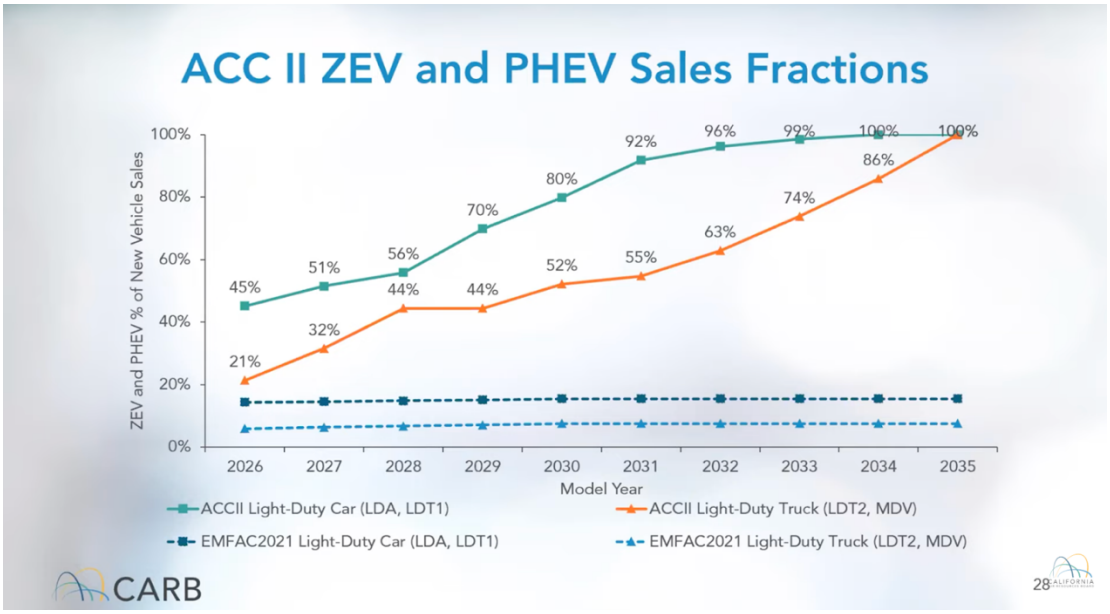


Figure 5 ACCII ZEV and PHEV Sales (Adapted from CARB October 2022 Public Workshop for the EMFAC202Y Model, Presentation Slide 28)

To adjust the EMFAC2021 output to account for ACCII i.e., to estimate the impact of ACC off-model, the ACCII ZEV and PHEV sales in Figure 5 are applied to new light-duty cars trucks starting in model year 2026. For example, 45% of new light-duty cars in model and calendar year 2026 will be ZEVs and PHEVs, with the remaining light-duty cars split between gasoline and diesel.[14] Starting with model year 2035, new light-duty vehicles (both cars and trucks) will be 100% ZEVs or PHEVs.

The average vehicle emission rates (g CO_2e/mile) are calculated based on the distribution of VMT in each vehicle class with an ACCII adjustment for light-duty vehicles, as well as the emission rate of each vehicle class. The average vehicle emission rates (Table 12) are used to estimate the GHG emissions reduction impact of federal and State policies that increase vehicle efficiency and ZEVs.

[13] CARB Presentation EMFAC202Y: An Update to California on-road Mobile Source Emissions Inventory (October 12, 2022).
[14] Based on the EMFAC2021 default gasoline-diesel cars fraction.

Table 12 Average Vehicle Emission Rate in the San Diego Region

Year	EMFAC2021 Default Results (with the Impact of all Adopted State and Federal Policies through 2020)		Adjusted EMFAC2021 Default Results with ACCII ZEV Regulations	
	Ratio of e-VMT to Total VMT (%)	Average Vehicle Emission Rate (g CO_2e/mile)	Ratio of e-VMT to Total VMT (%)	Average Vehicle Emission Rate (g CO_2e/mile)
2019	1.4%	428	1.4%	428
2035	10%	317	44%	218
2045	13%	296	74%	122

ACCII: Advanced Clean Cars II Regulations
e-VMT: electric vehicle miles traveled
EMFAC2021 includes all key federal and State regulations related to tailpipe GHG emissions reductions that were adopted by the end of 2020. EMFAC2021 results are adjusted to include the ACCII ZEV regulations.

CARB 2021, Energy Policy Initiatives Center, University of San Diego 2024

This Appendix assumes that the impact of ACCII in the San Diego region will be the same as its impact statewide due to the lack of regional specific data available. The additional electric load from the ZEVs and PHEVs is included in the projected gross generation in the electricity category.

7.4 Federal and State Actions that Reduce GHG Emissions in La Mesa

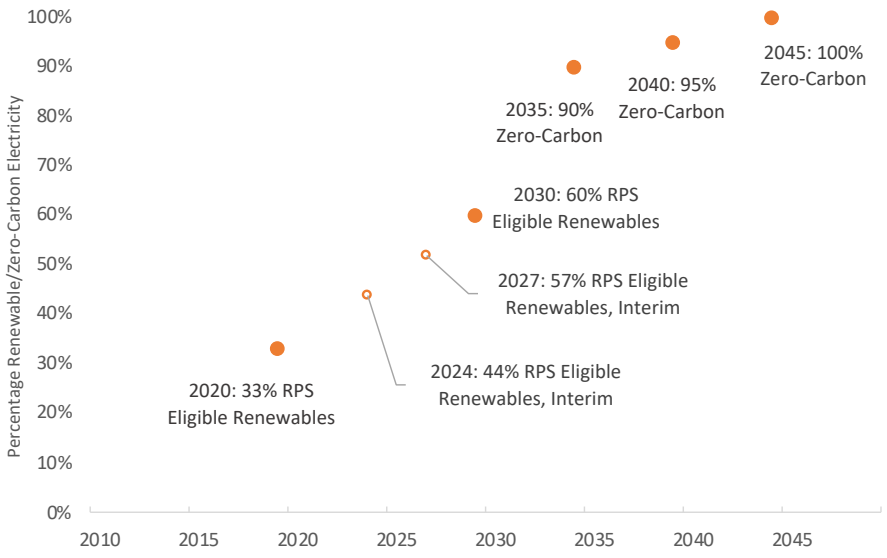
In addition to how federal and State regulations affect the emissions factors of electricity and on-road transportation, these same policies lead to significant emissions reductions in La Mesa through 2045. This section provides a summary of the methods used to estimate and attribute the emissions reductions associated with the following federal and State actions that increase renewable electricity, building energy efficiency, and clean and efficient transportation:

- California Renewable Portfolio Standard – SB 100 and SB 1020
- California Solar Programs, Policies, and Mandates
- California Energy Efficiency Programs
- Federal and California Vehicle Efficiency Standards

7.4.1 California Renewables Portfolio Standard

SB 100, the 100 Percent Clean Energy Act of 2018, adopts a 60% RPS for all of California's retail electricity suppliers by 2030. SB 100 also provides goals for the intermediate years before 2030 and establishes a State policy requiring zero-carbon resources supply 100% of all retail electricity sales to end-user customers and all State agencies by December 31, 2045.[15] SB 1020, the Clean Energy, Jobs, and Affordability Act of 2022, adopts two interim targets for all retail electricity sales to end-use customers: 90% renewable and zero-carbon electricity by 2035 and 95% renewable and zero-carbon electricity by 2040.[16] The statewide renewable and zero-carbon targets are shown in Figure 6.

[15] SB 100 (de León): California Renewables Portfolio Standard Program: emissions of greenhouse gases (2017–2018). The interim RPS targets are 44 percent by 2024 and 52 percent by 2027 from eligible renewable energy resources.
[16] SB 1020 (Laird): the Clean Energy, Jobs, and Affordability Act of 2022 (2021–2022).



SB100 and SB1020 targets apply to all retail electricity providers include Direct Access, Community Choice Aggregators and Investor-Owned Utilities
Energy Policy Initiatives Center, University of San Diego 2023

Figure 6 SB 100 and SB 1020 Targets

All retail electricity suppliers are required to meet the State's RPS requirements, including SDG&E, retail electricity suppliers for SDG&E's DA customers, and SDCP. In this Appendix, a conservative approach is taken. It's assumed all providers for current utility customers, including electricity sales to DA customers, will meet, but not surpass, the RPS requirements. Under this assumption, all emissions reductions from SDG&E and electric retail suppliers reaching 90% renewable and zero-carbon in 2035 are credited to the State under the RPS requirements. In 2045, because all retail electricity suppliers are required to meet the 100% renewable and zero-carbon requirement, all emissions reductions are credited to the State.

For SDCP, a portion of the emissions reductions in 2035 from the program will be credited to the State under RPS compliance, and the remaining reduction will be attributed to RE-2.1, as described in Section 7.5.2.2. In addition, the electricity related to bring water down from the State Water Project and the Colorado River also must be renewable or zero-carbon under the mandates. Table 13 shows results from RPS mandates in target years.

Table 13 Emissions Reductions from California Renewables Portfolio Standard

Year	RPS-Related Emissions Reductions from SDG&E* (MT CO_2e)	RPS-Related Emissions Reductions from SDCP (MT CO_2e)	RPS-Related Emissions Reductions from Upstream Water-Energy Use (MT CO_2e)	Total RPS-Related Emissions Reductions (MT CO_2e)
2035	11,813	54,938	1,241	67,992
2045	15,785	73,106	1,707	90,598

SDCP: San Diego Community Power
*Includes SDG&E and electric retail suppliers of SDG&E DA customers.
2035 and 2045 data are projections under the CAP based on current status, future impact of State policies and programs, and CAP Update measures assumptions.

