

City of Beverly Hills

# Climate Action & Adaptation Plan



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**EMISSIONS**

CLIMATE ACTION &  
ADAPTATION PLAN

November 2022

CAC Working Draft

# Chapter 1: Climate Change in Beverly Hills

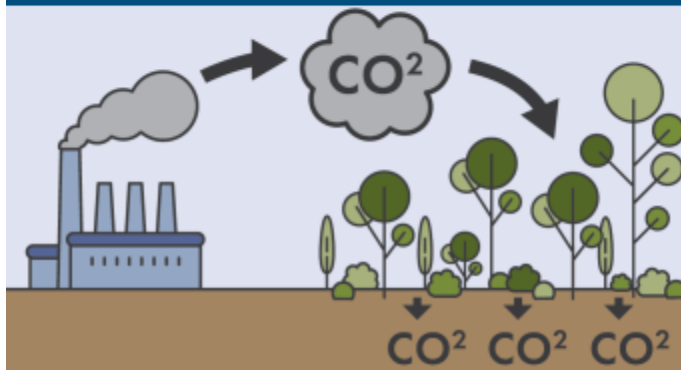
The City of Beverly Hills is embarking on an ambitious plan to build a resilient community that is better prepared for the impacts of climate change and to drastically reduce local greenhouse gas emissions in line with state targets. The Climate Action and Adaptation Plan creates a roadmap with specific actions for the City, its partners, and businesses and residents to realize a more sustainable and resilient future for Beverly Hills. The plan will also bring other benefits to the community once implemented, including improved public health outcomes, improved air quality, equitable protection from climate-induced hazards, and equitable access to environmental benefits.

## Climate Action and Adaptation Plan Approach

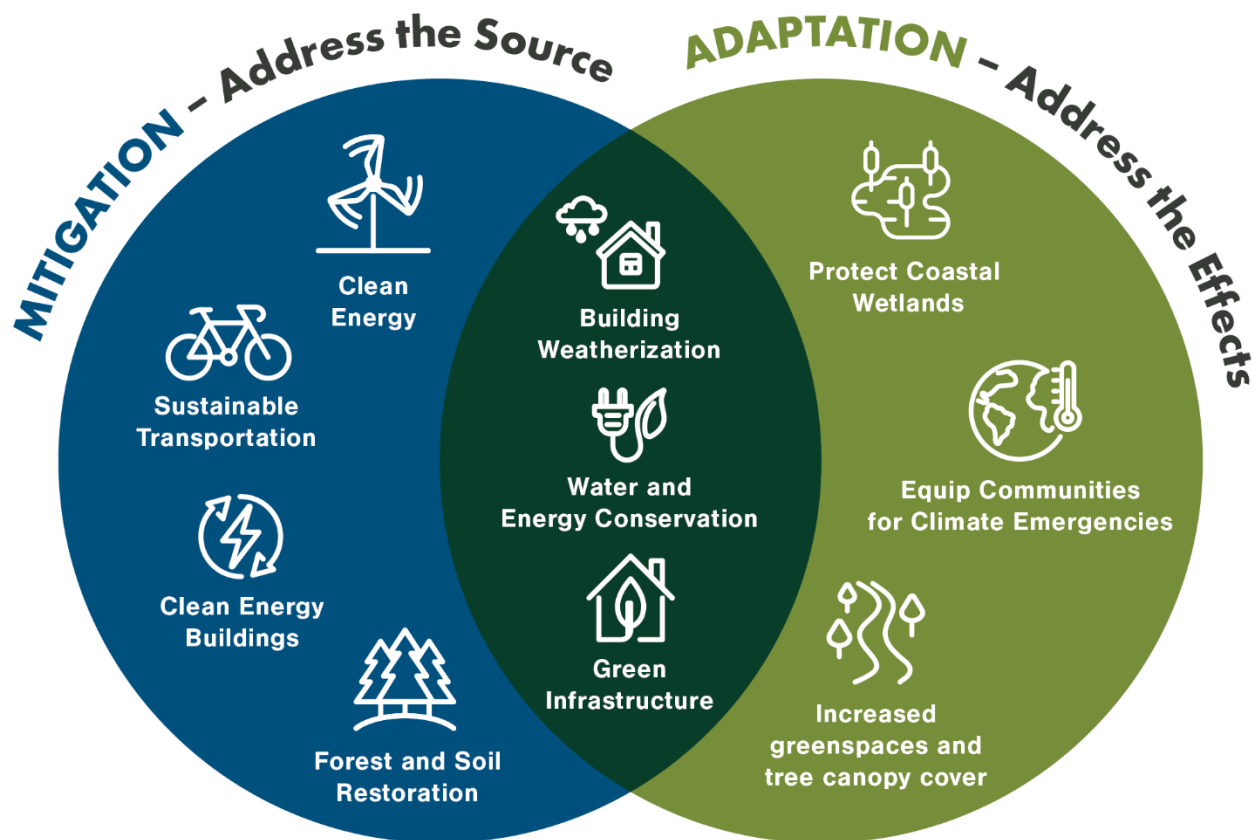
Implementation of this Climate Action and Adaptation Plan will ensure that the City of Beverly Hills can meet its greenhouse gas reduction targets, while preparing the Beverly Hills community to increase resilience in responding to effects of climate change. The City has established targets reducing greenhouse gas emissions to 40 percent below 1990 levels by 2030, and carbon neutrality by 2045.

### What is Carbon Neutrality?

According to the California Air Resources Board, carbon neutrality means that all greenhouse gas emissions emitted into the atmosphere are balanced by an equal amount of greenhouse gas emissions that are removed from the atmosphere. Greenhouse gases are removed from the atmosphere either through carbon sinks (for example, forests or soils), or carbon capture and storage.



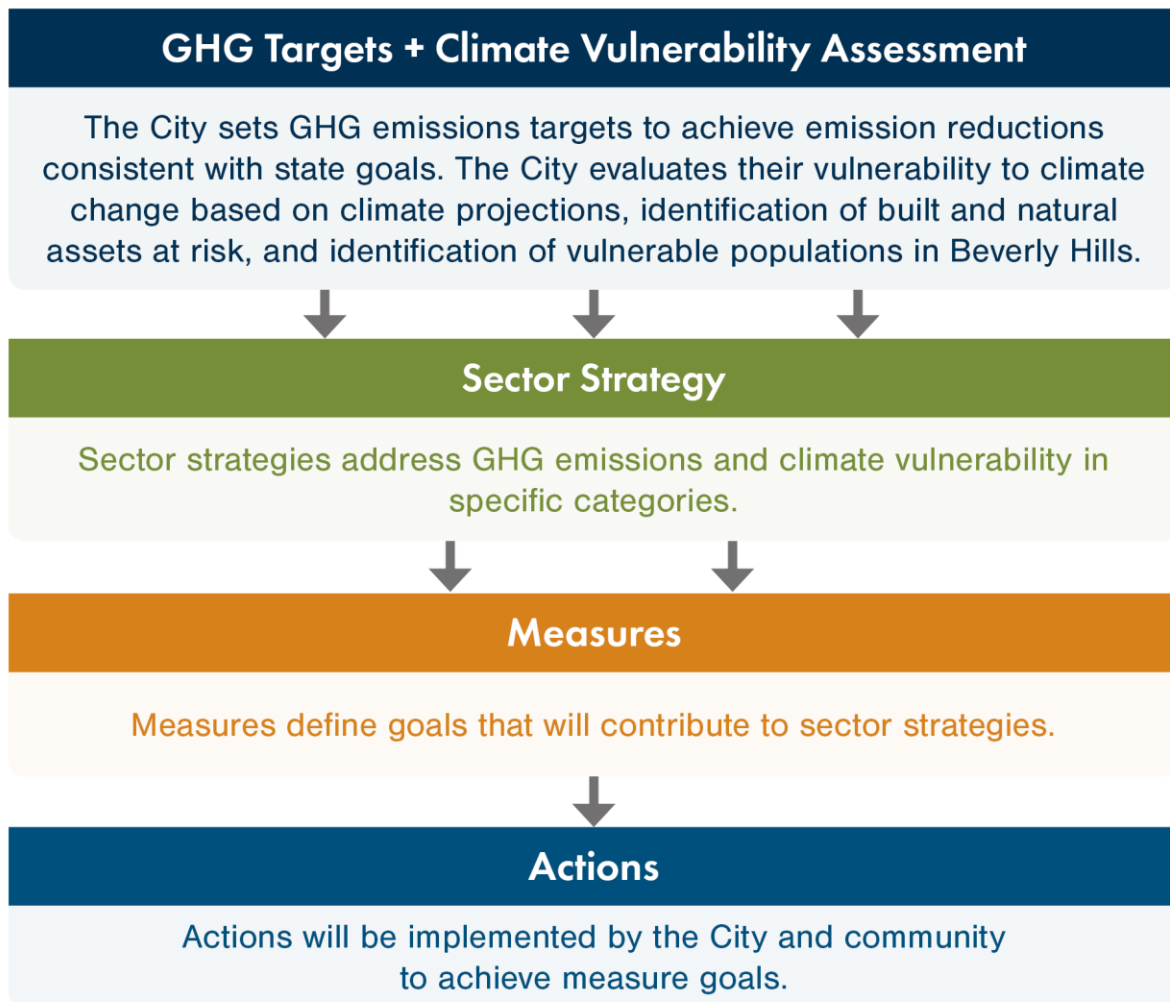
Greenhouse gas reductions are called **greenhouse gas (GHG) mitigation** strategies, while actions taken to prepare the community for the effects of climate change (e.g., heat and wildfire) are called **climate adaptation** strategies.



Beverly Hills's approach to formulating GHG mitigation and climate adaptation strategies rests on a framework of:

- Best available science on climate mitigation and adaptation;
- Incorporation of community input and support; and
- Careful consideration for implementation, with a focus on funding, incentives for voluntary measures, and phased implementation.

Preparing GHG mitigation and climate adaptation strategies involved the following steps



GHG mitigation measures and actions can further be explored in Chapter 2. Climate change adaptation measures and actions can be found in Chapter 3. Chapter 4 explains how the City will implement the CAAP. Technical appendices are provided so readers can explore the science, process, and economics backing the analysis of climate risks to Beverly Hills, and proposed strategies to reduce GHG emissions and adapt to climate change.

## Engaging the Community | **Text Box**

Input from the Beverly Hills community provided valuable guidance on greenhouse gas reduction and climate adaptation strategies that provide the greatest benefit to the City. Input was received through several formats, both virtual and in-person, throughout the CAAP development process. The final set of GHG mitigation and adaptation strategies was reviewed by numerous commissions before being presented to the City Council.

The CAAP sought community input at different stages throughout the development process. The CAAP engaged both internal and external stakeholders to craft mitigation and adaptation measures that reflected the capacity and priorities of the city. Stakeholder engagement efforts included:

1. Sharing key information and resources about the CAAP and climate action on the CAAP website: <https://9021zeroemissions.rinconconsultants.com/>
2. Presenting key information to the Health and Safety, Recreation and Parks, Planning, Traffic and Parking, and Public Works Commissions. Topics included: GHG inventory, forecasts, and reduction targets; mitigation and adaptation measures; and the draft CAAP
3. Convening of the Community Advisory Committee (CAC)
  - The CAC served as the community advisory body composed of community members and representatives of the Health and Safety, Recreation and Parks, Planning, Traffic and Parking, and Public Works Commissions.
  - The CAC met seven times as a whole committee as well as four times in ad hoc groups by mitigation sector.
  - The CAC hosted an educational movie night for the community.
4. Community Workshops
  - Earth Day Event: collected feedback on climate hazard, mitigation, and adaptation topics
  - Virtual Community Workshop: collected feedback on draft mitigation and adaptation measures
5. Engaging City Departments including representatives from Public Works, Transportation, Emergency Management and Building and Planning to discuss draft mitigation and adaptation measures and priorities, as well as implementation capacity.
6. Draft CAAP Review
  - The Draft CAAP was available for public comments using the Konveio virtual platform

Several open Q&A sessions were scheduled with the climate team.