Energy Policy Initiatives Center, University of San Diego 2023

7.4.1.1 California Solar Programs, Policies, and Mandates

California has several policies and programs to encourage customer-owned, behind-the-meter PV systems, such as the CSI Multifamily Affordable Solar Housing (MASH) Program, Net Energy Metering, and electricity rate structures for solar customers. The California 2019 Building Energy Efficiency Standards, which went into effect on January 1, 2020, required all newly constructed single-family homes, low-rise multi-family homes, and detached accessory dwelling units (ADUs) to have PV systems installed, unless the building receives an exception.[17] The latest California 2022 Building Energy Efficiency Standards (2022 Code), which went into effect on January 1, 2023, expanded the PV requirement to include non-residential buildings. In addition, the 2022 Code encourages efficient electric heat pumps and establishes electric-ready requirements for new residential construction.[18]

The California Energy Demand 2021–2035 Forecast, developed by the CEC, has projections for PV capacity from behind-the-meter PV adoption in the SDG&E planning area through 2035, including the impact of the residential and non-residential PV mandates.[19] The baseline PV projection from 2021–2035 in the SDG&E planning area is used to forecast PV generation in this Appendix.[20]

The California Distributed Generation (DG) Statistics database includes capacities of behind-the-meter PV systems interconnected in a jurisdiction each year for each of the three Investor-Owned Utility (IOU) planning areas, including SDG&E. This provides a historical record used to determine the capacity in GHG inventory years and the trends in PV installation.

[17] CEC: 2019 Building Energy Efficiency Standards – 2019 Residential Compliance Manual (December 2018). For the requirements on newly constructed single-family and low-rise multi-family homes, see Section 7.2 Prescriptive Requirements for Photovoltaic System. For the requirements on newly constructed and detached ADU, see Section 9.3.5 Accessory Dwelling Units.
[18] CEC: 2022 Building Energy Efficiency Standards.
[19] The New Billing Tariff that went into effect in April 2023 and the federal ITC extension announced in August 2022 will have a long term an impact the behind-the-meter PV installation. The Energy Demand Forecasts are updated annually, and the impacts will be assessed in future versions.
[20] CEC: California Energy Demand Update 2021-2035 accessed May 13, 2024.

A comparison of the estimated capacity and electricity generation from PV systems in La Mesa and in the SDG&E planning area is given in Table 14.[21]

Table 14 Behind-the-meter PV Capacity and Estimated Electricity Generation

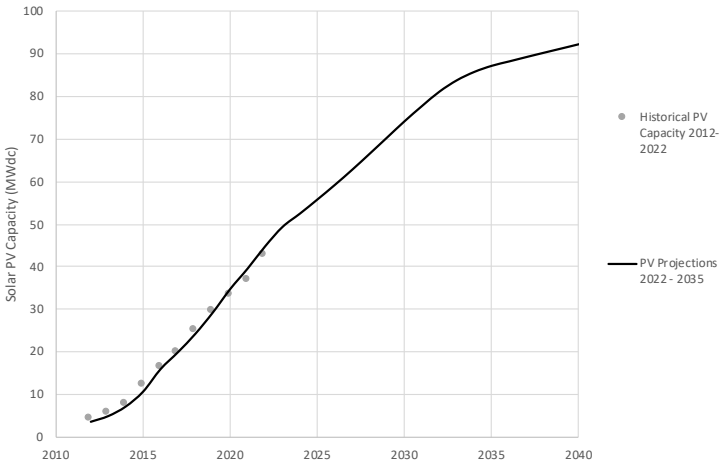
Year	La Mesa*		SDG&E Planning Area**	Historical La Mesa to SDG&E Ratio of Electricity Generation from PV
	PV Capacity (MW)	Estimated Electricity Generation (GWh)	Estimated Electricity Generation (GWh)	
2018	25	40	1,699	2.4%
2019	30	47	2,049	2.3%
2020	33	53	2,438	2.2%
2021	37	59	2,776	2.1%
2022	43	68	3,141	2.2%

MW: megawatt; GWh: gigawatt hour
*Estimated electricity generation based on PV capacity and 18% capacity factor.
**California Energy Demand Baseline 2022–2035 Forecast

California DG Statistics 2023, CEC 2023, Energy Policy Initiatives Center, University of San Diego 2024

For future years, the electricity generation and capacity of behind-the-meter PV systems in La Mesa are estimated based on the PV generation in CEC's baseline forecast for SDG&E's planning area and the average ratio of PV generation in La Mesa to that of SDG&E's planning area from 2018-2022 (2.2%). Because of California's solar programs, policies, and mandates, the estimated 2035 PV capacity in La Mesa is projected to be 87.1 megawatts (MW). The trend of behind-the-meter PV in La Mesa is shown in Figure 7.

[21] The capacity of all interconnected PV systems in La Mesa was from the California Distributed Generation Statistics NEM Currently Interconnected Data Set (current as of March 30, 2023), download date: June 3, 2023. National Renewable Energy Laboratory: Residential PV Resources Classes, Mean DC Capacity Factor.



Source of historical capacity: California Distributed Generation Statistics, 2023.
Source of capacity trend: California Energy Demand 2023-2040 Baseline Forecast in San Diego planning area, mid-demand scenario (Jan 2024 version).
Energy Policy Initiatives Center, University of San Diego, 2024

Figure 7 Behind-the-meter Photovoltaic Historical Capacity and Projections

Because there are no statewide PV projections beyond 2035, this Appendix assumes that the PV capacity from State programs beyond 2035 will have an annual growth rate of 1.1% (the 2034–2035 growth rate, or the last year with data available) beyond 2035. The projected 2045 PV capacity from State action is approximately 97 MW. The emissions reductions resulting from State measures that increase behind-the-meter renewable supply would be 33,015 MT CO_2e in 2035 and 37,229 MT CO_2e in 2045.

7.4.2 California Energy Efficiency Programs

In September 2021, the CPUC adopted energy efficiency goals for ratepayer-funded energy efficiency programs (Decision 21-09-037). The adopted energy saving goals for SDG&E's service territory are given in the Decision on an annual basis from 2022 to 2032.[22] The sources of the energy savings include, but are not limited to, rebated technologies, building retrofits, behavior-based initiatives, and codes and standards.[23]

To evaluate the impact of the energy efficiency programs in La Mesa, the total energy savings in SDG&E's service territory by 2032 are allocated to La Mesa using a ratio of La Mesa's natural gas and electricity demand to those of SDG&E's entire service territory. The average 2016–2020 ratios are 1.4% for electricity and 3.7% for natural gas.[24] SDG&E's energy efficiency goal is not estimated by the CPUC beyond 2032; therefore, it is assumed the annual electricity and natural gas savings from energy efficiency programs post-2032 will be the same as in 2032. SDG&E's service territory electricity savings

[22] CPUC: Decision 21-09-037, Adopting Energy Efficiency Goals for 2022-2032, accessed September 16, 2022. SDG&E's electricity service territory is larger than San Diego region.
[23] Guidehouse: 2021 Energy Efficiency Potential and Goals Study (April 23, 2021), accessed September 16, 2022. Rebated technologies are the energy efficiency technologies from the utility's historic incentive programs, including equipment and retrofits. Existing and future Codes and Standards included in the Study is discussed in Section 3.9 Codes and Standards.
[24] SDG&E's service territory demand is from California Energy Demand Update 2022-2035 accessed June 3, 2023. 2020 is the latest year with historical data available for both La Mesa and SDG&E service territory.

were allocated accordingly to La Mesa, as shown in Table 15.[25]

Table 15 Estimated Energy Savings from California Energy Efficiency Programs

Year	Electricity Savings* (GWh)		Natural Gas Savings (million therms)	
	SDG&E Service Territory	Allocation of Savings to La Mesa by Demand	SDG&E Service Territory	Allocation of Savings to La Mesa by Demand
2032	1,914	27	18	0.6

*Include transmission and distribution losses.
SDG&E service territory savings are the cumulative based on the 2022-2032 annual saving goals in CPUC Decision 21-09-037.

Energy Policy Initiatives Center, University of San Diego 2024

Emissions reductions from electricity savings are calculated by multiplying the electricity savings by the citywide GHG emission factor for electricity, discussed in Section 7.1.1 and shown in Table 9. As the renewable and zero-carbon content in electricity increases, the emissions reductions from the electricity portion of energy efficiency programs decrease. Emissions reductions from natural gas savings were calculated using the natural gas savings amount and the natural gas emission factor discussed in Section 7.2. Table 16 summarizes the energy savings and GHG emissions reductions in the years 2035 and 2045.

Table 16 Emissions Reductions from California Energy Efficiency Programs

Year	Electricity Savings			Natural Gas Savings			Total GHG Emissions Reductions (MT CO_2e)
	Electricity Savings (GWh)	Emission Factor (lbs CO_2e/MWh)	GHG Emissions Reductions from Electricity Savings (MT CO_2e)	Natural Gas Savings (million therms)	Emission Factor (MT CO_2e/therm)	GHG Emissions Reductions from Natural Gas Savings (MT CO_2e)	
2030	27	11	141	0.6	0.00545	3,485	3,626
2045	27	-	-	0.6	0.00545	3,485	3,485

The emissions reductions are projected based on CAP Update assumptions and future impact of State policies and programs.

Energy Policy Initiatives Center, University of San Diego 2024

7.4.3 Federal and California Vehicle Efficiency Standards

As discussed in Section 7.3, CARB's EMFAC2021 model includes all key federal and State regulations related to tailpipe GHG emissions reductions for both light-duty and heavy-duty vehicles that were in place by the end of 2020. EMFAC2021 results were adjusted to include ACCII ZEV regulations which require an increasing number of ZEVs for post-2026 model year light-duty vehicles. Table 17 summarizes the key assumptions and results in the years 2035 and 2045.