#### **(CALLOUT BOX 1)**

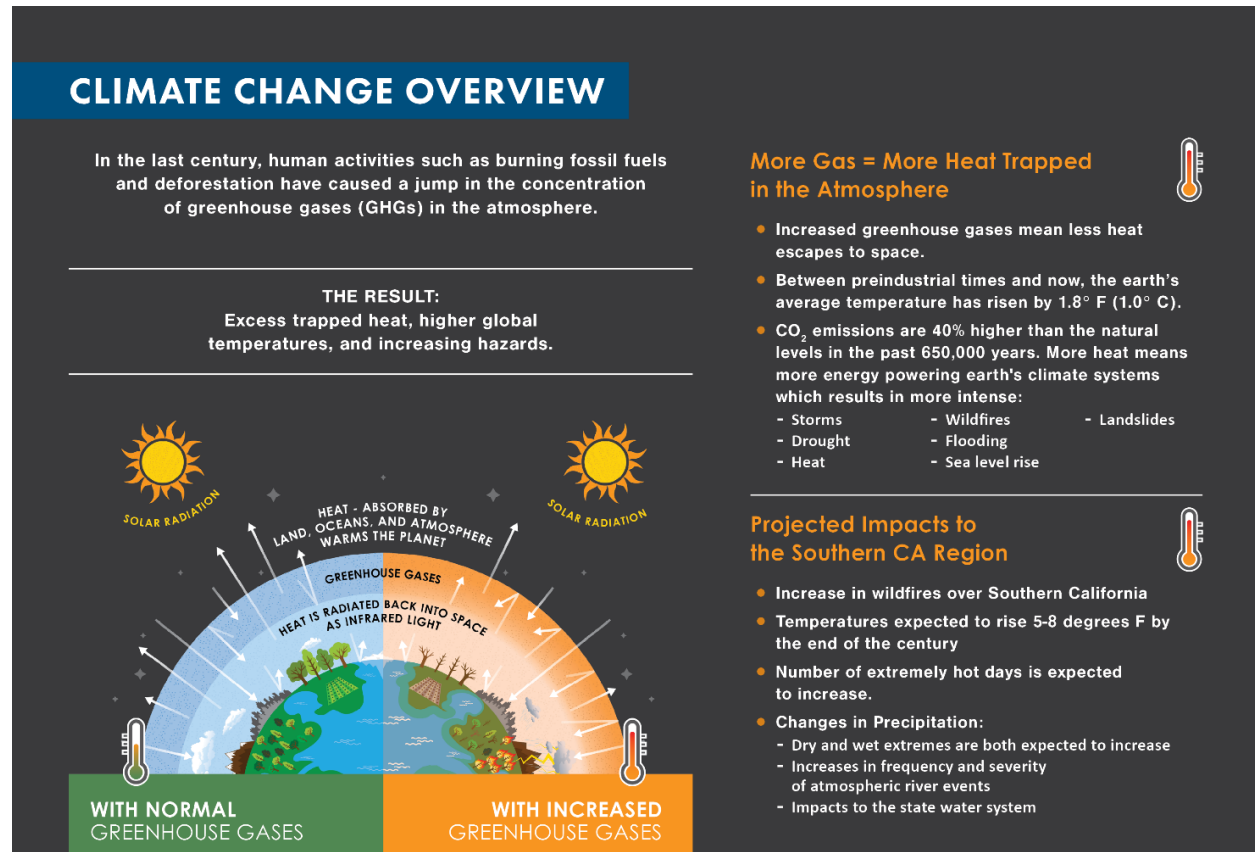
Forming a Community Advisory Committee (CAC) was an integral component of the stakeholder engagement process. The purpose of the CAC was to work with City staff and the consultants to provide local context on current climate-related activities, patterns of resource use, emissions reduction priorities, and the preferred role of the City in CAAP implementation. CAC members included representatives from the Health and Safety, Recreation and Parks Planning, Public Works, and Traffic and Parking Commissions and five selected community members. The CAC members provided updates to their respective commissions and shared commission input with other CAC members.

#### **(CALLOUT BOX 2)**

The CAC reviewed the GHG inventory results, reviewed State GHG reduction targets, and discussed which CAAP sectors should receive the greatest attention, and clarified the resources areas that City has the greatest control over—electricity provision, building standards, street configuration, local transit, water, urban forest, and solid waste.

# Climate Change Overview

Since the advent of the industrial revolution in the 18<sup>th</sup> century, human activities such as burning fossil fuels and deforestation have caused a substantial increase in the concentration of greenhouse gases in the atmosphere. The Result: Extra trapped heat and higher global temperatures.



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## Climate Impacts on Beverly Hills

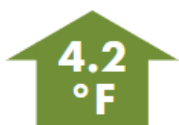
This section summarizes the impacts of climate change on Beverly Hills and provides an overview of existing climate hazards using best available science. Chapter 3 presents measures and actions to ensure that Beverly Hills is adapting to the expected effects of climate change, from increased temperatures to more extreme weather changes. The City of Beverly Hills Climate Change Vulnerability Assessment Appendix B provides additional detail on the expected effects of climate change on the City.

### CLIMATE CHANGE IN BEVERLY HILLS BY 2100

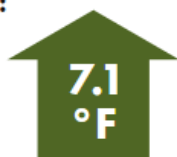
#### Temperature Increase, and More Frequent Extreme Heat Days



Average Maximum Temperature Increases:



Low Emissions Scenario



High Emissions Scenario

Extreme Heat Days Over 92.2°F Increases Between:



Low Emissions Scenario



High Emissions Scenario

#### Variable Precipitation



Projected **30%** Increase in volume of rain during storm events

#### Wildfire



Projected **5,000** Acre Increase in area burned by wildfire in the Los Angeles region

#### Drought



**80%** Change of multi-decade drought in the region

### Increased Temperature

By the end of the century, Beverly Hills' community is projected to experience higher temperatures, and more frequent extreme heat days. Average maximum temperatures in Beverly Hills are expected to rise between 4.2° Fahrenheit (F) and 7.1°F. The annual number of extreme heat days (when temperatures exceed 92.2°F) is projected to increase by 8 to 15 days.

### Variable Precipitation

The Los Angeles region is projected to experience an increase in storm frequency, and precipitation intensity, as well as extended drought conditions. By the end of the century, some locations may experience up to 30 percent increases in volume of inches of rain per day during precipitation events. At

the same time, global climate models project a more than 80 percent chance of a multi-decade drought across the Southwest and West (including California). A multi-decade drought may lead to water shortages which may cause or exacerbate water or affordability concerns, vegetative stress, crop failure, and increased wildfire risk as landscapes become drier.

The impacts of climate-induced drought, and increased precipitation could have widespread impact on Beverly Hills, from interrupted water supply and landslides caused by heavy rains to emergency response systems impacted by road flooding.

## Wildfire

The Los Angeles region is projected to experience more frequent and damaging wildfires by the mid-21<sup>st</sup> century. The effects of future wildfires on Beverly Hills could range from the direct impacts on residences and businesses, to wildfire smoke and associated air pollution and potential communication network outages.

## Equity | Text Box

Climate impacts in Beverly Hills include an increase in heavy rain events, extended drought, wildfires, and extreme heat. Vulnerable populations across the City, which include unemployed, low-income, youth, older adults, and linguistically isolated people are often the most exposed to and impacted by the effects of climate change. Ensuring an **equitable** response to climate change means both protection from climate-induced hazards, as well as access to environmental benefits for all. Appendix B contains the Beverly Hills Community Vulnerability Assessment, which elaborates on how the City is ensuring that vulnerable communities are prioritized in the City's response to the effects of climate change.

Strategies to help the Beverly Hills community adapt to the effects of climate change were selected based on the best available science and best practices. Adaptation strategies target Beverly Hills's specific vulnerabilities identified in the vulnerability assessment, which can further be explored in Chapter 3. These strategies increase resilience throughout the community and prepare vulnerable populations for the impacts of climate-related hazards, such as heat and wildfire.

## Beverly Hills Contributions to Greenhouse Gas Emissions

The section details community and municipal contributions to climate change, and measures and actions to reduce emissions in Beverly Hills. Tackling GHG emissions from the largest emitting sectors in Beverly Hills (energy use in buildings and gasoline-powered passenger vehicles) will be critical for achieving carbon neutrality by 2045. Emissions are quantified by completing a GHG emissions **inventory** which quantifies the emissions associated with activities taking place within the City.

These inventories provide a data-based foundation for Beverly Hills to **forecast** their GHG emissions into the future for the years of 2030, 2040, and 2045 based on future changes in population and job growth. The GHG emissions forecast is used to create **targets** to reach climate emissions reduction thresholds for 2030, 2040, and 2045. Under Assembly Bill 1279, local governments must achieve carbon neutrality by

2045. GHG targets are achieved via **measures and actions** which reduce GHG emissions identified within the City.

The results of the Community Inventory, Municipal Inventory, and Forecast are summarized in the sections below. More information on the methodologies used to calculate the 2019 Beverly Hills Community and Municipal GHG Inventory and forecast are found in Appendix A

## Community & Municipal Emissions

The main sources of GHG emissions in Beverly Hills are buildings, transportation, waste, and water. Building emissions are associated with electricity and natural gas used by commercial, residential, and municipal buildings. Transportation emissions are generated by fuels used to power cars, trucks, and off-road vehicles (e.g., construction vehicles). Waste generates methane emissions from trash decomposing in the landfill. Water emissions are generated by the electricity used to transport water for residential, and commercial use, and emissions from wastewater treatment processes.

Local governments play a critical role in reducing local GHG emissions through policies that can regulate high-emissions behaviors or practices, such as changes to building codes and incentives for alternative transportation options to reduce the number of single-occupancy vehicle trips. Local governments are also responsible for their own emissions, for example, emissions resulting from the vehicle fleets and use of natural gas in government buildings.

### Greenhouse Gas Inventory Summary

Conducting a GHG emissions inventory for a community consists of identifying the major GHG-generating activities from residents and businesses operating in the community, collecting data on those activities for a calendar year, then converting the collected data to GHG emissions using a science-based approach.

Beverly Hills's Greenhouse Gas Inventory was conducted for the **2019** calendar year. It includes a comprehensive **community inventory** that addresses GHG emissions generated from activities occurring within the City, as well as a **municipal inventory** (a subset of the community inventory) which accounts for the portion of community GHG emissions that are attributed directly to the City's municipal operations.

State legislation also established a target to reduce statewide emissions to 1990 GHG emission levels by 2020. This statewide target was achieved ahead of schedule in 2016. A community wide GHG inventory for Beverly Hills was also conducted for the **2015** calendar year. The 2015 inventory allows for a comparison of progress from 2015 to 2019, as well as a way to estimate Beverly Hills' GHG emissions in 1990. As the state met its 2020 target in 2016, it is also assumed that Beverly Hills met its target in the same timeframe: total 2015 GHG emission levels for Beverly Hills are assumed to be the same as 1990 GHG emission levels, providing a state legislation compliant baseline to forecast future GHG emissions into the future.

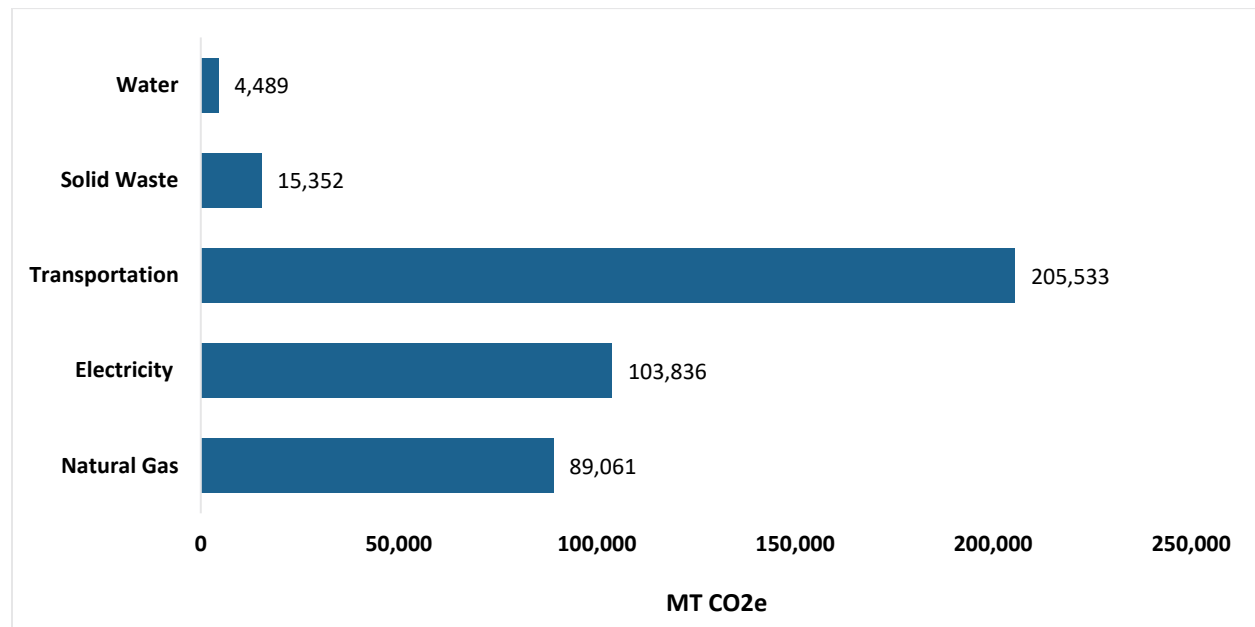
### Community Inventory

In 2019, the Beverly Hills community (residents & businesses) generated approximately 418,271 MT CO<sub>2</sub>e. GHG emissions were dominated by the transportation sector, which generated 49 percent of the

City's total GHG emissions. Energy (electricity and natural gas use) was the second largest source of GHG emissions, generating 46 percent of the total. Solid waste and water sector emissions made much smaller contributions to overall GHG emissions, at 4 percent and less than 1 percent. **Figure 1-1** shows sectoral contributions to 2019 community emissions, while **Table 1-1** shows total emissions by sector and subsector, and percentage contribution to the total.

Tackling GHG emissions from energy use in buildings, and gasoline-powered passenger vehicles will be critical in achieving carbon neutrality for the City as they drive the two highest-emitting sectors. Chapter 2: Measures and Actions shows how Beverly Hills is planning to reduce emissions from these sources and achieve carbon neutrality by 2045.