[25] CPUC: Decision 21-09-037, Adopting Energy Efficiency Goals for 2022-2032, accessed September 16, 2022. The 2022 and beyond goals are given on an annual basis for each year from 2022 to 2032.

Table 17 Federal and California Vehicle Efficiency Standards

Year	Projected La Mesa VMT (million miles per year)	BAU Projection With No Regulatory Impacts		With Impact of Adopted Regulations Through 2020 and ACCII ZEV Regulations		GHG Emissions Reductions (MT CO_2e)
		Average Vehicle Emission Rate* (g CO_2e/mile)	GHG Emissions from On-Road Transportation (MT CO_2e)	Average Vehicle Emission Rate (g CO_2e/mile)	GHG Emissions from On-Road Transportation (MT CO_2e)	
2035	564	361	203,653	218	122,644	81,009
2045	582	363	211,314	122	70,705	140,608

ACCII: Advanced Clean Cars II Regulation
ZEV: zero-emission vehicles
*Despite the absence of additional policies and programs to increase vehicle efficiency, the BAU average vehicle emission rate decreases with natural fleet turnover as new vehicles replace old vehicles.
The emission rates and emissions reductions are projected based on CAP Update assumptions and future impact of State policies and programs.

Energy Policy Initiatives Center, University of San Diego 2024

7.5 Climate Action Plan Update Measures

The following section describes the methods used to estimate the GHG reductions from the CAP measures and actions, which are organized into the following six strategies:

- Building Energy Efficiency
- Clean and Renewable Energy
- Clean and Efficient Transportation
- Water Efficiency
- Waste Reduction
- Urban Natural Environment

7.5.1 Building Energy Efficiency

7.5.1.1 Measure BE-1: Existing Building Retrofit Program

7.5.1.1.1 Action BE-1.1: Participate in the existing statewide energy building benchmarking program

The city will develop and implement a citywide building energy benchmarking program. Based on an U.S. Environmental Protection Agency (EPA) study of building energy data reported using EPA's ENERGY STAR Portfolio Manager, the average annual savings in energy use from benchmarking programs is approximately 2.4%.[26] The city's program will encourage La Mesa residential and non-residential energy users to participate in the existing statewide energy benchmarking program.[27]

Emission reductions were calculated assuming approximately 5% of La Mesa's non-residential natural gas use (33 properties) would participate, and 40% of La Mesa's non-residential energy users. Table 18 summarizes the key assumptions and results.

[26] EPA: Benchmarking and Energy Savings.
[27] CEC: Building Energy Benchmarking Program.

Table 18 Key Assumptions and Results for Action BE-1.1: Participate in the existing statewide energy building benchmarking program

Year	Natural Gas Savings due to Building Energy Benchmarking Program* (therms/year)	Natural Gas Emission Factor (MT CO_2e/therm)	Emissions Reductions from Natural Gas Savings (MT CO_2e)	Electricity Savings due to Building Energy Benchmarking Program* (kWh/year)	Electricity Emission Factor (lbs CO_2e/MWh)	GHG Emissions Reductions from Electricity Savings (MT CO_2e)	GHG Emissions Reductions (MT CO_2e)
2035	181,999	0.0054	993	12,823,220	11	66	1,058
2045	299,426	0.0054	1,633	21,056,016	-	-	1,633

*Assume the benchmarking program would start in 2023 and approximately 5% of the non-residential and 40% of the residential built sq. ft. would be subject to the requirement.
The projected energy and emissions reductions are the projections under the CAP Update, based on current status, future impact of State policies and programs, and CAP Update assumptions.
Energy Policy Initiatives Center, University of San Diego 2024

7.5.1.1.2 Action BE-1.2: Require energy audits and encourage energy improvements prior to building permit issuance for remodels and renovations

The city will amend Title 14 of the La Mesa Municipal Code to require energy efficiency audits prior to building permit issuance for remodels and renovations. Starting 2026, for the homes that go through energy audits, the city will incentivize energy improvements through an expedited plan check. On average, 25 single family homes are assumed to undergo energy improvements per year with the requirements and incentives.

The energy (both electricity and natural gas) savings per a typical cost-effective energy retrofit activity, such as adding attic and wall insulation, sealing ducts, upgrading windows, or adding a cool roof, is different. It is assumed with the incentives, a homeowner will select one or more energy retrofit activities with energy savings equivalent to twice of the average energy savings. The energy savings from retrofit activities are 535 kWh and 8 therms per home. [28]

The GHG emissions reductions from electricity and natural gas savings due to the energy improvements are summarized in Table 19 and Table 20.

[28] California Energy Codes & Standards: 2022 Single Family Retrofits Study Data. Energy savings are based on La Mesa's climate zone.

Table 19 Electricity Savings from Action BE-1.2: Require energy audits and encourage energy improvements prior to building permit issuance for remodels and renovations

Year	Number of Home Energy Retrofits Due the Requirements Starting 2026	Electricity Savings per Retrofit* (kWh/home/year)	Total Electricity Savings from All Retrofits (kWh/year)	Electricity Emission Factor (lbs CO_2e/MWh)	GHG Emissions Reductions from Electricity Savings (MT CO_2e)
2035	250	535	133,630	11	1
2045	500	535	267,260	-	-

*Energy savings are based on the average of single-family energy retrofit activities
The projected retrofits and emissions reductions are the projections under the CAP Update, based on current status, future impact of State policies and programs, and CAP Update assumptions.
Energy Policy Initiatives Center, University of San Diego 2024

Table 20 Natural Gas Savings Action BE-1.2: Require energy audits and encourage energy improvements prior to building permit issuance for remodels and renovations

Year	Number of Home Energy Retrofits Due the Requirements Starting 2026	Natural Gas Savings per Retrofit** (therms/home/year)	Total Natural Gas Savings from All Retrofits (therms/year)	Natural Gas Emission Factor (MT CO_2e/therm)	GHG Emissions Reductions from Natural Gas Savings (MT CO_2e)
2035	250	8	1,914	0.0054	10
2045	500	8	3,829	0.0054	21

*Energy savings are based on the average of single-family energy retrofit activities
The projected retrofits and emissions reductions are the projections under the CAP Update, based on current status, future impact of State policies and programs, and CAP Update assumptions.
Energy Policy Initiatives Center, University of San Diego 2024

By adding the totals in Table 19 and Table 20, the GHG emissions reductions from Action BE-1.2 are 11 MT CO_2e in 2035 and 21 MT CO_2e in 2045.

7.5.1.2 Measure BE-2: High Energy Performance Standard for New Construction

7.5.1.2.1 Action BE-2.1: Develop a performance-based standard for new residential construction

The city will update its building code to require new residential buildings to meet a higher energy performance standard (HPS) as approved by CEC, after the next 2025 California Energy Code becomes effective.

Based on the 2022 new construction cost-effectiveness studies, the cost-effectiveness of a code-compliant home meeting higher energy performance standards varies by Climate Zone. Table 21 shows the natural gas savings and the additional electricity demand in Climate Zone 7 where La Mesa is located. [29]

[29] California Energy Codes & Standard Reach Codes Program: 2022 Single Family New Construction and 2022 Multifamily New Construction (June 20, 2023), accessed September 2023.

Table 21 Assumptions of All Electric Homes

All Electric Home Type	Single-Family	Mult--Family
Natural Gas Savings Compared with Mixed-Fuel Home (therms per unit)	69	102
Additional Electricity Added Compared with Mixed-Fuel Home (kWh per unit)	1,293	704
Based on prototypes in the cost-effectiveness study. For new single-family homes, the base case is modeled based on electric heat pump water heater with natural gas cooking and clothes drying. For new multi-family homes, the base case is modeled based on a natural gas centralized boiler with solar thermal, and electric cooking and clothes drying. California Statewide Reach Codes Program, 2023		

The number of new single-family and multi-family units projected through 2045 are based on the housing projections described in Section 4. It is assumed that on average 75% of new homes will opt for all-electric option with the HPS. The emissions reduced from natural gas savings and emissions added from electricity use are shown in Table 22 and Table 23.

Table 22 Electricity Added from Action BE-2.1: Develop a performance-based standard for new residential construction

Year	Single-Family Homes		Multi-Family Homes		Total		
	Number of New All-electric Home Due to the Reach Code*	Electricity Added due to All-Electric (kWh/home/year)	Number of New All-electric Homes Due to Reach Code*	Electricity Added due to All-Electric (kWh/home/year)	Total Electricity Added (MWh/year)	Electricity Emission Factor (lbs CO_2e/MWh)	Emissions Added from Additional Electricity Use (MT CO_2e)
2035	14	1,293	2,894	704	18	11	11
2045	17	1,293	4,479	704	21	0	0

*It is assumed on average 75% of new residential construction will opt for all-electric option with the reach code
The projected retrofits and emissions reductions are the projections under the CAP Update, based on current status, future impact of State policies and programs, and CAP Update assumptions.

Energy Policy Initiatives Center, University of San Diego 2024

Table 23 Natural Gas Savings from Action BE-2.1: Develop a performance-based standard for new residential construction

Year	Single-Family Homes		Multi-Family Homes		Total		
	Number of New All-electric Home Due to the Reach Code*	Natural Gas Savings due to All-Electric (therms/home/year)	Number of New All-electric Homes Due to Reach Code*	Natural Gas Savings due to All-Electric (therms/home/year)	Total Natural Gas Savings (therms/year)	Natural Gas Emission Factor (MT CO_2e/therm)	Emissions Reductions from Natural Gas Savings (MT CO_2e)
2035	14	69	2,894	102	0.3	0.00545	1,615
2045	17	69	4,479	102	0.5	0.00545	2,498

The projected retrofits and emissions reductions are the projections under the CAP Update, based on current status, future impact of State policies and programs, and CAP Update assumptions.

Energy Policy Initiatives Center, University of San Diego 2024

Combining the totals from Tables 56 and 57, the net GHG emissions reductions from Action BE-2.1 are 1,605 MT CO_2e in 2035 and 2,498 MT CO_2e in 2045.

7.5.1.3 Measure BE-3: Municipal Facility Energy Retrofit Program

7.5.1.3.1 Action BE-3.1: Work with Energy Services Company (ESCO) to complete a comprehensive energy program to reduce municipal energy use

The city will work to reduce energy consumption (electricity and natural gas) from municipal facilities to the stated climate action plan goal of 20% below 2021 levels by 2035 for both. This goal will be achieved through energy efficiency and conservation measures. The municipal energy use in 2021 was 3,695,945 kWh and 49,332 therm, represents the energy use of a typical year at the municipal facilities.[30]

[30] Municipal energy data were provided by City staff to EPIC, November 2023.

Additionally, the city will start switch all municipal facility natural gas use to electricity by 2035 and complete the fuel substitution by 2045. The electricity will continue to be provided by SDCP's 100% renewable, Power 100, product.

Table 24 summarizes the key assumptions and results.

Table 24 Key Assumptions and Results for Measure BE-3: Municipal Facility Energy Retrofit Program

Year	Projected Natural Gas Savings with Energy Retrofits* (therms/year)	Projected Natural Gas Savings with Fuel Substitution (therms/year)	Projected Additional Electricity Use w/ Fuel Substitution (kWh/year)	Total Natural Gas Use with Energy Retrofits and Fuel Substitution (therms/year)	Natural Gas Emission Factor (MT CO_2e/therm)	GHG Emissions Reductions from Natural Gas Savings (MT CO_2e)
2035	9,866	-**	-**	9,866	0.0054	54
2045	9,866	39,466	191,996	49,332	0.0054	269

*20% below 2021 baseline natural gas use (49,332 therms)
Fuel substitution would start after 2035
The projected retrofits and emissions reductions are the projections under the CAP Update, based on current status, future impact of State policies and programs, and CAP Update assumptions.

Energy Policy Initiatives Center, University of San Diego 2024

7.5.2 Clean and Renewable Energy

7.5.2.1 Measure RE-1: Increase Renewable Energy and Energy Storage at Municipal Facilities

7.5.2.1.1 Action RE-1.1: Continue to enroll all new municipal electricity accounts into a 100% renewable energy program, SDCP Power 100

The city will maintain SDCP Power 100 as the primary electricity option for existing municipal electricity accounts. All new municipal electricity accounts, including the new accounts as results of the fuel substitution in BE-3.1, will also be enrolled in SDCP's Power 100. The emissions reductions from additional renewable electricity are based on the difference between the renewable content of electricity under RPS compliance and SDCP's renewable content. Table 25 summarizes the key assumptions and results.

Table 25 Key Assumptions and Results for Measure BE-3: Municipal Facility Energy Retrofit Program

Year	City Facilities Electricity Use* (MWh)	Emissions from Electricity Use with RPS-Compliant Renewable (MT CO_2e)	Emissions from Electricity Supplied by SDCP (MT CO_2e)	GHG Emissions Reductions from Renewable Electricity (MT CO_2e)	Total GHG Emissions Reductions (MT CO_2e)
2035	3,221	135	-	135	135
2045	3,811	-	-	-	-

*Includes facility electrification efforts as calculated for Measure BE-3.1.

Energy Policy Initiatives Center, University of San Diego 2024

7.5.2.2 Measure RE-2: Increase Citywide Renewable Energy and Energy Storage

7.5.2.2.1 Action RE-2.1: Continue to enroll all new residents and businesses into existing SDCP Power100 (100% renewable energy program)

As discussed in Section 7.4.1, SB 100 (100 Percent Clean Energy Act of 2018) adopts a 60% RPS for all of California's retail electricity suppliers by 2030 and 100% zero-carbon electricity by 2045. Measure RE-2.1 assumes that SDCP, launched in 2021, would increase the renewable and zero-carbon electricity beyond the current RPS mandates for target years, to 100% renewable and zero-carbon by 2030.

Based on SDCP's implementation plan, 95% of SDG&E's residential and non-residential bundled customers' electric load would be supplied by SDCP.[31] SDG&E DA customers, whose electric load is supplied by other retail electric suppliers, will stay with their current electric suppliers and not participate in SDCP.

As previously explained in Section 7.4.1 and Table 11 GHG Emissions Reductions by Supply , because SDCP is required to comply with the State's RPS mandates, a portion of the total emissions reduction from Measure RE-2.1 is credited to the State's RPS compliance. The remaining emissions reduction beyond RPS compliance is allocated to local Measure RE-2.1. The allocation of GHG emissions reduction in 2035 and 2045 from this measure to the State and the city is shown in Table 26.

Table 26 Key Assumptions and Results for Measure RE-2: Increase Citywide Renewable Energy and Energy Storage

Year	State or CAP Measure	Total for Local Renewables and Zero-Carbon Program	Local Renewables and Zero-Carbon program to Complying with RPS	Local Renewables and Zero-Carbon Program above RPS (RE-2)
2035	Projected Renewables and Zero Carbon (%)	100%	90%	10%
	GHG Emissions Reductions (MT CO_2e)	61,042	54,938	6,104
2045	Projected Renewables and Zero Carbon (%)	100%	100%	-
	GHG Emissions Reductions (MT CO_2e)	73,106	73,106	-

The emissions reduction is the projection under the CAP, based on CAP assumptions and future impact of State policies and programs.

Energy Policy Initiatives Center, University of San Diego 2024.

7.5.3 Clean and Efficient Transportation

Greenhouse gas reductions from transportation measures were quantified by CR Associates. See Appendix *La Mesa Climate Action Plan - GHG Reduction Determination – Technical Memorandum* for more details.

[31] SDCP: Community Choice Aggregation Implementation Plan and Statement of Intent (December 9, 2019). Proposed Resource Plan 2021-2030. SDCP has a goal to achieve a 100% renewable portfolio by no later than 2035. Several member jurisdictions in SDCP have CAPs with 100% by 2030 renewable energy goal.

7.5.4 Water System Efficiency

7.5.4.1 Measure W-1: Water Efficiency

7.5.4.1.1 Action W-1.1: Participate in and collaborate with Helix Water District outreach programs to increase community awareness and activity in water conservation and efficiency programs

The goal of Action W-1.1 is to achieve the level of passive water conservation described in Helix Water District's Urban Water Management Plan.[32] La Mesa's contribution to this effort was scaled proportionately using La Mesa's water demand compared to the total demand on Helix Water District in the year 2020. Key assumptions and results are in Table 27.

Table 27 Key Assumptions and Results for Action W-1.1: Participate in and collaborate with Helix Water District outreach programs to increase community awareness and activity in water conservation and efficiency programs

Year	BAU Water Demand (acre-feet)	Reduction in Water Use from Active and Passive Conservation (acre-feet)	Water Supply after Reduction (acre-feet)	Upstream GHG Emissions Reduction from Water Savings* (MT CO_2e)	Local GHG Emissions Reduction from Water Savings and Additional Renewable Supply** (MT CO_2e)	Emission Reduction (MT CO_2e)
2035	7,215	1,170	6,045	456	113	569
2045	5,746	1,457	6,092	569	-	569

*Upstream emissions reductions from water savings are calculated based on the BAU GHG intensity of SDCWA untreated water supply (0.39 MT CO2e/acre-foot) and the reduction in water use. The impact of increased renewable or zero-carbon electricity in the upstream supply due to RPS is captured under Section 7.4.1.

The emissions reduction is the projection under the CAP, based on CAP assumptions and future impact of State policies and programs.

Energy Policy Initiatives Center, University of San Diego 2024.

7.5.4.1.2 Action W-1.2: Establish water reduction target for city buildings and facilities

The goal of Action W-1.2 is to reduce municipal water consumption by 20% by 2035 and beyond. Key assumptions and results are in Table 28.

Table 28 Key Assumptions and Results for Action W-1.2: Establish water reduction target for city buildings and facilities

Year	Baseline Municipal Facility Water Use (million gallons)	Municipal Water Reduction Targets (%)	Municipal Water Reduction (acre-feet)	SDCWA Untreated Water GHG Intensity (MT CO2e/acre-foot)	Emission Reduction (MT CO_2e)
2035	51	20%	31	0.39	12
2045	51	20%	31	0.39	12

The emissions reduction is the projection under the CAP, based on CAP assumptions and future impact of State policies and programs.

Energy Policy Initiatives Center, University of San Diego 2024.

[32] Helix Water District: Urban Water Management Plan, Table 4-A.

7.5.4.2 Measure W-2: Local Water Supply Resilience

7.5.4.2.1 Action W-2.1: Support East County Advanced Water Purification (ECAWP) Program

The East County Advanced Water Purification (ECAWP) Program, a collaborative effort from the Helix Water District, County of San Diego, City of El Cajon, and Padre Dam Municipal Water District, will deliver water from a new local water supply starting 2027.[33]

The percentage of La Mesa's water supply that will be from ECAWP is not available, therefore, the percentage of all partner agencies' water supply that will be from ECAWP, 28.6%, is used as a proxy for La Mesa. The local water supply will replace imported raw water purchases from SDCWA. The emissions avoided are calculated based on the difference between upstream energy intensity and ECAWP energy intensity (tertiary treatment), and the difference between the statewide electricity emission actors and the SDCP emission factors. Table 29 summarizes the key assumptions and results.[34]

Table 29 Key Assumptions and Results for Action W-2.1: Support East County Advanced Water Purification (ECAWP) Program

Year	ECAWP Supply for La Mesa (AF)	MWh Avoided with ECAWP - Upstream	Local Electricity Use Added from ECAWP Supply* (MWh)	Net Emission Reduction (MT CO_2e)
2035	3,610	6,814	5,718	285
2045	3,778	7,130	5,984	-

ECAWP: East County Advanced Water Purification
ECAWP energy intensity (advanced treatment beyond tertiary treatment) is 1,584 kWh per acre-foot, the electricity used for ECAWP is assumed to be zero-emissions (either from on-site renewable or 100% renewable or carbon-free electricity from SDCP)

The emissions reduction is the projection under the CAP, based on CAP assumptions and future impact of State policies and programs.