**Figure 1-1 2019 Community Inventory**



**Table 1-1 2019 Community Inventory GHG Emissions & Percentage of Total**

Sector/Emission Source	GHG Emissions (MT CO <sub>2</sub> e)	Percentage of Total
<b>Energy</b>	<b>192,897</b>	<b>46%</b>
Non-Residential Electricity Consumption	66,668	16%
Natural Gas	89,061	21%
Residential Electricity Consumption	31,786	8%
Electricity Transmission and Distribution Losses	5,382	1%
<b>Transportation</b>	<b>205,533</b>	<b>49%</b>
Passenger On-road Vehicles	175,361	42%
Commercial On-road Vehicles	18,930	5%
Off-road Equipment	11,242	3%
<b>Solid Waste<sup>1</sup></b>	<b>15,352</b>	<b>4%</b>
Waste Sent to Landfill	14,836	4%
Landfilling Process Emissions	516	<1%

Sector/Emission Source	GHG Emissions (MT CO <sub>2</sub> e)	Percentage of Total
<b>Water</b>	<b>4,489</b>	<b>1%</b>
Imported Potable Water Supply	3,452	1%
Wastewater Treatment Process and Fugitive Emissions	607	<1%
Wastewater Collection and Treatment Energy	430	<1%
<b>Cumulative Emissions</b>	<b>418,271</b>	<b>100%</b>

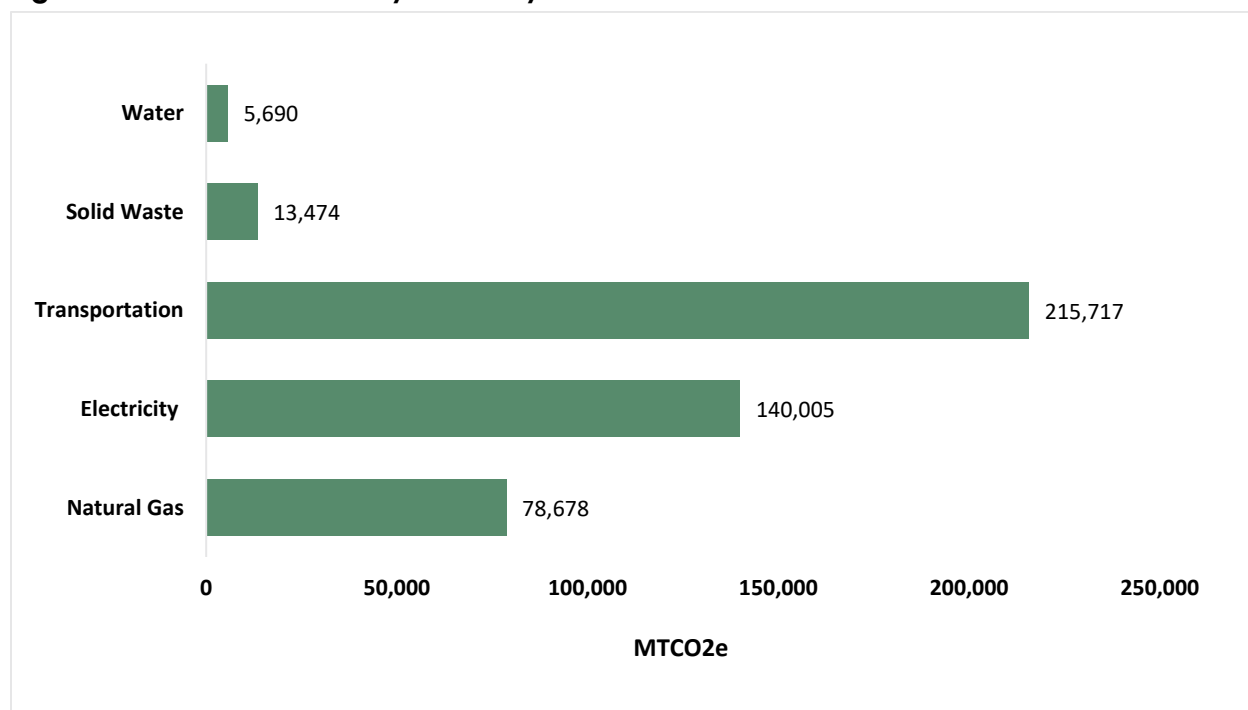
Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

1. GHG emissions generated by the collection and transport of waste generated within the City are captured in the Commercial On-road Vehicle source in the Transportation sector.

A community-wide GHG emission inventory was also conducted for the year 2015, to provide a basis for establishing a forecast for future GHG emissions. The 2015 inventory was also used to estimate Beverly Hills' 1990 GHG emissions levels, keeping emissions forecasts and reduction targets in line with Senate Bill 32's target of a statewide mid-term GHG reduction goal of 40 percent below 1990 levels by 2030. Estimating the 1990 baseline using most recent data is critical to quantify and meet the targets laid out in Senate Bill 32.

In 2015, the Beverly Hills community generated approximately **453,564 MT CO<sub>2</sub>e**. The results of the 2015 community GHG inventory update show the transportation and energy sector GHG emission sources generated nearly equivalent total GHG emissions, contributing 48 percent and 48 percent, respectively to the 2015 GHG emissions total. Solid waste and water sector emission sources contributed 3 percent and 1 percent of total 2015 GHG emissions. **Figure 1-2** shows sectoral contributions to 2019 community emissions, while **Table 1-2** shows total emissions by sector and subsector, and percentage contribution to the total.

**Figure 1-2 2015 Community Inventory**



**Table 1-2 2015 Community Inventory GHG Emissions & Percentage of Total**

Sector/Emission Source	GHG Emissions (MT CO <sub>2</sub> e)	Percentage of Total Emissions
<b>Energy</b>	<b>218,684</b>	<b>48%</b>
Non-Residential Electricity Consumption	86,261	19%
Natural Gas	78,678	17%
Residential Electricity Consumption	46,945	10%
Electricity Transmission and Distribution Losses	6,800	1%
<b>Transportation</b>	<b>215,717</b>	<b>48%</b>
Passenger On-road Vehicles	186,482	41%
Commercial On-road Vehicles	18,567	4%
Off-road Equipment	10,667	2%
<b>Solid Waste</b>	<b>13,474</b>	<b>3%</b>
Waste Sent to Landfill	13,021	3%
Landfilling Process Emissions	453	<1%
<b>Water</b>	<b>5,690</b>	<b>1%</b>
Imported Potable Water Supply	4,396	1%
Wastewater Treatment Process and Fugitive Emissions	604	<1%
Wastewater Collection and Treatment Energy <sup>1</sup>	690	<1%
<b>Cumulative Emissions</b>	<b>453,564</b>	<b>100%</b>

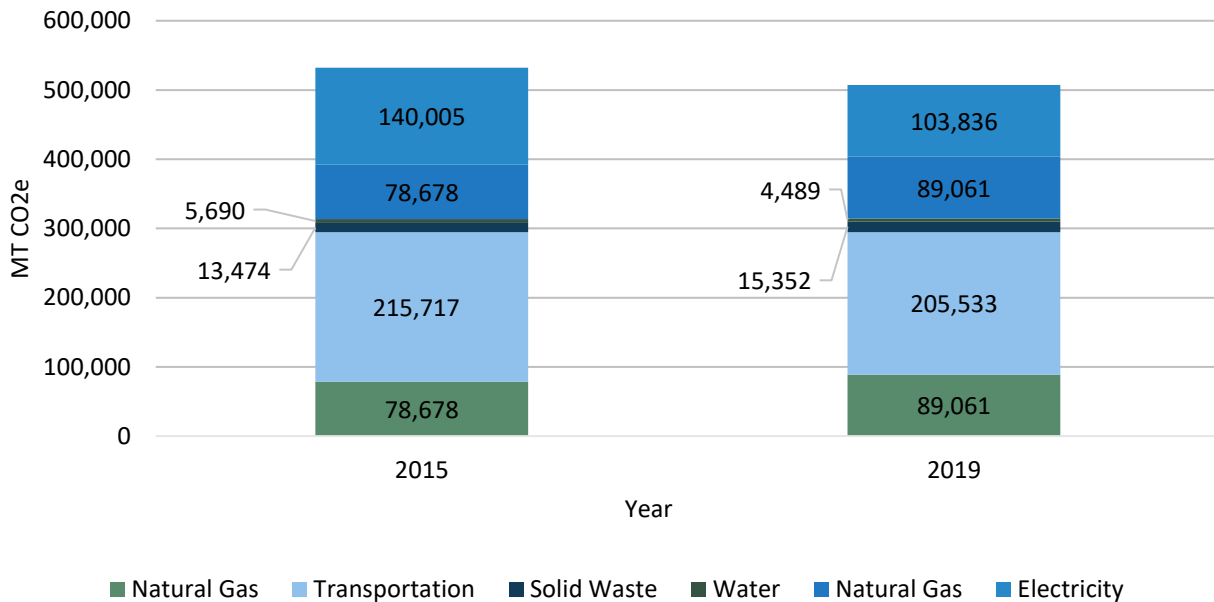
Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

1. GHG emissions generated by electricity consumption involved in producing local groundwater supplies and the collection and treatment of wastewater are not added to the GHG emissions total to avoid double counting. The electricity consumption involved in these processes is already encompassed in non-residential electricity consumption in the energy sector.

## GHG Emissions Reduction Progress Since 2015

Between the years 2015 and 2019, the City of Beverly Hills has reduced its GHG emissions by a total of 8 percent. The majority of these GHG emissions reduction occurred in the energy sector through a reduction in overall electricity consumption and increased availability of renewable electricity through participation in the Clean Power Alliance (CPA). The water sector also experienced a relatively significant 22 percent GHG emissions reduction through an overall reduction in water consumption city-wide. The transportation sector experienced a slight decrease in GHG emissions, through improved fuel efficiency standards, while the solid waste sector had a 14 percent increase in GHG emissions, attributable to an increase in waste generation in the City. **Figure 1-3** shows sectoral contributions to GHG reductions between 2015 and 2019.

**Figure 1-3 GHG Emissions Reduction Progress Between 2015 and 2019**

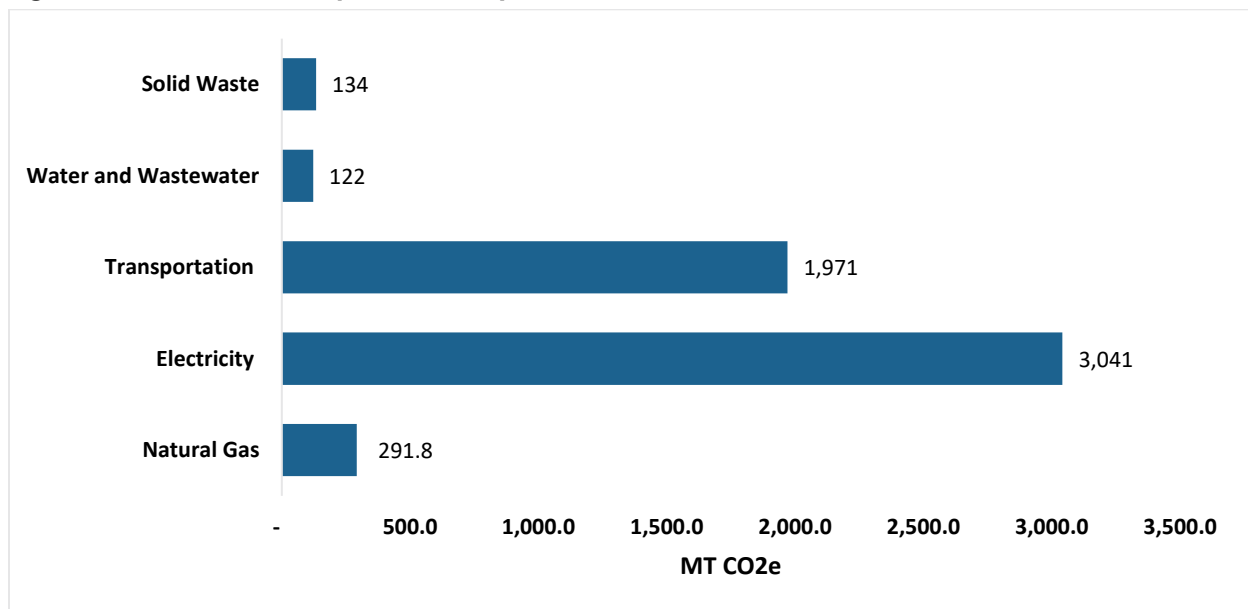


## Municipal Inventory

The 2019 municipal inventory assesses the contribution to total community GHG emissions of activities, entities and GHG emission sources under the operational control of the City. GHG emission sources under City operational control account for less than 2% of the Beverly Hills Community total emissions, totaling 5,560 MT CO<sub>2</sub>e.

In 2019, most municipal emissions came from purchased electricity and natural gas, mainly to power City buildings, totaling 2,612 MT CO<sub>2</sub>e (47 percent of total emissions). The second-largest source of municipal emissions came from gasoline-powered vehicles and equipment, totaling 1,272 MT CO<sub>2</sub>e, (23 percent of the total). The third-largest source of emissions came from employee commutes, 699 MT CO<sub>2</sub>e, or 13 percent of the total. **Figure 1-4** displays total sectoral contribution to municipal GHG emissions, and **Table 1-3** outlines percentage contribution by sector and subsector.

**Figure 1-4 2019 Municipal Inventory**



**Table 1-3 2019 Municipal GHG Emissions by Sector & Subsector**

Sector	Total MT CO2e	% of total
Energy	3,333	60%
<i>Buildings and Facilities</i>	<i>2,320</i>	<i>42%</i>
<i>Streetlights and Traffic Signals</i>	<i>513</i>	<i>9%</i>
<i>Stationary combustion</i>	<i>292</i>	<i>5%</i>
<i>Water and Wastewater Conveyance and Distribution</i>	<i>209</i>	<i>4%</i>
Transportation	1,971	35%
<i>Vehicle Fleet</i>	<i>1,272</i>	<i>23%</i>
<i>Employee Commute</i>	<i>699</i>	<i>13%</i>
Water and Wastewater	122	2%
Solid Waste	134	2%
Cumulative Emissions	5,560	100%

## California Regulatory Overview | Text Box

California is a global leader in climate action. State laws and executive orders pave the way towards a decarbonized future for buildings, transportation, power, and industrial sectors across the state. The primary drivers of climate action at the state level are **Senate Bill 32 (2016)** and **Assembly Bill 1279 (2022)**. These key laws are supported by an expanding network of policies and programs. They include **Title 24 Energy Efficiency Standards**, which increase energy efficiency in new development, the **Advanced Clean Cars Program**, which improves fuel efficiency in new vehicles, and the **California Renewable Portfolio Standard**, which, through Senate Bill 100, requires electricity providers to procure 100 percent renewable electricity by 2045.

- **Senate Bill 32** – Requires California to achieve a statewide reduction in GHG emissions of 40 percent below 1990 levels by 2030. California Air Resources Board (CARB) prepared a Scoping Plan that outlines the main strategies the State will employ to make progress towards the target. The Senate Bill 32 Scoping Plan was adopted in 2017.
- **Assembly Bill 1279** – Establishes a legally binding requirement for California to achieve and maintain carbon neutrality no later than 2045. Assembly Bill 1279 also established the requirement to achieve a statewide reduction in emissions of 85 percent below 1990 levels by 2045.
- **Senate Bill 1020** – Requires that entities which provide electricity to Californians supply 90 percent clean energy by 2035, 95 percent clean energy by 2040, and 100 percent clean energy by 2045.

California is also a leader in climate adaptation, requiring water agencies, large utilities, and cities and counties to prepare to adapt to the effects of climate change, from increased wildfire risk to extreme heat.

- **Senate Bill 379** is the primary driver of climate adaptation action across the State, requiring cities, and counties to prepare a vulnerability assessment of climate change impacts and develop policies and programs to increase resilience as part of the Safety Element chapter in a jurisdictions' General Plan.

## Greenhouse Gas Emissions Forecast & Targets

In order to demonstrate how Beverly Hills's emissions look in the future, two forecasts were developed based on the 2019 inventory—a **business-as-usual (BAU) forecast** and **legislative-adjusted forecast**.

The **BAU forecast** shows what Beverly Hills's emissions would look like if population and job growth were the only drivers of GHG-generating activities, and the City took no additional actions to curb GHG emissions.

The **legislative-adjusted forecast** models GHG emissions if the City takes no additional action except for those required under state climate legislation (ex. improved building electricity efficiency). The effects of state climate legislation includes improved building electricity efficiency, increased numbers of electric vehicles, and use of 100 percent renewable electricity by 2045.

The City of Beverly Hills has established GHG reduction **targets** for 2030, 2040, and 2045 to keep the City on track to meet the State requirement to achieve carbon neutrality by 2045:

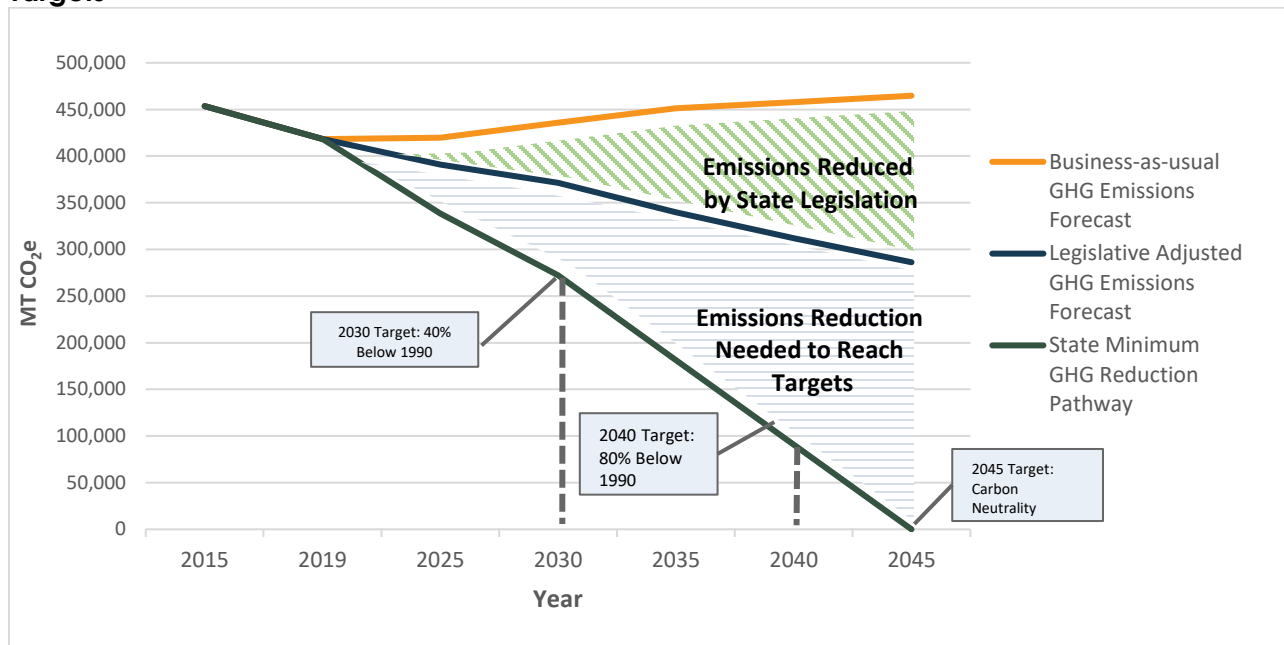
- 2030: reduce GHG emissions to 40 percent below 1990 levels (SB 32 target year)

- 2040: Reduce GHG emissions to 80 percent below 1990 levels (interim target year)
- 2045: achieve carbon neutrality (Assembly Bill 1279)

The City will need to pursue measures and actions to decarbonize transit, buildings, waste, and water in order to close the gap between the legislative-adjusted forecast, and the City's targets for GHG emissions reductions. Implementation of this CAAP (see measures and actions in Chapter 2) is anticipated to meet GHG reduction targets for 2030 and chart a course for meeting carbon neutrality for 2045. **Figure 1-5** outlines business as usual, legislative adjusted, and state minimum GHG Reduction pathways for Beverly Hills.

Appendix A provides more information on which pieces of legislation are included in the legislative adjusted forecast. Chapter 2 provides the measures the City of Beverly Hills will pursue to achieve these carbon reduction targets.

**Figure 1-5 Beverly Hills BAU, Legislative Adjusted, & Emissions Reduction Needed to Reach Targets**



## CEQA-Qualified Plan

This CAAP guides the City of Beverly Hills towards reducing GHG emissions consistent with the 2030 target set out by Senate Bill (SB) 32, and it fulfills the requirements of California Environmental Quality Act (CEQA) Guidelines § 15183.5(b) to be considered a “qualified” GHG reduction plan.<sup>1</sup>

In compliance with CEQA and State CEQA Guidelines, local agencies must evaluate the environmental impacts of new development projects or plans, including impacts related to GHG emissions associated with the construction and operation of projects or plans. The CEQA Guidelines provide an option for new projects and plans to streamline the CEQA analysis of GHG emissions by tiering from a qualified GHG reduction plan.

This CAAP and its associated CEQA environmental assessment document are consistent with the criteria set forth in CEQA Guidelines Section 15183.5(b) as outlined in **Table 1-4**. As such, this CAAP is considered a qualified GHG reduction plan.

<sup>1</sup> Governor’s Office of Planning and Research (OPR), “General Plan Guidelines – Chapter 8: Climate Change.” Available: [https://opr.ca.gov/docs/OPR\\_C8\\_final.pdf](https://opr.ca.gov/docs/OPR_C8_final.pdf).

**Table 1-4 CEQA Guidelines Section 15183.5(b) Criteria Addressed in CAP Update**

CEQA Criteria	CAAP Section Addressing Criteria
Quantify existing and projected GHG emissions within the plan area	Chapter 1 (Inventory and Forecast)
Establish a reduction target consistent with State targets	Chapter 1 (Targets)
Identify and analyze sector specific GHG emissions from specific actions or categories of actions anticipated within the geographic area	Chapter 1 (Emissions by Sector)
Specify measures and actions that substantial evidence demonstrates would collectively achieve the specified reduction target	Chapter 2 (GHG Emission Reduction Measures)
Establish a mechanism to monitor progress and amend the plan if it is not achieving specified emissions levels	Chapter 4 (CAAP Implementation)
Adopt in a public process following environmental review	See associated CEQA environmental assessment documentation

If a project or plan is consistent with this CAAP in terms of GHG emissions construction and operational levels and consistent with the questions and requirement of the associated CAAP Consistency Checklist (i.e., Beverly Hills CEQA GHG Checklist), the CEQA GHG emissions impact analysis for that project can be streamlined with a qualitative rather than quantitative CEQA GHG emissions analysis. In addition, the project or plan's GHG emissions will not be considered cumulatively significant under CEQA. This streamlining is also contingent on the City making progress towards, and ultimately meeting the targets established in this CAAP.

## Relationship to Other City Policies & Plans

This CAAP builds on Beverly Hills's existing sustainability leadership. Measures for greenhouse gas reduction include the implementation of plans and policies that the City has already put in motion, including the Urban Forest Management Plan, the Model Water Efficient Landscape Ordinance, the Green Building Code, and the Complete Streets Plan. Existing measures for climate adaptation include the implementation of plans and policies from the Local Hazard Mitigation Plan, Wildfire Assessment Report for Beverly Hills and Integrated Water Resources Master Plan.

# Chapter 2: Greenhouse Gas Mitigation

## A Pathway to Carbon Neutrality

Beverly Hills can work toward achieving carbon neutrality by 2045, by building upon the progress the City has already made and adopting new emissions reduction strategies, measures, and actions. Together these strategies, measures, and actions: (1) establish a framework for reaching carbon neutrality; (2) make Beverly Hills more resilient to future climate impacts; and (3) provide important social and economic benefits, such as bolstering the local economy, increasing community green spaces, and improving public health. The reduction approach is outlined below.

- Step 1. Expand access to carbon-free electricity, by adopting Clean Power Alliance 100 percent Green Power as the default tier for electricity supply in the City. Carbon-free energy is key to reducing emissions from buildings and meeting the City's long-term goals.
- Step 2. Reduce emissions from energy use, by making buildings more energy efficient and decarbonizing appliances to take advantage of the city's access to carbon-free energy. At the same time, reduce transportation emissions by expanding electric and clean fuel vehicle adoption, shifting away from single-occupancy vehicles, and reduce length of vehicle trips.
- Step 3. Move toward zero waste, by increasing diversion of waste away from the landfill and implementing sustainable consumption programs. Sustainable consumption programs divert organic waste from landfills, where it produces potent methane emissions, and encourage community members to buy and consume less, which reduces upstream emissions from material production.
- Step 5. Pursue local carbon sequestration projects, including expanding local tree planting programs, by implementing the Urban Forest Management Plan (UFMP) and adopting nature-based solutions that protect and restore natural systems and capture and store carbon. Carbon sequestration is vital in reaching carbon neutrality.

The City has elected for a phased approach to reducing GHG emissions, meaning that many measures in the CAAP begin as voluntary and then become mandatory over time. Specifically, building measures related to energy and water efficiency and adopting a carbon-free energy reach code begin with a voluntary phase-in period before mandatory requirements are adopted. SB 1383 compliant organic waste diversion is assumed to be achieved by 2025 and Priority Complete Streets Plan projects are assumed to be implemented by 2026. For more detail on implementation of these CAAP mitigation measures, refer to Chapter 4, Implementation.

Six Foundational Strategies are responsible for the majority of GHG emissions reductions by 2030 and put the City on the path to carbon neutrality by 2045 (see Table 2-5).

Each of the Foundational Strategies meet the following criteria:

- The strategy addresses the major sources of GHG emissions identified in the greenhouse gas inventory (Appendix A);
- The strategy has the potential to reduce the greatest amount of GHG emissions within a category of emissions (energy, buildings, transportation, waste);

- The strategy has the potential to enhance the GHG emissions reduction impact of other strategies;
- The strategy can be implemented within the regulatory authority of the City; and
- The strategy has a high level of community support.