Energy Policy Initiatives Center, University of San Diego 2023

7.5.5 Waste Reduction

7.5.5.1 Measure WR-1 through Measure WR-5

The goal of Measure WR-1 through Measure WR-5 is to achieve: (1) 75% waste diversion rate by 2035 and 90% waste diversion by 2045. The 75% waste diversion rate would result in 3.1 pounds per person per day (PPD) waste disposed in landfills in 2035, and the 90% waste diversion rate would result in 1.2 PPD waste disposed in 2045.

The city has not conducted a waste characterization study, therefore, the 2016 waste composition data (used in the 2016 GHG inventory) from San Diego are used and held constant through 2045.[35] The emissions avoided from increasing the waste diversion rate is the difference between the waste

[33] East County Advanced Water Purification Program.
[34] The percentage of ECAWP to total water supply (of all partner agencies) was provided by Helix Water District to EPIC (May 2024). The advanced water treatment energy intensity (beyond tertiary treatment level to achieve drinking water quality), 1,584 kWh/acre-foot, is provided by Padre Dam Municipal Water District to EPIC through a different project.
[35] Recent State actions include organic waste recycling, which may reduce the mixed waste emission factor in future years.

category BAU emissions and the solid waste emissions using the target diversion rates and corresponding PPD waste amounts. Table 30 summarizes the key assumptions and results.

Table 30 Key Assumptions and Results for Measure WR-1 through Measure WR-5

Year	Waste Disposed at Landfills from La Mesa			Landfill Gas Capture Rate	Emissions with Targeted Diversion Rate (MT CO_2e)	Business as Usual Emissions (MT CO_2e)	GHG Emissions Reduction (MT CO_2e)
	lbs/person/day	short tons/year	MT/year				
2030	3.1	40,426	36,674	90%	2,708	10,804	8,096
2035	1.2	16,921	15,350	90%	1,133	11,306	10,172
Emissions from waste are calculated based on the mixed waste emission used in Section **Error! Reference source not found.**, oxidation rate (10%), and the waste capture rates. The projected emissions reductions are based on the CAP assumptions. Energy Policy Initiatives Center, University of San Diego 2024							

7.5.6 Urban Natural Environment

7.5.6.1 Measure U-1: Increase Urban Forest Canopy

7.5.6.1.1 Action U-1.1: Implement the Urban Forest Management Plan recommendations, which serves as a strategic, long-range guide to proactively grow, improve, and manage city's urban forest

The goal of Action U-1.1 is to increase the urban canopy to 20% of developed land by 2051, as previously set in the city's Urban Forest Management Plan. The tree canopy cover in the city in 2020 was 12%. [36] The carbon sequestration potential is calculated based on the projected canopy cover and the CO_2 absorption rate per acre. Table 31 summarizes the key assumptions and results.

Table 31 Key Assumptions and Results for Action U-1.1: Implement the Urban Forest Management Plan recommendations, which serves as a strategic, long-range guide to proactively grow, improve, and manage city's urban forest

Year	Canopy Cover Target (%)	Targeted Canopy Cover (Acres)	CO_2 Sequestered Rate (MT CO_2 per acre)	Carbon Sequestration (MT CO_2)
2035	16%	937	1.56	1,461
2045	19%	1,083	1.56	1,689
Brown et al 2004, Energy Policy Initiatives Center, University of San Diego 2024				

7.5.6.1.2 Action U-1.2: Develop a free tree program to implement other avenues, like free tree giveaways or tree rebates on private properties

The goal of Action U-1.2 is to giveaway 50 trees per year starting in 2026 for residents and businesses to plant on private property. The carbon sequestration potential is calculated based on the projected canopy cover and the CO_2 absorption rate per acre.[37] Table 31 summarizes the key assumptions and results.

[36] City of La Mesa (2022): Urban Forest Management Plan.

[37] On average, the CO_2 sequestration rate is 0.035 MT CO_2 per tree per year. The carbon sequestration rate depends on the tree species, climate zone, planting location, and tree age. A more accurate carbon sequestration rate will be evaluated once the parameters are decided in implementation of the measure. California Emissions Estimator Model (CALEEMOD). Appendix D Default Data Tables (October 2017).

Table 32 Key Assumptions and Results for Action U-1.2: Develop a free tree program to implement other avenues, like free tree giveaways or tree rebates on private properties

Year	Cumulative Number of Trees from the Free Tree Program	CO_2 Sequestered Rate (MT CO_2 per tree)**	Carbon Sequestration (MT CO_2)
2035	500	1.56	18
2045	1,000	1.56	35

**Average of trees. An improved estimate of the carbon sequestration rate can be evaluated once the implementation parameters are decided.

Energy Policy Initiatives Center, University of San Diego 2024

Appendix B

Methods for Estimating Greenhouse Gas Emissions from Transportation Sector

TO:	Hilary Ego, Environmental Program Manager; City of La Mesa Naomi Wentworth, Energy Policy Initiatives Center (EPIC); University of San Diego
FROM:	Phuong Nguyen, PE, Senior Transportation Engineer; CR Associates
DATE:	September 1, 2024
RE:	La Mesa Climate Action Plan - GHG Reduction Determination – Technical Memorandum

The purpose of this technical memorandum is to document the potential Green House Gas (GHG) reduction associated with the transportation measures presented in the City of La Mesa Climate Action Plan.

Introduction

In accordance with the City of La Mesa's goals to reduce greenhouse gas (GHG) emissions, an update to the existing City of La Mesa Climate Action Plan (CAP) has been proposed to revise target years and to align with the State of California's GHG goals. This update aims to adjust the target years for GHG reduction and ensure they are in sync with the state's GHG reduction goals. The update includes the following measures:

- T-1: Bicycle and Pedestrian Infrastructure Development
- T-2: Transportation Demand Management Program
- T-3: Municipal Transportation Demand Management Program (with transit subsidy for all City Employee)
- T-4: Mixed-Use and Transit-Oriented Development and Parking Pricing (Expand Parking meters area and parking rate)
- T-5: Alternative Refueling Infrastructure Development
- T-6: Municipal Fleet Transition
- T-7: Develop a Flexible Fleets Program
- T-8: Signal Optimization & Install Roundabouts

Discussion of each measure is provided below and supporting information are provided in **Attachment A.**

Measure T-1: Bicycle and Pedestrian Infrastructure Development

Developing planned bicycle and pedestrian infrastructure, along with improving existing facilities, will create a complete street environment for all users in La Mesa. Completing these facilities will encourage residents to shift from vehicle dependency to alternative transportation modes. The 2023 active transportation traffic counts show that pedestrian activities in La Mesa are concentrated around residential streets, connecting neighborhoods to local amenities such as schools and community centers. By constructing missing sidewalks, improving existing ones, and enhancing bicycle facilities, the City can reduce car dependency. Since walking and biking complement each other and users may choose different modes based on daily needs, the GHG reduction calculation groups these measures together for a comprehensive assessment.

According to the City of La Mesa's Sidewalk Master Plan, the City currently has 169.8 miles of existing sidewalks, 67.2 miles of proposed sidewalks, and 36.9 miles without sidewalks. Some areas without

sidewalks are located in the City's more historic districts. However, to enhance connectivity, it is anticipated that these areas will be upgraded to walkable conditions as redevelopment occurs. Therefore, this measure assumes that the City will construct 107.1 miles of new sidewalks by 2045, with approximately half of that completed by 2035. Additionally, the measure assumes the completion of the Citywide bicycle network. According to the City of La Mesa Geographical Information Database there are currently 19 miles of Class II or better bicycle facilities in the City of La Mesa, with an additional 6.6 miles of bicycle facilities planned for future improvements.

The greenhouse gas (GHG) reduction associated with this measure was determined using Measures T-18 and T-20 from the California Association of Air Pollution Control Officers' Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (CAPCOA Handbook). Measure T-18 estimates that completing the missing sidewalks could reduce citywide GHG emissions by up to 1.58% by 2035 and 3.15% by 2045. Additionally, completing the City's bicycle network might further reduce citywide GHG emissions by an additional 0.22%. According to the CAPCOA Handbook, combining multiple measures can enhance their effectiveness, which should be calculated by multiplying the individual reduction percentages. This is done using the following formula:

$$Reduction_{subsector} = = 1 - [(1 - A) \times (1 - B) \times (1 - C)]$$

Where A, B, and C represent the individual reduction percentages for the measures within each subsector.

After applying this formula and rounding it down as a conservative estimate, the total GHG reduction remains at 1.58% by 2035 and 3.15% by 2045. **Table 1** displays the GHG reduction associated with this measure.

Table 1 - Measure T-1 GHG Reduction Assumptions.

Year	GHG Emissions w/ EMFAC2021 + ACCII (MT CO2e)	Reduction per CAPCOA	Emissions Reduction (MT CO2e)
2035	122,644	1.58%	1,937
2045	70,705	3.15%	2,227

Measure T-2: Transportation Demand Management Program

The City will adopt a Citywide Transportation Demand Management Program, participation in the program is required for all new development and redevelopment, excluding single family residential development but would be require for development where there are more than one dwelling unit per parcel i.e. duplexes or other density bonus type of development.