**Table 2-5 Six Foundational GHG Mitigation Strategies**

Foundational Strategy	Outcome	Measure	Implementing City Department	Responsible City Commission
High participation in 100 percent renewable energy electricity	Carbon Free Electricity	Achieve at least 90% participation in Clean Power Alliance 100% Green Power tier or SCE equivalent.	Public Works	Public Works
Carbon-free energy powered buildings reach code	Buildings: New Construction and Remodels Decarbonization	Adopt a reach code requiring new construction and alterations or additions of at least 50% the size of the original building to be designed to be powered using carbon-free energy sources.	Community Development/ Public Works	Planning
Existing building decarbonization	Buildings: Existing Decarbonization	Adopt a decarbonization plan in phases for existing buildings that at first promotes and then requires the retrofit of existing buildings to be powered using carbon-free energy	Community Development/ Public Works	Planning
Mode Shift (Complete Streets Plan, transit)	Complete Streets Plan Mode Shift	Prioritize, fund, and implement the Complete Streets Plan. *	Public Works	Traffic and Parking
	Transportation Mode Shift	Explore adopting a mandatory Transportation Demand Management Program for employers and housing developments	Public Works	Traffic and Parking
	Transportation Mode Shift	Assess the feasibility of a local city operated shuttle/bus service.	Public Works	Traffic and Parking
EV adoption and equipment decarbonization	EV Adoption	Adopt EV reach code for multi-family residential and nonresidential uses requiring EV chargers to be installed at time of construction.	Community Development	Planning
	Clean Fuel Adoption	Develop a Clean Fuel Transportation Plan that identifies areas of the City to prioritize clean fuel infrastructure installation to support zero emission vehicles (ZEVs).	Public Works	Public Works/ Traffic and Parking
Comply with SB 1383 organics diversion requirements	Increased diversion from landfill	Establish pathways and enforcement mechanisms for compliance with SB 1383 organics and food waste diversion. (Divert 75% of organic waste from the landfill)	Public Works	Public Works

\* For FY22-23, the Complete Streets Plan Action Plan can be found in detail here: [www.beverlyhills.org/completestreets](http://www.beverlyhills.org/completestreets). In the May 2022 Action Plan, there will be several bike lanes and bike lane upgrades, pedestrian improvements, streetscapes, transit pilot programs,

Foundational Strategy	Outcome	Measure	Implementing City Department	Responsible City Commission
<i>Metro's First Last Mile Plans, and initial research to update the City's Transportation Demand Management Ordinance. The project budget for these action plans is \$3.9M.</i>				

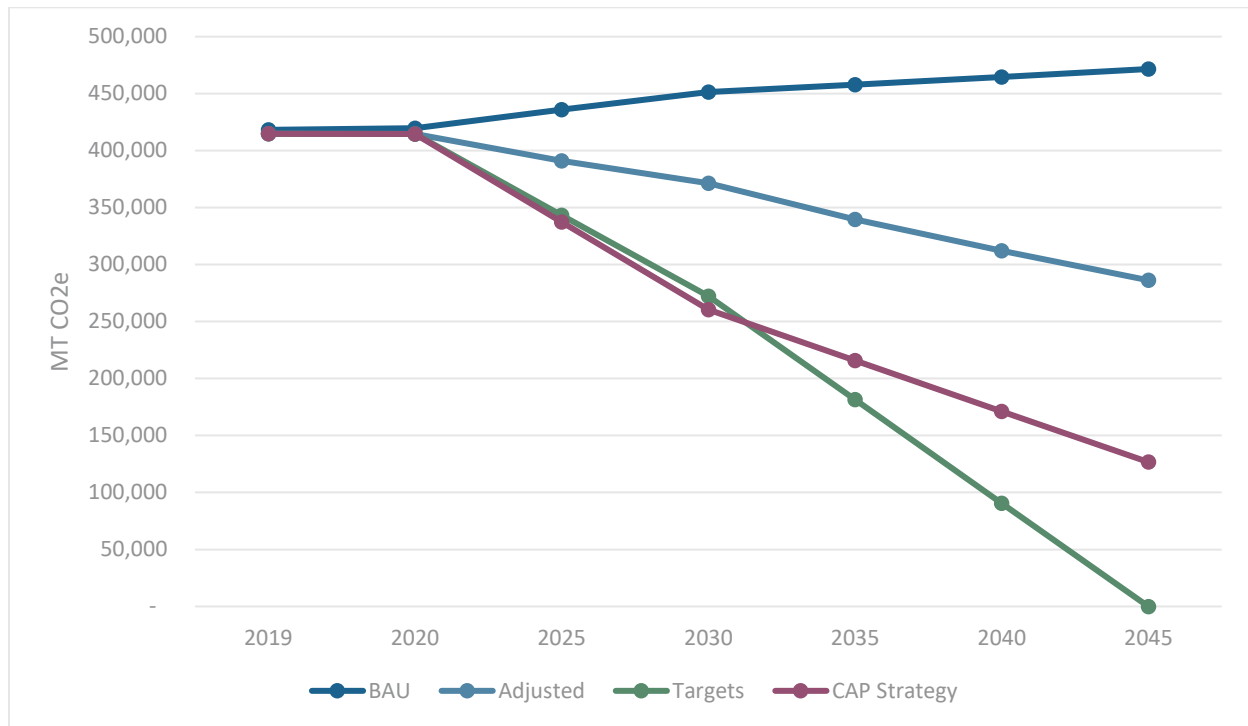
The Foundational Strategies are prioritized for implementation. Using the phased-in approach, implementation of the Six Foundational Strategies is projected to account for 90 percent of GHG reductions in 2030 (see Table 2-6). The remaining 10 percent reduction needed to meet the SB 32 target of a 40 percent reduction by 2030 is achieved by the implementation of the remaining GHG mitigation measures, listed below by sector.

**Table 2-6 GHG Reduction Impact of all Sectoral Strategies**

Foundational Strategy	Sector	2030 GHG Reductions (MTCO2e)	2045 GHG Reductions (MTCO2e)
High participation in 100% Renewable Energy electricity	Clean energy	60,455	0
Carbon-free energy powered buildings reach code	New buildings	7,924	11,626
Existing building decarbonization and energy efficiency improvements	Existing buildings	12,825	59,215
EV adoption and equipment decarbonization	Transportation	14,457	69,674
Mode shift (Complete Streets Plan, Transportation Demand Management, transit)	Transportation	2,631	5,966
Comply with SB 1383 organics diversion requirements	Solid Waste	12,499	12,993
Reduce outdoor and indoor water use	Water and Wastewater	16	0
Urban forest management	Carbon Sequestration	37	44

State and regional policies and regulations are projected to reduce citywide 2030 Business-as-Usual (BAU) emissions by 18 percent. As illustrated in Figure 2-6, Beverly Hills will need to proactively take local climate action to reduce and offset greenhouse gas emissions to achieve the GHG reduction targets. Implementing the locally focused CAAP mitigation measures enables the City to achieve the SB 32 target of a 40 percent reduction in mass emissions by 2030 and puts the City on the path to achieving the long-term goal of carbon neutrality by 2045. Combined, these strategies achieve a 43 percent mass emissions reduction compared to 1990 levels in 2030 and a 72 percent reduction in 2045. Additional climate action will be needed to close the gap of 126,723 MTCO2e to achieve carbon neutrality by 2045. See Figure 2-3 for the estimated GHG reductions associated with CAAP mitigation measures.

**Figure 2-6 GHG Emissions Reductions from CAAP Mitigation Measures**



**Table 2-7 GHG Reduction Impact of CAAP Measures**

Strategy	Sector	Measures	2030 GHG Reductions (MTCO2e)	2045 GHG Reductions (MTCO2e)
Maintain high participation in 100% Green Energy from Clean Power Alliance or SCE equivalent	Clean Energy	CE 2.1	59,728*	0
Local solar installations	Clean Energy	CE 1.1, CE 1.2	727	0
Carbon-free reach code	New Buildings	BNC 2.1	7,924	11,626
Existing building decarbonization	Existing Buildings	BE 2.1, BE 2.2, BE 2.3	11,779	55,943
Existing building energy efficiency programs	Existing Buildings	BE 1.1, BE 1.3	1,046	3,271
EV adoption	Transportation	TL 2.1, TL 2.2	14,457	69,674
Mode Shift (Complete Streets Plan, transit)	Transportation	TL 1.1, TL 1.2, TL 1.3	2,631	5,966
Comply with SB 1383	Solid Waste	SW 1.1, SW 1.2	12,499	12,993
Reduce outdoor and indoor water use	Water and Wastewater	WE 1.1, WE 1.2, WE 1.3, WE 1.4	16	0
Urban Forest Management	Carbon Sequestration	WE 2.1, WE 2.4	37	44
<b>Total Reductions Achieved by Strategies</b>			<b>110,844</b>	<b>159,518</b>

\*Note to CAC: The October 2022 shift to automatically bump CPA customers to 100% Green Power Renewable tier energy has yet to be accounted for in this number, as well as 'Total reductions achieved by strategies' and 'gap to target' in Tables 2-3 and 2-4; and subsequent measure GHG reductions (CE2.1). This shift would result in greater GHG reductions through 2035 than is currently reflected here. The GHG reduction increases will be reflected in future drafts.

Table 2-8. calculates the total reductions achieved by the CAAP strategies compared to the adjusted forecast. 'Reductions Required to Meet Target' identifies the emissions reductions the City will need to achieve in order to meet GHG emissions reduction targets for 2030 and 2045. In 2030, the City is projected to achieve and surpass its target for GHG reduction by 11,738 MTCO2e. In 2045, the City is currently projected to need an additional 126, 723 MT CO2e of GHG reduction in order to achieve carbon neutrality. This emissions gap is typical for jurisdictions across the state. Closing the gap will require the City to establish new GHG reduction strategies in future CAAP updates.

**Table 2-8 GHG Reduction Impact of CAAP Measures**

Emissions Targets & Reductions Needed	2030 (MT CO2e)	2045 (MT CO2e)
Adjusted Forecast Emissions	371,245	286,241
Target Emissions	272,139	0
Reductions Required to Meet Target	99,106	286,241
Total Reductions Achieved by Strategies (See Table 2-3)	110,844	159,518
Gap to Target	-11,738	126,723

# Reduction Strategies, Measures, and Implementation Actions

To reduce greenhouse gas emissions and adapt to a changing climate, the City intends to move forward with 47 GHG mitigation measures organized into seven categories: Clean Energy, Buildings – New Construction and Remodels, Existing Buildings, Transportation and Land Use, Solid Waste, Water and Ecosystems, and Community Engagement.

Implementing these measures and associated actions will put Beverly Hills on the path to carbon neutrality by 2045. The measures were developed through input from City staff, CAC members, and a review of best practices in the field. Each measure includes the applicability (municipal or citywide), implementation level, estimated timeline for implementation, GHG reduction potential and estimated cost and lead department and City Commissions responsible for implementation.

## Refining GHG Reduction Measures with the Community Advisory Committee | **Text Box**

Through multiple meetings, the CAC refined a list of GHG reduction measures. The consultant team modeled these measures to determine what reductions could be achieved. The CAC reviewed the modeling results and requested a list of the top six most impactful measures. These foundational measures – renewable energy supply, carbon-free energy systems for construction, retrofit of existing buildings to use carbon-free energy, shifting transportation to low-carbon modes of travel, diverting organic waste from landfills, and protecting and expanding the urban forest - serve as the backbone of the CAAP. A similar prioritization process was used for the adaptation and resilience analysis. Once the CAAP measures were finalized, it was presented to various commissions for additional comments and revisions.

### GHG Reductions Key

The GHG Reductions Key below provides a guide for interpreting GHG impact, cost, applicability, and implementation level for each measure and implementation action. The following section serves as an implementation roadmap for the individual measures and actions that contribute to CAAP GHG mitigation by identifying impact potential, cost, and key parties to achieve measures and actions.

**GHG Reductions Key:**

Quantified – GHG reductions for quantified actions are included in metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>e) for the year 2030.

Supportive – no direct emissions reductions but aid the implementation of measures with direct emissions reductions.

TBD – Additional analysis is required to quantify GHG reductions. Reductions are not included in CAAP analysis.

**Cost Key:**

\$ - less than \$100,000

\$\$ - \$100,000-\$500,000

\$\$\$ - \$500,000 - \$2,500,000

\$\$\$\$ - over \$2,500,000

**Applicability Key:**

Municipal – measure relates to city facilities or will be implemented fully by the city.

Citywide – measure applies to all residents or businesses within the city. It may be implemented by individuals and/or the city

Existing buildings – residential or nonresidential buildings currently present in the city

New construction – residential or nonresidential site preparation for, and construction of, entirely new structures and/or significant extensions to existing buildings

**Implementation Level Key:**

Voluntary – measure is elective and not required to be implemented by applicable individuals and projects. Incentives may be provided.

Mandatory – measure is required to be implemented by applicable individuals and projects. Incentives may be provided.

Phased – measure is voluntary to implement until 2035; thereafter it becomes mandatory and required to be implemented by applicable individuals and projects. Incentives may be provided during both phases.

The following strategies, measures, and actions collectively work toward achieving the near-term goal of 40 percent reduction in greenhouse gas emissions by 2030 and carbon neutrality by 2045.

## Clean Energy (CE)

Residential and nonresidential energy use, including electricity and natural gas, account for 45 percent of Beverly Hills’s communitywide greenhouse gas emissions. These emissions are mainly the result of burning fossil-based natural gas, which accounts for 21 percent of total emissions. Clean grid electricity from Clean Power Alliance (CPA), Southern California Edison (SCE), or other third-party energy source, and the installation of distributed energy resources (DERs) such as local solar projects, is major components of the effort being led by the State to achieve its climate goals. The Senate Bill 100 renewable portfolio standard requires that supplied energy is both 100 percent carbon-free by 2045 and 100 percent generated from renewable sources like wind, solar, local biogas, or green hydrogen. Access to clean electricity makes the transition to electric vehicles across Beverly Hills more beneficial by enabling electric vehicles to charge using carbon-free energy and thereby reducing tailpipe emissions, improving regional air quality, and eliminating carbon emissions.

The City is currently upgrading its default participation tier in Clean Power Alliance to the Green level (100 percent renewable) from Clean (50 percent renewable). The change went into effect in October 2022. The City’s current participation rate is 99% at 100% Green Power for all existing CPA customers.

### Alternative Energy Source Measures

CE 1.1 Support community solar programs and projects

CE 1.2 Streamline approval process for solar, battery storage systems, and EV charging

CE 1.3 Carbon neutral city facilities

### Carbon-Free Electricity Measure

CE 2.1 Maintain Clean Power Alliance participation

Alternative Energy Sources						
CE 1.1 Support community solar programs and projects						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
727 MT CO <sub>2</sub> e	Municipal	3-5 years	N/A	Public Works	Public Works	\$
<p>Explore opportunities for community scale solar and other renewable energy sources.</p> <p>Implementation Actions:</p> <ol style="list-style-type: none"> <li>1. Conduct outreach to residents about subscription to community solar projects through the City’s website, social media, press releases, City Council and staff attendance at ribbon cutting events, etc.</li> <li>2. Identify sites for the possible installation of community solar</li> <li>3. Asses the feasible locations identified in the communitywide renewable energy generation analysis under CEQA</li> </ol>						

<ol style="list-style-type: none"> <li>Set a goal for the number of commercial energy storage projects within the city and provide regular updates on meeting the goal</li> <li>Work with City Council to support community solar projects</li> <li>Support commercial pilot projects utilizing thermal energy storage, energy storage, dispatchable storage, back-up power at critical facilities, and microgrid development. Support includes outreach for completed projects</li> <li>Share data as needed to develop successful projects and programs</li> </ol>						
CE 1.2 Streamline approval processes for solar, battery storage systems, and EV charging						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	1-3 years	N/A	Public Works, Community Development	Planning	\$
Establish a streamlined approval process for solar, battery storage system, EV charging and reduce or eliminate permitting fees to encourage the addition of battery storage.						
Implementation Actions: <ol style="list-style-type: none"> <li>Review current permitting procedures</li> <li>Determine eligibility criteria for systems that qualify for expedited permitting and provide permitting checklist</li> <li>Explore the potential to allow for digital signatures and online permit application submittals</li> <li>Shorten the inspection process to one inspection for qualifying systems</li> </ol>						
CE 1.3 Carbon neutral city facilities						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	1-3 years	N/A	Public Works	Public Works	\$\$
Explore opportunities and partnerships to design new or remodeled city facilities to be carbon neutral and utilize innovative fuel sources such as hydrogen or renewable natural gas (RNG).						
Implementation Actions: <ol style="list-style-type: none"> <li>Partner with utilities to identify funding for installation of renewable energy generation and storage at feasible locations</li> <li>Partner with utilities to explore the feasibility of utilizing RNG in municipal facilities</li> </ol>						

Carbon Free Electricity Action						
CE 2.1 Maintain Clean Power Alliance participation						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
59,728 MT CO <sub>2</sub> e	Municipal	1-3 years	N/A	Public Works	Public Works	\$
Achieve at least 90% participation of electricity customers in Beverly Hills in Clean Power Alliance 100% Green Power tier or SCE equivalent and maintain onwards through 2035.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Conduct outreach to identify barriers for large users and/or sectors to participate at the 100% Green Power Tier or SCE equivalent</li> <li>2. Partner with Clean Power Alliance to develop and conduct a robust awareness and education campaign to boost enrollment</li> </ol>						
				<b>2030</b>	<b>2045</b>	
<b>Total Strategy Reductions: Clean Energy GHG Reduction Potential (MTCO<sub>2</sub>e)</b>				<b>60,455</b>	<b>0</b>	

## Buildings – New Construction and Major Remodels (BNC)

Electricity use in residential and nonresidential buildings accounts for 24 percent of community emissions and natural gas use accounts for 21 percent of community emissions. There are two main approaches to reduce emissions in buildings. The first is improved energy efficiency of new buildings and the second is through the decarbonization of the energy sources used to power buildings.

Decarbonization removes natural gas systems from buildings and uses carbon-free alternatives, including electricity, to take advantage of the 100 percent carbon-free electricity provided by CPA.

The number of employees and residents in Beverly Hills is expected to grow through 2045, and this growth will result in the construction of new residential and commercial buildings. New construction is governed by the California Building Code and must meet the California Green Building Standards (CALGreen), which include requirements for energy performance. The building code is updated every three years to increase baseline energy efficiency, incorporate industry best practices, and support State energy goals. To avoid the construction of GHG-emitting buildings and infrastructure with lifespans beyond the City's emissions reduction goals, enhanced green building will be the standard for all new construction and major remodels. In order to go beyond CALGreen code minimums the City must adopt

a reach code that requires all-electric new construction for both residential and nonresidential buildings. The California Energy Commission has found that all-electric new construction is cost effective across building types in Beverly Hill's climate zone. Several additional studies have found that all-electric construction is cheaper than building a mixed-fuel building.<sup>2</sup>

In the short-term, electrification has been identified as the most-cost effective approach for building decarbonization. However, the City will continue to explore other options for carbon free energy such as hydrogen.

## Energy Efficiency Measures

BNC 1.1 Passive solar design

BNC 1.2 Sustainable building resources

## Decarbonization Measure

BNC 2.1 Carbon-free reach code

# Community Input on GHG Measures | Text Box

CAC members joined City staff and members of the consultant team on April 24, 2022 for an Earth Day pop-up event at the Beverly Hills Farmers Market. The booth offered information about the CAAP process. Community members were able to show their preference for different GHG reduction measures through dot voting. Main themes from the event were a desire for increased bike and pedestrian safety, incentives for building retrofits, information about what people can do on an individual basis to reduce their carbon footprint, and a preference for voluntary or incentivized climate actions.

Energy Efficiency						
BNC 1.1 Passive solar design						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Residential and nonresidential new construction	1-3 years	Voluntary	Community Development, Public Works	Planning	\$

<sup>2</sup> Studies include: Rocky Mountain Institute. (2020). *Economics of Electrifying Buildings*.; New Building Institute (2022). *Cost Study of the Building Decarbonization Code*.; E3. (2022) *The Economics of All-Electric New Construction in Utah*.; California Energy Commission (2019). Cost Effectiveness studies for residential and nonresidential new construction.

Provide educational information or technical assistance on passive solar design for residential and nonresidential new construction.						
Implementation Actions:						
<ol style="list-style-type: none"> <li>1. Draft materials on passive solar design</li> <li>2. Distribute materials at planning counter and post to City website</li> </ol>						
BNC 1.2 Sustainable building resources						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Residential and nonresidential new construction	1-3 years	Voluntary	Community Development, Public Works	Planning	\$
Provide green building resources, including the most sustainable options for various materials and building systems, to individuals and developers of residential and nonresidential new construction.						
Implementation Actions:						
<ol style="list-style-type: none"> <li>1. Compile materials on high performance green buildings</li> <li>2. Distribute materials at planning counter and post to City website</li> <li>3. Incorporate sustainable green design options into City design review, pre-application and/or plan check process</li> </ol>						
Decarbonization						
BNC 2.1 Carbon-free reach code						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
7,924 MT CO <sub>2</sub> e	Residential and nonresidential new construction and remodels	1-3 years	Mandatory	Community Development, Public Works	Planning	\$

Adopt a reach code requiring residential and nonresidential new construction and alternations or additions at least 50% the size of the original building be designed to be powered using carbon-free energy sources by January 1 <sup>st</sup> , 2024.		
Implementation Actions: <ol style="list-style-type: none"> <li>1. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the reach code</li> <li>2. Conduct a cost effectiveness study or utilize studies developed by the CEC</li> <li>3. Develop and draft an ordinance</li> <li>4. Conduct public hearings, public notices, and formally adopt the ordinance before January 1<sup>st</sup>, 2024</li> <li>5. Submit the adopted ordinance to the California Energy Commission (CEC) and California Building Standards Commission (CBSC)</li> </ol>		
	<b>2030</b>	<b>2045</b>
<b>Total Strategy Reductions: Buildings – New Construction and Remodels GHG Reduction Potential (MTCO<sub>2</sub>e)</b>	<b>7,924</b>	<b>11,626</b>

## Buildings – Existing (BE)

Most of the building-related emissions are attributable to the existing building stock, which is less energy efficient than new construction. Decarbonizing existing buildings is critical to meeting the emissions reduction goals. Challenges associated with improving the performance of existing buildings include costs, rental/ownership status and the associated split incentives, and technological constraints. Benefits include healthier indoor air quality, reduced energy use and lower utility bills, and more resilient building systems.<sup>3</sup> Improving existing buildings in Beverly Hills would focus on promoting existing energy efficiency programs offered by utility companies and/or establishing new incentive programs administered by the City. Many of the measures in this sector will be phased in over time, meaning that requirements will initially be voluntary and then become mandatory in 2035. Incentives will still be provided throughout the life of the measure if possible.

As shown in Table LU1 of the City's 2010 General Plan, the City's building stock is primarily made of Single Family Residential (74 percent of land use acreage) and Multi-Family Residential (8 percent of land use acreage) land uses, with approximately 10 percent of land use acreage identified as Commercial, and the remainder a mix of Park, Public Building, and Public School land uses. While Table LU1 of the General Plan indicates that Industrial land uses occur within the City, the 2010 Land Use Element indicates that the Industrial land uses have since been redesignated as Commercial.

<sup>3</sup> Rocky Mountain Institute. (2021). Eight Benefits of Building Electrification for Households, Communities, and Climate. Accessed from: <https://rmi.org/eight-benefits-of-building-electrification-for-households-communities-and-climate/#:~:text=Building%20electrification%20will%20bring%20cleaner,states%20meet%20their%20climate%20goals.>

## Energy Efficiency Measures

BE 1.1 Energy and water benchmarking

BE 1.2 Energy scores

BE 1.3 Implement utility energy efficiency incentives and programs

BE 1.4 Explore User Utility Tax to reduce natural gas use

BE 1.5 City funded incentives

## Decarbonization Measures

BE 2.1 Retrofit existing gas infrastructure

BE 2.2 Phased-in Decarbonization Plan

BE 2.3 Burnout Ordinance

BE 2.4 Decarbonization Plan for city facilities

Energy Efficiency						
BE 1.1 Energy and water benchmarking						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Nonresidential existing buildings	1-3 years	Phased	Community Development	Planning	\$
Adopt energy and water benchmarking ordinance for existing nonresidential and commercial buildings over a specified square footage requiring buildings measure and report energy and water use.						
Implementation Actions:						
<ol style="list-style-type: none"> <li>1. Conduct a study to determine the appropriate square footage threshold to capture additional buildings than AB 802</li> <li>2. Engage with stakeholders including City staff and nonresidential property owners and managers</li> <li>3. Draft and adopt an ordinance</li> </ol>						
BE 1.2 Energy scores						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost

Supportive	Residential single family and multifamily existing buildings	3-5 years	Voluntary	Community Development , Public Works	Planning, Public Works	\$
Encourage owners of existing residential single family and multifamily properties older than 10 years to provide an energy audit, EPA Home Energy Score, or HERS score at time of sale or rental agreement.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Engage with stakeholders including residential property owners, managers, real estate agents, leasing brokers, and Chamber of Commerce to explain the benefits of providing a Home Energy Score</li> <li>2. Develop and distribute educational materials</li> <li>3. Encourage properties to take steps to improve their Energy Score through utility energy efficiency programs and other streamline permitting process</li> </ol>						
BE 1.3 Implement utility energy efficiency incentives and programs						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
1,046 MT CO <sub>2</sub> e	Residential and nonresidential existing buildings	1-3 years	Voluntary	Public Works	Public Works	\$
Work with utilities including Clean Power Alliance, SoCal Edison, SoCalGas, and SoCal REN to promote and implement efficiency incentives and programs to increase efficiency of existing equipment (retro-commissioning) in 240 commercial and buildings and complete deep retrofits of an additional 240 commercial and 716 residential buildings by 2030.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Partner with utilities to promote and implement energy efficiency and retrofit programs</li> <li>2. Track and report participation among residents/property owners opting into efficiency programs</li> <li>3. Monitor progress and increase outreach/incentives as needed to reach 2030 targets</li> </ol>						
BE 1.4 Explore User Utility Tax to reduce natural gas use						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost

Supportive	Municipal	3-5 years	N/A	Public Works, Finance, Community Development	Public Works, Planning	\$
The City will explore pricing mechanisms and tools, such as the Utility Users Tax (UUT) and tiered pricing, to reduce natural gas use.						
Implementation Actions:						
1. Research funding mechanisms to increase the cost of natural gas						
BE 1.5 City funded incentives						
GHG Reduction Potential	Applicability	Implemen tation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	3-5 years	N/A	Public Works, Finance, Community Development	Public Works, Planning	\$\$
The City will explore developing City-funded energy efficiency and decarbonization incentive programs.						
Implementation Actions:						
1. Research existing City-funded energy incentive programs						
2. Work with the City Manager, City Attorney, and finance department to identify potential funding sources						
3. Develop program and promote to the community						
Decarbonization						
BE 2.1 Retrofit existing gas infrastructure						
<b>GHG Reduction Potential</b>	<b>Applicability</b>	<b>Implementatio n Timeline</b>	<b>Implementa tion Level</b>	<b>Lead City Departme nt</b>	<b>City Commission</b>	<b>Cost</b>
Supportive	Municipal	5-10 years	N/A	Public Works	Public Works	\$
Explore partnerships and opportunities to retrofit existing gas infrastructure to accommodate low-emissions alternatives including renewable natural gas (RNG) and hydrogen.						
Implementation Actions:						