This measure would require the City to adopt an ordinance to develop a Citywide Transportation Demand Management (TDM) program, along with an annual or biennial monitoring report. Based on Measure T-6 from the CAPCOA Handbook, this initiative could potentially reduce Vehicle Miles Traveled (VMT) by up to 26% per Project, thus the reduction is only applied to the GHG and VMT associated with redevelopment project. **Table 2** outlines the calculation of GHG reductions for the years 2035 and 2045.

Table 2 - Mandatory TDM Program GHG Reductions Assumptions

Calculation Value / Year	2035	2045
VMT Reduction Calculation for Employment Development		
Change in Employment	285	1,106
VMT per Employee	13.50	12.80
Total new VMT (assume redevelopment)	3848	14157
Reduction with Mandatory Program	-26%	-26%
Total VMT Reduction (from new Employment) Per day	-1,000	-3,681
Total VMT Reduction (from new Employment) million miles per year)	-0.35	-1.28
GHG Emissions w/ EMFAC2021 + ACCII (MT CO2e)	122,644	70,705
EMFAC2021 Vehicle Emission Factor – ACCII (g CO2e per mile)	218	122
Employment GHG Reduction	**(76)**	**(155)**
VMT Reduction Calculation for Residential Development		
Change in Population	10,474	14,226
Change in Housing Supply	5,092	5,309
Pop affected by redevelopment	2.29	2.40
VMT per Resident	11,684	37,274
Total new VMT (assume redevelopment)	17.3	15.4
Reduction with Mandatory Program	202,133	574,012
Total VMT Reduction (from new residential)	-26%	-26%
Residential GHG Reduction	**-18.24**	**-51.79**
Total GHG Reduction	**(3,967)**	**(6,296)**

Measure T-3: Municipal Transportation Demand Management Program

Developing a TDM program focused on City staff will offer significant return on investment by encouraging alternative modes of transportation. This program aims to enhance the quality of life for City staff while reducing GHG emissions and dependency on single-occupancy vehicles. This program shall include transit subsidies for municipal employees. **Table 3** displays the GHG reduction calculation.

Table 3 - City of La Mesa Employee TDM Program GHG quantification

Year	# City Employees	Average Commute Length	% Drive Alone	Annual Drive alone VMT	VMT Reduced[1]	VMT Avoided	Average Vehicle Emission Rate (g O2e/mile)	Total CO2 (grams)	Total CO2 Avoid in MT
2035	264	24.3	77.20%	1,718,529	94,519	94,519	218	20,605,168	20.61
2045						94,519	122	11,531,333	11.53

[1] The SANDAG Regional Transportation Model for the year 2016 found that the transit mode share in the City of La Mesa is 5.5%. A research paper titled "Employer-paid transit subsidies and travel behavior: Experimental evidence from Vancouver hotels" found that the percentage of new transit users resulting from a transit subsidy varies depending on the employment location and the availability of on-street parking. The study also showed that even in areas with high driving dependency, a 50% transit subsidy could lead to a mode shift of up to 6%, meaning a 6% reduction in vehicle miles traveled (VMT). Since this strategy is combined with an increase in parking prices, it is assumed that the transit subsidy would be 50% or greater, potentially doubling the number of transit users. https://pdf.sciencedirectassets.com/778770/1-s2.0-S2667091721X00027/1-s2.0-S2667091721000066/main.pdf?

T-4: Mixed-Use and Transit-Oriented Development and Parking Pricing (Expand Parking meters area and parking rate)

The City will identify areas capable of supporting increased population or employment within a 1/4-to-1/2-mile walking distance to transit stops, such as trolley stations. High-density affordable housing will be supported near LM-5, Amaya Trolley Station, and LM-7, Spring Street Trolley Station, designated as regional Smart Growth Areas. The City will collaborate with SANDAG, MTS, and other regional jurisdictions to enhance local transit service and micro-mobility options in these higher-density, mixed-use areas to attract new potential transit riders. Participation in future regional planning and programs will lay the foundation for long-term VMT reduction opportunities in La Mesa.

Development within ½ mile of a major transit stop such as the Spring Street and Amaya Trolley Stations are not required to meet minimum parking standards. The City should develop and adopt a parking management plan that optimizes the parking fees and parking availability around TOD to encourage alternative modes of transportation and discourage single occupancy vehicle dependency. One significant tool for this strategy is to update the parking pricing (parking meter) to reflect market conditions and expand the parking meter area. By pricing parking meters (increase parking meter rate) to reflect market conditions and expanding the parking meter areas to cover areas within the City of La Mesa that are medium to high density, the City of La Mesa would be able to incentivize residents/business owners/visitors to select alternative mode of transportation. This action assumed that the City of La Mesa would increase parking meter pricing and expand the parking meter area to cover other high demand areas such as those located near Grossmont Mall or the Sharp hospital.

This measure assumes that the City would also increase the parking meter rate from $0.75 currently to $2.25 by 2035 and $3.25 by 2045. Based on measure T-24 of the CAPCOA handbook, this would potentially reduce the GHG associated with the area where paid parking is in effect by 17% by the year 2035 and 30% by the year 2040.

Table 4 - Table 4 displays the GHG reduction calculation.

Year	GHG Emissions w/ EMFAC2021 + ACCII (MT CO2e)	GHG from within Paid Parking Area Only - Estimated based on roadway ADT	Reduction per CAPCOA	Emissions Reduction (MT CO2e
2035	122,644	61,322	-17.00%	-10,424.74
2045	70,705	42,423	-30.00%	-12,726.9

Measure T-6: Municipal Fleet Transition

The City plans to convert gasoline vehicles within its fleet to ZEVs and to switch eligible heavy-duty fleet vehicles to renewable diesel. Assuming the municipal fleet size does not increase from the baseline of 150 vehicles[2]. **Table 5** below displays the reduction calculation.

[2] Fuel carbon contents are based on CARB statewide GHG inventor 2022 Edition, last updated on October 26, 2022.

Table 5 - Municipal Fleet Transition GHG Calculation Assumption

Year	% Reduction in Gasoline	Gasoline Fuel Use[3] (gallons)	Gasoline Reduction (gallons)	GHG Emissions for Fuel[4] (lbs CO2e/gallon)	Emissions Reduction from Gasoline Reduction (MT CO2e)
2035	100%	46,118	46,118	18.5	387
2045	100%	25,773	25,773	18.5	216

T-7: Signal Optimization & Roundabout Installation/Traffic Calming

The objectives of Measure T-7 are twofold: (1) to synchronize traffic signals at 58 intersections by 2035, optimizing fuel efficiency through smoother traffic flow, and (2) to install 10 new roundabouts or traffic circles by 2045. The impact of traffic signal synchronization and roundabouts on fuel reduction is influenced by traffic volume and the size of the intersections on arterial roads. A study of a similar traffic signal synchronization project found that annual fuel savings per intersection averaged around 2,400 gallons[5]. Of the 58 signalized intersections, 53 are connected to the central traffic management center at City Hall, it is anticipated that by 2045 all signals would be connected to a centralized Traffic Management Center.

Additionally, the City is currently working on converting key corridors into complete street environments by constructing new roundabouts or converting signalized intersections into roundabouts. These roundabouts are expected to enhance traffic operations, reduce speeds, provide traffic calming, and decrease GHG emissions[6].

Table 6 displays the GHG reduction calculation for signal optimization and **Table 7** displays the GHG reduction calculation for the roundabout construction and conversion.

Table 6 - Signal Synchronization GHG Reduction

Year	Number of Intersections with Traffic Signal Synchronization	Increase in Vehicle Fuel Efficiency Compared to Baseline Year[7]	Equivalent Fuel Saving per Intersection (gallons/ year)	Fuel Saving from All Intersections (gallons/year)	GHG Emissions for Fuel[8] (lbs CO2e/gallon)	GHG Emissions Reductions (MT CO2e)
2035	58	54%	1,177	68,266	18.5	573
2045	53	73%	658	34,874	18.5	293

[3] Assuming the fleet size is the same, as vehicles get more efficient and more ZEVs are on the market due to California's ZEV mandates, the gasoline demand decreases
[4] Calculated based the gasoline reduction and the gasoline carbon intensity of 7,978 CO2e/gallon
[5] Sunkari: The Benefits of Retiming Traffic Signals (2004). The Jacksonville traffic signal retiming project at a 25-intersection section resulted in estimated annual fuel savings of 65,000 gallons.
[6] Varhelyi: The Effects of Small Roundabouts on Emission and Fuel Consumption: A Case Study (2002). The study estimated the traffic volume of the intersection and the fuel consumption before and after the roundabout. The traffic volume is 23,500 vehicles per day and the fuel savings are approximately 144 kg per day after the roundabout installation.
[7] Increase in vehicle fuel efficiency is based on the decrease of the average vehicle emission rate.
[8] Emissions per gallon of fuel use for an average vehicle in the San Diego region, regardless of fuel type, vehicle type, or fuel economy. The emissions reductions are the projections under the CAP Update, based on CAP Update assumptions and future impact of State policies and programs.

Table 7 - Roundabout GHG Reduction

Year	Number of New Roundabouts	Increase in Vehicle Fuel Efficiency Compared to Baseline Year[9]	Equivalent Fuel Savings per Intersection (gallons/year)	Fuel Savings for All Intersections (gallons/year)	GHG Emissions for Fuel[10] (lbs CO2e/gallon)	GHG Emissions Reductions (MT CO2e)
2035	5	54%	9,646	48,230	18.5	405
2045	10	73%	5,390	53,900	18.5	452

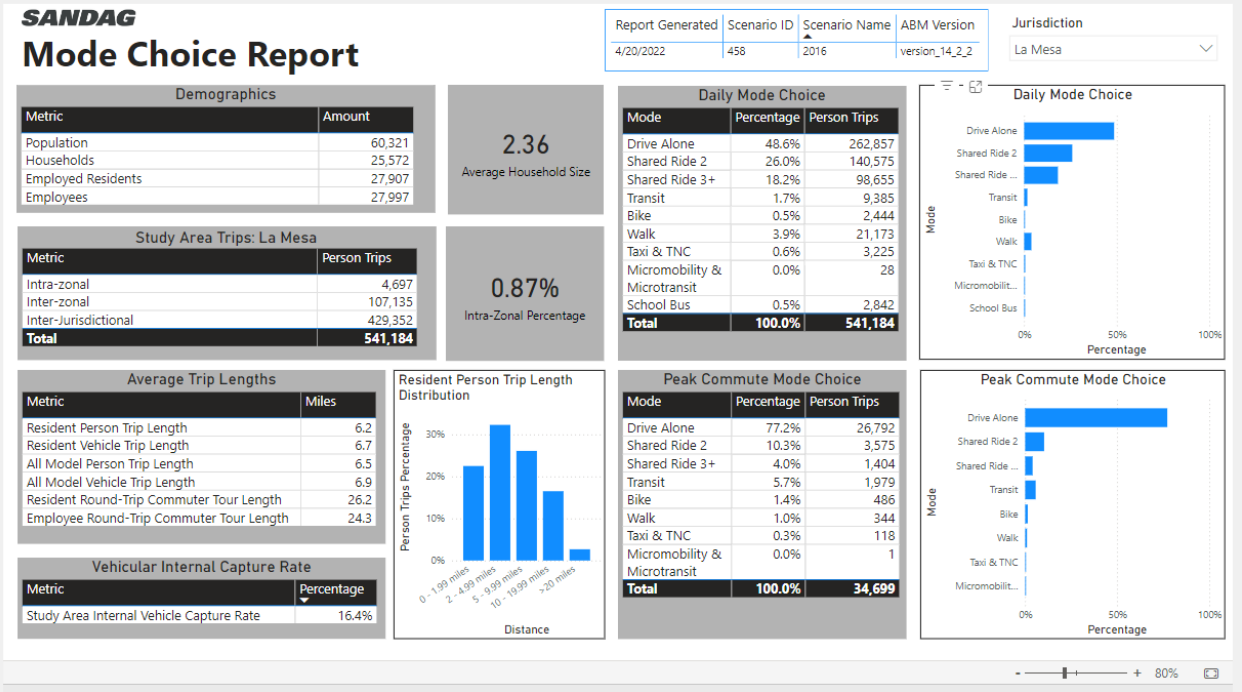
[9] Increase in vehicle fuel efficiency is based on the decrease of the average vehicle emission rate.

[10] Emissions per gallon of fuel use for an average vehicle in the San Diego region, regardless of fuel type, vehicle type, or fuel economy. The emissions reductions are the projections under the CAP Update, based on CAP Update assumptions and future impact of State policies and programs.

Attachment A - Supporting Information

SANDAG Mode Choice Reports

2016



SANDAG

Mode Choice Report

Report Generated	Scenario ID	Scenario Name	ABM Version
4/20/2022	458	2016	version_14_2_2

Jurisdiction: La Mesa

Demographics

Metric	Amount
Population	60,321
Households	25,572
Employed Residents	27,907
Employees	27,997

2.36 Average Household Size

Study Area Trips: La Mesa

Metric	Person Trips
Intra-zonal	4,697
Inter-zonal	107,135
Inter-Jurisdictional	429,352
Total	**541,184**

0.87% Intra-Zonal Percentage

Daily Mode Choice

Mode	Percentage	Person Trips
Drive Alone	48.6%	262,857
Shared Ride 2	26.0%	140,575
Shared Ride 3+	18.2%	98,655
Transit	1.7%	9,385
Bike	0.5%	2,444
Walk	3.9%	21,173
Taxi & TNC	0.6%	3,225
Micromobility & Microtransit	0.0%	28
School Bus	0.5%	2,842
Total	**100.0%**	**541,184**

Average Trip Lengths

Metric	Miles
Resident Person Trip Length	6.2
Resident Vehicle Trip Length	6.7
All Model Person Trip Length	6.5
All Model Vehicle Trip Length	6.9
Resident Round-Trip Commuter Tour Length	26.2
Employee Round-Trip Commuter Tour Length	24.3

Peak Commute Mode Choice

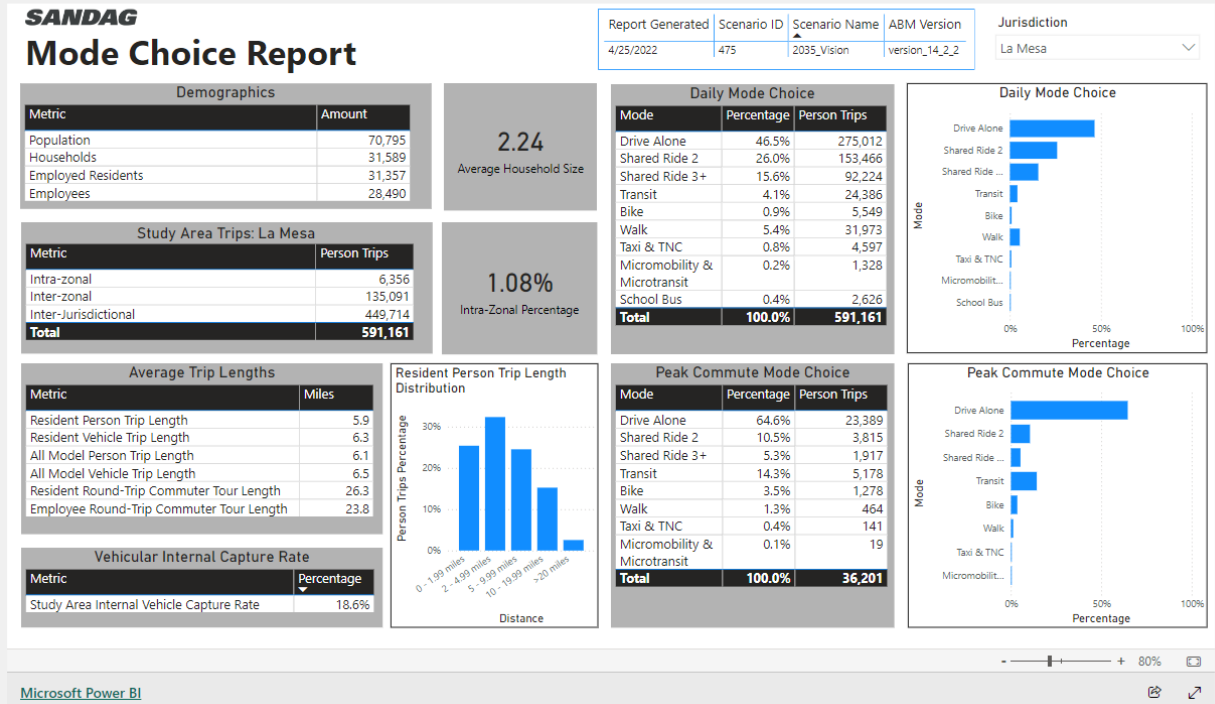
Mode	Percentage	Person Trips
Drive Alone	77.2%	26,792
Shared Ride 2	10.3%	3,575
Shared Ride 3+	4.0%	1,404
Transit	5.7%	1,979
Bike	1.4%	486
Walk	1.0%	344
Taxi & TNC	0.3%	118
Micromobility & Microtransit	0.0%	1
Total	**100.0%**	**34,699**

Vehicular Internal Capture Rate

Metric	Percentage
Study Area Internal Vehicle Capture Rate	16.4%

80%

2035 Vision



SANDAG

Mode Choice Report

Report Generated	Scenario ID	Scenario Name	ABM Version
4/25/2022	475	2035_Vision	version_14_2_2

Jurisdiction: La Mesa

Demographics

Metric	Amount
Population	70,795
Households	31,589
Employed Residents	31,357
Employees	28,490

2.24 Average Household Size

Study Area Trips: La Mesa

Metric	Person Trips
Intra-zonal	6,356
Inter-zonal	135,091
Inter-Jurisdictional	449,714
Total	**591,161**

1.08% Intra-Zonal Percentage

Daily Mode Choice

Mode	Percentage	Person Trips
Drive Alone	46.5%	275,012
Shared Ride 2	26.0%	153,466
Shared Ride 3+	15.6%	92,224
Transit	4.1%	24,386
Bike	0.9%	5,549
Walk	5.4%	31,973
Taxi & TNC	0.8%	4,597
Micromobility & Microtransit	0.2%	1,328
School Bus	0.4%	2,626
Total	**100.0%**	**591,161**

Average Trip Lengths

Metric	Miles
Resident Person Trip Length	5.9
Resident Vehicle Trip Length	6.3
All Model Person Trip Length	6.1
All Model Vehicle Trip Length	6.5
Resident Round-Trip Commuter Tour Length	26.3
Employee Round-Trip Commuter Tour Length	23.8

Peak Commute Mode Choice

Mode	Percentage	Person Trips
Drive Alone	64.6%	23,389
Shared Ride 2	10.5%	3,815
Shared Ride 3+	5.3%	1,917
Transit	14.3%	5,178
Bike	3.5%	1,278
Walk	1.3%	464
Taxi & TNC	0.4%	141
Micromobility & Microtransit	0.1%	19
Total	**100.0%**	**36,201**