1. Partner with SoCalGas to explore the potential for a pilot program utilizing renewable natural gas (RNG)						
BE 2.2 Phased-in Decarbonization Plan						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Residential and nonresidential existing buildings	3-5 years	Phased	Community Development, Public Works	Planning	\$\$
Adopt a phased in decarbonization plan for existing residential and nonresidential buildings that promotes, and as-needed, requires the retrofit of existing buildings to be powered using carbon-free energy to electrify 2,150 residential units and 463 commercial buildings by 2030.						
<p>Implementation Actions:</p> <ol style="list-style-type: none"> <li>1. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the requirements</li> <li>2. Draft and adopt plan including phasing timeline of requirements</li> <li>3. Conduct CEQA analysis</li> <li>4. Provide technical resources, including hosting workforce development trainings for installers and building owners/operators to discuss benefits and technical requirements of decarbonization and carbon-free energy sources</li> <li>5. Promote the cost and environmental benefits of decarbonization and carbon-free energy sources to builders, property owners, and contractors on the City website and at the City permit counters</li> <li>6. Work with SoCalGas to identify opportunities for natural gas infrastructure pruning to reduce the chance of stranded assets, provide potential funding, and establish an efficient transition to carbon neutral buildings</li> </ol>						
BE 2.3 Burnout Ordinance						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
11,779 MT CO <sub>2</sub> e	Residential and nonresidential existing buildings	3-5 years	Phased	Community Development, Public Works	Planning	\$\$

Adopt a Replace on Burnout Ordinance for existing residential and nonresidential buildings, which requires gas appliances (water heaters and HVAC) to be replaced with an electric or carbon-free alternative when they fail or reach the end of their useful life by 2027.						
<p>Implementation Actions</p> <ol style="list-style-type: none"> <li>1. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the requirements</li> <li>2. Draft and adopt ordinance</li> <li>3. Conduct CEQA analysis</li> <li>4. Develop a tracking process to track natural gas and electric appliance/system installations</li> <li>5. Provide technical resources, including hosting workforce development trainings for installers and building owners/operators to discuss benefits and technical requirements of electrification</li> <li>6. Provide education around cooking with electric appliances, including demonstrations from chefs and/or local restaurants</li> <li>7. Develop a permit compliance program to maintain a 74% or higher compliance rate</li> </ol>						
BE 2.4 Decarbonization Plan for city facilities						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	3-5 years	N/A	Public Works	Public Works	\$\$
Develop a decarbonization plan for City facilities that aligns with the capital improvement planning (CIP) process.						
<p>Implementation Actions:</p> <ol style="list-style-type: none"> <li>1. Conduct an energy audit of all City facilities</li> <li>2. Identify energy efficiency upgrades to be installed</li> <li>3. Identify potential for distributed energy resources DERs at City facilities</li> <li>4. Align improvements timeline with capital improvement planning process including utility available incentive programs</li> <li>5. Draft and adopt plan</li> </ol>						
				2030	2045	
<b>Total Strategy Reductions: Buildings - Existing GHG Reduction Potential (Efficiency + Decarbonization) (MTCO<sub>2</sub>e)</b>				<b>12,825</b>	<b>59,215</b>	

## Transportation and Land Use (TL)

Transportation-related emissions are the largest contributor to communitywide emissions, accounting for 49 percent of total GHG emissions citywide. There are two main methods to use in reducing emissions associated with transportation. The first is to “clean” vehicle miles traveled (VMT) through vehicle electrification combined with access to carbon-free electricity from Clean Power Alliance. Second, is to reduce VMT through programs and policies that shift VMT away from single-occupancy vehicles to other modes including walking and biking, transit, and e-mobility, and transportation demand management programs and policies. Vehicle electrification results in immediate emissions reductions due to the availability of carbon-free electricity in the City. However, the rate of EV adoption is not directly within the City’s control. The City is able to implement various transportation demand measures to reduce VMT. These measures take longer to implement than switching to EV or other carbon-free mobility technologies, but also generate many co-benefits such as reduced congestion, safer conditions for walking and biking, and improved air quality.

Some of the transportation measures are quantifiable while others support a shift to emissions options. CAAP measures TL 1.1-1.6 encourage mode shift by making modes other than single occupancy vehicle (SOV) more attractive by enhancing safety and connecting bike and pedestrian or by raising the cost of driving. Estimating the potential GHG reduction of mode shift requires consideration of many qualitative factors, including the local context of Beverly Hills that influence walking and biking, transit, and vehicle use. Therefore, GHG reductions from measures TL 1.4-1.6 are not included in the quantifiable CAAP reduction measures analysis.

### Mode Shift Measures

- TL 1.1 Complete Streets Plan
- TL 1.2 Transit improvements
- TL 1.3 Rideshare subscriptions
- TL 1.4 Local Beverly Hills shuttle
- TL 1.5 Parking standards study
- TL 1.6 Explore mandatory transportation demand management program

### Clean Fuel Adoption Measures

- TL 2.1 EV reach code
- TL 2.2 Clean Fuel Transportation Plan

Mode Shift						
TL 1.1 Complete Streets Plan						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
2,631 MT CO <sub>2</sub> e	Community	1-3 years	N/A	Transportation	Traffic and Parking	\$\$-\$\$\$
Prioritize, fund, and implement the Complete Streets Plan.						
<p>Implementation Actions:</p> <ol style="list-style-type: none"> <li>1. Implement all policy recommendations included in the Complete Streets Plan to improve pedestrian and bicycle networks and increase transit ridership based on the established timeframes.</li> <li>2. Prioritize the following Complete Streets Plan measures (Complete Streets Plan measure #s included in parentheses): <ul style="list-style-type: none"> <li>▪ Implementation of bikeways that are “low-stress,” are attractive for all types of riders, and minimize conflicts with motorists (B1-3, B2-3)</li> <li>▪ Implementation of bikeways that connect to key community nodes, like schools, parks, commercial districts, Metro Purple Line stations, and bikeways in neighboring jurisdictions (B2-2, B2-4)</li> <li>▪ Design and maintain sidewalks, streets, and intersections to emphasize pedestrian safety and comfort through a variety of street/streetscape design and traffic management solutions (P1-2, P2-2)</li> <li>▪ Increase multi-modal access and provide first-and last-mile connections to transit stops and stations (T1-1, T1-5)</li> <li>▪ Promote and incentivize the use of bus and rail to residents, employers/employees, and visitors (T3-1, T3-3)</li> </ul> </li> <li>3. Align implementation with capital improvement plan funding cycles</li> <li>4. Identify grant funding opportunities for Complete Street Policy implementation</li> <li>5. Update Complete Streets Action Plan every five years</li> <li>6. Note that emissions reductions in this measure include potential reductions associated with the Local Beverly Hills shuttle ridership</li> </ol>						
TL 1.2 Transit improvements						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	3-5 years	N/A	Transportation, Public Works	Traffic and Parking	\$
Partner with Metro to increase transit (bus and train) ridership in Beverly Hills through improvements such as first/last mile connections, transit stop shade structures, and bus only lanes and priority signals.						

Implementation Actions:						
<ol style="list-style-type: none"> <li>1. Conduct a transit service gaps analysis to determine how service can be improved</li> <li>2. Partner with Metro to implement service improvements such as bus stop upgrades, reduced headways, expanded routes, or other improvements as identified by the gap analysis</li> <li>3. Conduct community outreach and promote the service improvements</li> </ol>						
TL 1.3 Rideshare subscriptions						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Citywide	3-5 years	N/A	Transportation, Public Works	Traffic and Parking	\$
Partner with rideshare companies to provide subscription-based residential transportation service and support access to carshare.						
Implementation Actions:						
<ol style="list-style-type: none"> <li>1. Conduct a transit service gaps analysis to determine how gaps can be filled by rideshare or carshare</li> <li>2. Partner with rideshare and carshare companies to implement programs</li> <li>3. Conduct community outreach and promote the program</li> </ol>						
TL 1.4 Local Beverly Hills shuttle						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	1-3 years	N/A	Transportation	Traffic and Parking	\$
Assess the feasibility of a local city operated shuttle/bus service.						
Implementation Actions:						
<ol style="list-style-type: none"> <li>1. Work with the Traffic and Parking Commission to assess the feasibility of a local city-operated shuttle/bus service</li> </ol>						

TL 1.5 Parking standards study						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Not quantified	Residential new construction	1-3 years	Mandatory	Transportation, Economic Development	Traffic and Parking	\$\$
Conduct a parking study to explore reforming parking standards for new residential development to prioritize parking for bicycles, carshare, and to remove parking minimums.						
<p>Implementation Actions:</p> <ol style="list-style-type: none"> <li>The parking study should be designed to address local conditions and resolve the following variables to quantify GHG reductions: <ul style="list-style-type: none"> <li>Residential parking demand at new residential development sites in the city</li> <li>Residential parking supply available at new residential development sites in the city</li> <li>Percentage of project VMT generated by residents</li> </ul> </li> <li>Utilize study results to amend the zoning code to remove parking minimums for new development and to facilitate shared parking facilities to allow multiple uses on separate properties to use parking more efficiently</li> <li>Conduct focus groups with community groups on new parking changes</li> </ol>						
TL 1.6 Explore mandatory Transportation Demand Management program						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Not quantified	New and existing employers and housing developments	1-3 years	Mandatory	Transportation, Community Development	Traffic and Parking, Planning	\$\$-\$
Explore adopting a mandatory transportation demand management program for existing and new employers and housing developments						
<p>Implementation Actions:</p> <ol style="list-style-type: none"> <li>Research options for a mandatory transportation demand management policy that includes trip reduction requirements (including penalties for noncompliance), regular monitoring and reporting, and dedicated city staff.</li> <li>Conduct focus groups with large employers, small employers, and housing developers on their opportunities and challenges of implementing a transportation demand management program</li> </ol>						

<p>3. Adopt a transportation demand management ordinance that requires employers and housing developments of a certain size to submit an emissions reduction plan that includes:</p> <ul style="list-style-type: none"> <li>▪ Site analysis</li> <li>▪ Annual vehicle ridership survey results</li> <li>▪ Emissions reduction options</li> <li>▪ Employee trip reduction program with a menu of options such as transit information, guaranteed ride home program, commuter choice program, transit pass program, carpool preferential parking, secure bike parking, vanpool program, parking charge, telecommuting, prize incentives, transportation allowance, etc.</li> </ul> <p>4. Explore establishing a Transportation Management Organization (TMO) to administer citywide VMT reduction programs</p> <p>5. Establish a city employee transportation demand management program with mode shift targets for staff</p> <p>6. Establish annual reporting requirements to the City Council</p>						
Clean Fuel Adoption						
TL 2.1 EV reach code						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Multi-family and nonresidential new construction	1-3 years	Mandatory	Community Development	Planning	\$
Adopt EV reach code that goes beyond CALGreen requirements for multi-family residential and nonresidential new construction requiring EV chargers to be installed at time of construction by 2024.						
<p>Implementation Actions:</p> <ol style="list-style-type: none"> <li>1. Engage stakeholders including developers, architects, affordable housing advocates regarding the purpose and impact of the reach code</li> <li>2. Establish the number of EV Ready and EV Charger installed required parking spaces for different uses</li> <li>3. Draft and adopt ordinance</li> <li>4. File the adopted ordinance with the California Building Standards Commission (CBSC)</li> </ol>						

TL 2.2 Clean Fuel Transportation Plan						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
14,457 MT CO <sub>2</sub> e	Municipal	3-5 years	N/A	Public Works	Public Works, Traffic and Parking	\$\$\$
Develop and implement a Clean Fuel Transportation Plan that identifies areas of the City to prioritize clean fuel infrastructure installation to reach a citywide goal of 364 publicly accessible chargers and support 16% passenger and 13% commercial EV adoption by 2030.						
<b>Implementation Actions</b> <ol style="list-style-type: none"> <li>1. Identify locations throughout the City for publicly available EV infrastructure, including curbside charging installations and hydrogen fueling stations</li> <li>2. Investigate opportunities to help fund additional EV charging and hydrogen fueling station infrastructure by leveraging public/private partnerships and ensuring the City is charging for clean fuel infrastructure use at City-owned facilities.</li> <li>3. Adopt an electric and alternative fuel vehicles and equipment purchasing policy for light-duty vehicles for all City departments</li> <li>4. Draft and adopt plan</li> <li>5. Monitor EV adoption rates and update approach as needed by 2025</li> </ol>						
				<b>2030</b>	<b>2045</b>	
<b>Total Strategy Reductions: Transportation and Land Use GHG Reduction Potential (MTCO<sub>2</sub>e)</b>				<b>17,088</b>	<b>75,640</b>	

## Solid Waste (SW)

Solid waste accounts for 4 percent of Beverly Hills overall emissions. By consuming less materials and recycling and composting more, the community will be able to reduce the amount of waste sent to landfill and eventually become a zero-waste city. Specifically, diverting organic material including food waste is a crucial step to meeting long-term climate goals, because organic materials produce methane, which is a more potent greenhouse gas than carbon dioxide. The State adopted Senate Bill 1383, the Short-Lived Climate Pollutants Act, which requires jurisdictions to divert 75 percent of food waste from landfills by 2025. Jurisdictions must also recover food waste that can be repurposed. Organics recycling can provide useful byproducts including compost and biogas, which can further reduce GHG emissions. Other methods to reduce solid waste related emissions are to reduce the use of single use products, and continue with recycling and other programs to divert waste from landfills.