Vehicular Internal Capture Rate

Metric	Percentage
Study Area Internal Vehicle Capture Rate	18.6%

80%

Microsoft Power BI

2050 Vision

SANDAG

Mode Choice Report

Report Generated	Scenario ID	Scenario Name	ABM Version
4/20/2022	459	2050_Vision	version_14_2_2

Jurisdiction: La Mesa

Demographics

Metric	Amount
Population	74,614
Households	33,324
Employed Residents	32,974
Employees	29,722

2.24
Average Household Size

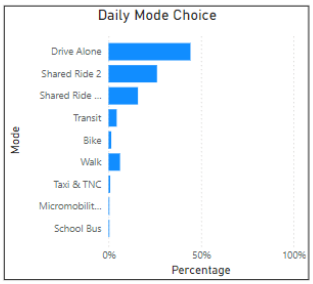
Study Area Trips: La Mesa

Metric	Person Trips
Intra-zonal	7,533
Inter-zonal	144,914
Inter-Jurisdictional	466,846
Total	**619,293**

1.22%
Intra-Zonal Percentage

Daily Mode Choice

Mode	Percentage	Person Trips
Drive Alone	44.3%	274,247
Shared Ride 2	26.2%	162,240
Shared Ride 3+	15.9%	98,311
Transit	4.4%	27,230
Bike	1.5%	9,018
Walk	6.2%	38,383
Taxi & TNC	0.9%	5,547
Micromobility & Microtransit	0.3%	1,671
School Bus	0.4%	2,646
Total	**100.0%**	**619,293**

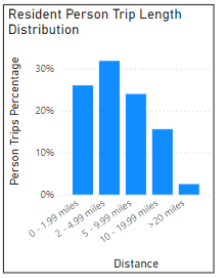


Average Trip Lengths

Metric	Miles
Resident Person Trip Length	5.9
Resident Vehicle Trip Length	6.4
All Model Person Trip Length	6.2
All Model Vehicle Trip Length	6.5
Resident Round-Trip Commuter Tour Length	26.2
Employee Round-Trip Commuter Tour Length	24.0

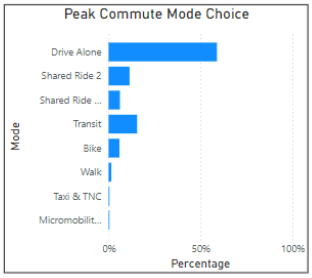
Vehicular Internal Capture Rate

Metric	Percentage
Study Area Internal Vehicle Capture Rate	18.6%



Peak Commute Mode Choice

Mode	Percentage	Person Trips
Drive Alone	58.9%	21,876
Shared Ride 2	11.4%	4,237
Shared Ride 3+	6.2%	2,284
Transit	15.5%	5,758
Bike	5.9%	2,186
Walk	1.5%	551
Taxi & TNC	0.5%	179
Micromobility & Microtransit	0.1%	41
Total	**100.0%**	**37,112**



80%

CAPCOA CALCULATION

T-6

T-6 Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)

Measure Description
This measure will implement a mandatory CTR program with employers. CTR programs discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.

Subsector
Trip Reduction Programs

Locational Context
Urban, Suburban

Scale of Application
Project/Site

Implementation Requirements
The mandatory CTR program must include all other elements (i.e., Measures T-7 through T-11) described for the voluntary program (Measure T-5) plus include mandatory trip reduction requirements (including penalties for non-compliance) and regular monitoring and reporting to ensure the calculated VMT reduction matches the observed VMT reduction.

GHG Reduction Formula

$$A = B \times C \times D$$

User Inputs			
B	Percent of Employees Eligible for Program	100	%
Constants, Assumptions, and Available Defaults			
C	Percent Reduction in Vehicle Mode Share of Employee Commute Trips	-26	%
D	Adjustment from Vehicle Mode Share to Commute VMT	1	%
Result			
A	Percent VMT Reduction	**-26.00**	%

T-18 Year 2035

T-18 Provide Pedestrian Network Improvement

Measure Description
This measure will increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT and GHG emissions.

Subsector
Neighborhood Design

Locational Context
Urban, Suburban, Rural

Scale of Application
Plan/Community

Implementation Requirements
The GHG reduction of this measure is based on the VMT reduction associated with expansion of sidewalk coverage expansion, which includes not only building of new sidewalks but also improving degraded or substandard sidewalk (e.g., damaged from street tree roots). However, pedestrian network enhancements with non-quantifiable GHG reductions are encouraged to be implemented, as discussed under Expanded Mitigation Options.

GHG Reduction Formula

$$A = \left(\frac{C}{B} - 1\right) \times D$$

User Inputs			
B	Existing Sidewalk Length in Study Area	169.8	miles
C	Sidewalk Length in Study Area With Measure	223.35	miles
Constants, Assumptions, and Available Defaults			
D	Elasticity of Household VMT With Respect to the Ration of Sidewalks-To-Streets	-0.05	unitless
Result			
A_{max}	Measure Maximum	-6.4	%
A	Percent VMT Reduction	**-1.58**	%

T-18 Year 2045

T-18 Provide Pedestrian Network Improvement

Measure Description
This measure will increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT and GHG emissions.

Subsector
Neighborhood Design

Locational Context
Urban, Suburban, Rural

Scale of Application
Plan/Community

Implementation Requirements
The GHG reduction of this measure is based on the VMT reduction associated with expansion of sidewalk coverage expansion, which includes not only building of new sidewalks but also improving degraded or substandard sidewalk (e.g., damaged from street tree roots). However, pedestrian network enhancements with non-quantifiable GHG reductions are encouraged to be implemented, as discussed under Expanded Mitigation Options.

GHG Reduction Formula

$$A = \left(\frac{C}{B} - 1\right) \times D$$

User Inputs			
B	Existing Sidewalk Length in Study Area	169.8	miles
C	Sidewalk Length in Study Area With Measure	276.9	miles
Constants, Assumptions, and Available Defaults			
D	Elasticity of Household VMT With Respect to the Ration of Sidewalks-To-Streets	-0.05	unitless
Result			
A_{max}	Measure Maximum	-6.4	%
A	Percent VMT Reduction	**-3.15**	%

T-24 Year 2035

Note: Parking Enforcement/Parking Meter area is assume to be increasing incrementally from the year 2024 conditions and would reach the Sharp/Grossmont area by 2045.

T-24 Implement Market Price Public Parking (On-Street)

Measure Description

This measure will price all on-street parking in a given community, with a focus on parking near central business districts, employment centers, and retail centers. Increasing the cost of parking increases the total cost of driving to a location, incentivizing shifts to other modes and thus decreasing total VMT to and from the priced areas. This VMT reduction results in a corresponding reduction in GHG emissions.

Subsector

Parking or Road Pricing/Management

Locational Context

Urban, Suburban

Scale of Application

Plan/Community

Implementation Requirements

When pricing on-street parking, best practice is to allow for dynamic adjustment of prices to ensure approximately 85 percent occupancy, which helps prevent induced VMT due to circling behaviors as individuals search for a vacant parking space. In addition, this method should primarily be implemented in areas with available alternatives to driving, such as transit availability within 0.5. mile or areas of high residential density nearby (allowing for increased walking/biking). If the measure is implemented in a small area, residential parking permit programs should be considered to prevent parking intrusion on nearby streets in residential areas without priced parking.

GHG Reduction Formula

$$A = \frac{B}{C} \times \frac{D - E}{E} \times F \times G \times H$$

User Inputs			
B	VMT in Priced Area Without Measure	56,704	VMT/day
C	VMT in Plan/Community Without Measure	80,529	VMT/day
D	Proposed Parking Price	2.25	$/hour
E	Initial Parking Price	0.75	$/hour
F	Default Percentage of Trips Parking On-Street	30.20	%

Constants, Assumptions, and Available Defaults			
G	Elasticity of Parking Demand With Respect to Price	-0.4	unitless
H	Ratio of VMT to Vehicle Trips	1	unitless

Result			
$\mathbf{A_{max}}$	Measure Maximum	-30	%
A	Percent VMT Reduction	**-17.0**	%

T-24 Year 2045

T-24 Implement Market Price Public Parking (On-Street)

Measure Description
This measure will price all on-street parking in a given community, with a focus on parking near central business districts, employment centers, and retail centers. Increasing the cost of parking increases the total cost of driving to a location, incentivizing shifts to other modes and thus decreasing total VMT to and from the priced areas. This VMT reduction results in a corresponding reduction in GHG emissions.

Subsector
Parking or Road Pricing/Management

Locational Context
Urban, Suburban

Scale of Application
Plan/Community

Implementation Requirements
When pricing on-street parking, best practice is to allow for dynamic adjustment of prices to ensure approximately 85 percent occupancy, which helps prevent induced VMT due to circling behaviors as individuals search for a vacant parking space. In addition, this method should primarily be implemented in areas with available alternatives to driving, such as transit availability within 0.5. mile or areas of high residential density nearby (allowing for increased walking/biking). If the measure is implemented in a small area, residential parking permit programs should be considered to prevent parking intrusion on nearby streets in residential areas without priced parking.

GHG Reduction Formula

$$A = \frac{B}{C} \times \frac{D - E}{E} \times F \times G \times H$$

User Inputs			
B	VMT in Priced Area Without Measure	56,704	VMT/day
C	VMT in Plan/Community Without Measure	80,529	VMT/day
D	Proposed Parking Price	3.25	$/hour
E	Initial Parking Price	0.75	$/hour
F	Default Percentage of Trips Parking On-Street	35.00	%
Constants, Assumptions, and Available Defaults			
G	Elasticity of Parking Demand With Respect to Price	-0.4	unitless
H	Ratio of VMT to Vehicle Trips	1	unitless
Result			
A_{max}	Measure Maximum	-30	%
A	Percent VMT Reduction	**-30.00**	%