## Increase Diversion from Landfill Measures

SW 1.1 SB 1383 compliance

SW 1.2 Public education campaign

SW 1.3 Ban single-use plastics and polystyrene packaging

SW 1.4 C&D diversion requirements

SW 1.5 Municipal sustainable purchasing policy

## Upstream Waste Reduction Measures

SW 2.1 Sustainable construction materials

SW 2.2 Lifecycle climate impacts

SW 2.3 Extended producer responsibility

Increase Diversion from Landfill						
SW 1.1 SB 1383 compliance						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
12,499 MT CO <sub>2</sub> e	Citywide	1-3 years	Mandatory	Public Works	Public Works	\$\$
Establish pathways and enforcement mechanisms for compliance with SB 1383, which requires the diversion of 75% of organics and food waste from landfill by 2025.						
Implementation Actions: The City will partner with waste hauler to: <ol style="list-style-type: none"><li>1. Provide for organic waste collection from mixed waste containers are transported to a high diversion organic waste processing facility</li><li>2. Provide quarterly route reviews to identify prohibited contaminants potentially found in containers that are collected along route.</li><li>3. Clearly label all new containers indicating which materials are accepted in each container, and by January 1, 2025, place or replace labels on all containers</li></ol>						

SW 1.2 Public education campaign						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Citywide	1-3 years	N/A	Public Works	Public Works	\$
The City will partner with the City's waste hauler to develop and implement a robust public engagement program and provide commercial and multifamily technical assistance.						
Implementation Actions: Partner with waste hauler to: <ol style="list-style-type: none"> <li>1. Identify contaminated waste generators in need of technical assistance</li> <li>2. Develop and distribute educational materials and in-person assistance</li> </ol>						
SW 1.3 Ban single-use plastics and polystyrene packaging						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Citywide	3-5 years	Mandatory	Public Works	Public Works	\$
Expand the City's single use bag ban to include single use plastic and polystyrene packaging materials.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Engage stakeholders including restaurants, businesses, local shipping/delivery companies, and the Chamber of Commerce on the impact and benefits of the ordinance, as well as available sustainable products</li> <li>2. Draft and adopt ordinance</li> <li>3. Establish monitoring and enforcement process as necessary</li> </ol>						

SW 1.4 Construction and Demolition (C&D) diversion requirements						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Residential and nonresidential new construction	3-5 years	Mandatory	Community Development, Public Works	Public Works	\$
Explore the feasibility of requiring 85 percent of construction and demolition (C&D) debris from residential and nonresidential new construction be recycled.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Research local disposal facility diversion rates to determine potential for additional diversion</li> <li>2. If possible, draft and adopt ordinance</li> <li>3. File the adopted ordinance with the California Building Standards Commission (CBSC)</li> </ol>						
SW 1.5 Municipal sustainable purchasing policy						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	3-5 years	N/A	Public Works	N/A	\$
Adopt a municipal sustainable purchasing policy that includes a focus on the diversification of vendors.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Work with the City Manager's office and Finance Department to develop a list of preferred purchasing options</li> <li>2. Conduct outreach to all city staff and existing and potential contractors about sustainable purchasing policy; include as part of new employee orientation</li> </ol>						
Upstream Waste Reduction						

SW 2.1 Sustainable construction materials						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Residential and nonresidential new construction	5-10 years	Mandatory	Community Development, Public Works	Planning	\$-\$\$
Explore modifications to the building code that would require certain products to be locally sourced and/or contain a percentage of recycled content.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Reach out to US Green Building Council, Los Angeles (USGBC-LA), and International Living Future Institute to determine appropriate materials and percent recycled content</li> <li>2. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the policy</li> </ol>						
SW 2.2 Lifecycle climate impacts						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	5-10 years	N/A	Public Works	N/A	\$
Advocate at the appropriate governmental level for goods and services to disclose lifecycle climate impacts.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Work with the City Attorney to support advocacy efforts lead by environmental groups pursuing this issue</li> </ol>						
SW 2.3 Extended producer responsibility						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	3-5 years	N/A	Public Works	N/A	\$
Advocate for more robust extended producer responsibility policies statewide.						
Implementation Actions:						

1. Work with the City Attorney to support advocacy efforts lead by environmental groups pursuing this issue		
	2030	2045
<b>Total Strategy Reductions: Solid Waste GHG Reduction Potential (MTCO2e)</b>	<b>12,499</b>	<b>12,993</b>

## Water and Ecosystems (WE)

Water is a critical resource in California and Beverly Hills. Regional water supplies are being adversely affected by climate change induced drought and decreased snowpack. Beverly Hills meets 90 percent of the city's demand with imported water supplied by The Metropolitan Water District of Southern California. The remaining 10 percent is produced locally from six municipal wells and treated in the City's reverse osmosis water treatment plan. One additional well site will be in the La Brea Subarea of the Central Groundwater Basin in 2022. These new sites will supply 20 to 25 percent of the City's water demand after conservation, providing limited alternatives to water supplies from The Metropolitan Water District of Southern California. However, climate change may impact local hydrology and affect natural recharge to the local groundwater aquifers, impacting the quantity of groundwater that could be pumped sustainably over the long-term. Lower rainfall and/or more intense runoff, increased evaporative losses, and warmer and shorter winter seasons can alter natural recharge of groundwater.

GHG emissions from water supply are generated by the energy used to convey, treat, and distribute water, with imported water sources requiring a high energy intensity. Although water sector GHG emissions only account for 1 percent of communitywide emissions in Beverly Hills, access to clean and safe water supply has innumerable quality of life benefits. These include maintaining public health, supporting ecosystems, and enhancing livability. Between 2015 and 2019, Beverly Hills reduced its reliance on imported water by 9 percent through its water conservation efforts. However, the primary driver for emissions reduction in this sector results from the decreased carbon intensity of electricity used to operate the pumps and treatment facilities needed to supply water to Beverly Hills.

### Reduce Water Use Measures

- WE 1.1 Water efficiency requirements
- WE 1.2 Dual plumbing
- WE 1.3 Water neutral new development
- WE 1.4 Landscaping efficiency requirements
- WE 1.5 Remove barriers to water efficient landscaping
- WE 1.6 Promote state incentive programs
- WE 1.7 Greywater systems

### Ecosystems Measures

- WE 2.1 Urban Forest Management Plan
- WE 2.2 Miyawaki Tiny Forest pilot
- WE 2.3 Shallow Groundwater Ordinance
- WE 2.4 Alternative irrigation sources

Reduce Water Use						
WE 1.1 Water efficiency requirements						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
16 MT CO <sub>2</sub> e	Residential and nonresidential new construction and remodels	1-3 years	Mandatory	Water Conservation	Planning	\$
Adopt CALGreen Tier 1 or 2 water efficiency requirements for residential and nonresidential new construction and alternations or additions of 50% the size of the original building.						
Implementation Actions:						
<ol style="list-style-type: none"> <li>1. Develop and draft an ordinance modifying the building code to make Tier 1 or 2 requirements mandatory</li> <li>2. Conduct public hearings, public notices, and formally adopt the ordinance</li> <li>3. Submit the adopted ordinance to the California Building Standards Commission (CBSC)</li> </ol>						
WE 1.2 Dual plumbing						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Residential new construction	5-10 years	Mandatory	Water Conservation, Community Development	Planning	\$\$
Require dual drainage plumbing and dual water supply plumbing in new residential dwellings to recycle grey wastewater for toilet flushing and other non-potable uses.						
Implementation Actions:						
<ol style="list-style-type: none"> <li>1. Research existing dual piping requirements and incentives</li> <li>2. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the policy</li> </ol>						
WE 1.3 Water-neutral new development						

GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Residential and nonresidential new construction	5-10 years	Voluntary	Water Conservation	Public Works	\$
Explore strategies to encourage water neutral new development, new development that uses on average no more water than the previous building or use for residential and nonresidential new construction projects.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Research existing water neutrality ordinances and incentives</li> <li>2. Engage stakeholders including developers, architects, and property owners regarding the purpose and impact of the requirements</li> <li>3. Determine the feasibility with City Council and City Attorney of adopting an ordinance in Beverly Hills</li> </ol>						
WE 1.4 Landscaping efficiency requirements						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Residential and nonresidential new construction and remodels	1-3 years	Mandatory	Water Conservation	Planning	\$
Modify the State's Model Water Efficient Landscape Ordinance (MWELO) that includes requirements such as choosing climate-adapted plants, improving soil conditions, using high-efficiency irrigation systems, and maintaining efficient irrigation schedules, to adopt more stringent requirements (requiring all landscape projects obtain a landscape permit; decreasing the minimum size so that the WELO would apply to all landscape renovations; and add prescriptive irrigation, plant lists, and/or water budget requirements).						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the requirements</li> <li>2. Draft and adopt ordinance</li> </ol>						
WE 1.5 Remove barriers to water efficient landscaping						

GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Residential new construction and existing buildings	1-3 years	N/A	Community Development	Planning	\$\$
Amend zoning code to remove barriers to the installation of water efficient landscaping such as hardscape and planting material requirements for both new construction and existing residential buildings.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Review zoning code to identify barriers to the implementation of water-efficient landscaping</li> <li>2. Engage stakeholders including developers, architects, and property owners regarding the purpose and impact of the requirements</li> <li>3. Draft zoning code amendments to remove those barriers including hardscape and planting material requirements</li> <li>4. Adopt zone text amendment(s)</li> <li>5. Provide California-friendly landscape and design guides and planting lists online and at the planning counter</li> </ol>						
WE 1.6 Promote state incentive programs						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Citywide	1-3 years	Voluntary	Water Conservation	Public Works, Planning	\$
Promote State efficiency incentives and programs to property owners, managers, and tenants, citywide.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Implement a public education campaign that highlights water conservation practices and promotes and provides demonstrations of graywater and rainwater systems</li> </ol>						

WE 1.7 Greywater systems						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	New and existing residential and nonresidential buildings	1-3 years	Voluntary	Water Conservation, Community Development	Planning	\$
Create a streamlined permit process for laundry-to-landscape greywater systems for both existing and new residential and nonresidential buildings.						
<p>Implementation Actions:</p> <ol style="list-style-type: none"> <li>1. Review current permitting procedures</li> <li>2. Partner with Greywater Action or similar organization to determine eligibility criteria for systems that qualify for expedited permitting and provide permitting checklist</li> <li>3. Explore the potential to allow for digital signatures and online permit application submittals</li> <li>4. Shorten the inspection process to one inspection for qualifying systems</li> </ol>						
Ecosystems						

WE 2.1 Urban Forest Management Plan						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
37 MT CO <sub>2</sub> e	Municipal	1-3 years	N/A	Public Works	Public Works	\$-\$
Implement the Urban Forest Management Plan.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Implement all policy recommendations included in the Urban Forest Management Plan to improve the health, resilience, and services of the urban forest</li> <li>2. Align implementation and maintenance with CIP funding cycles</li> <li>3. Identify grant funding opportunities for Urban Forestry implementation</li> </ol>						
WE 2.2 Miyawaki Tiny Forest pilot						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Municipal	1-3 years	N/A	Public Works	Public Works	\$
Implement a Miyawaki Tiny Forest pilot project in City park. Akira Miyawaki, a Japanese botanist, pioneered the method of planting ultra-dense pocket forests using native species that grow rapidly.						
Implementation Actions: <ol style="list-style-type: none"> <li>1. Identify appropriate city facility for Miyawaki forest and secure funding</li> <li>2. Prep soil: combine perforators, water retainers, organic fertilizers and microorganisms with existing soil</li> <li>3. Purchase native tree species</li> <li>4. Plant and support trees, add mulch</li> <li>5. Monitor and maintain forest for 3 years</li> <li>6. Communicate results of the pilot forest to Council and the community and explore opportunities to expand the program to other city facilities</li> </ol>						

WE 2.3 Shallow Groundwater Ordinance						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	New construction, remodels, existing buildings	3-5 years	Mandatory	Public Works	N/A	\$
Explore expanding the existing Water Supply Ordinance to include single family residential properties. Beverly Hills Municipal Code section 9-4601 authorizes the City to regulate, manage, conserve, protect, and preserve the City's water supply in such a manner that it remains a viable resource and is managed to the most efficient and beneficial use by the City and its residents. As such BHMC section 9-4-610 establishes a permitting process and options for dewatering properties. This section provides management options to existing and future dewaterers within the city including a replenishment fee.						
Implementation Actions:						
1. Engage stakeholders including developers, architects, and property owners regarding the purpose and impact of the requirements						
WE 2.4 Alternative irrigation sources						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	New construction, remodels, existing buildings	3-5 years	Phased	Water Conservation	Public Works	\$\$\$
Limit the use of potable water for irrigation and explore alternative sources for irrigation, including greywater reuse for new and existing residential and nonresidential buildings.						
Implementation Actions:						
1. Study the feasibility of expanding recycled water supplies and use requirements for large irrigation users						
2. Implement a public education campaign that highlights water conservation practices and promotes and provides demonstrations of graywater and rainwater systems						
		2030		2045		

<b>Total Strategy Reductions: Water and Ecosystems GHG Reduction Potential (MTCO2e)</b>	<b>54</b>	<b>44</b>
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## Community Engagement (COM)

Continued community outreach, engagement, and education is important for the successful implementation of the CAAP and the realization of Beverly Hill's climate goals. Regular engagement with the community builds climate literacy, improves understanding of various mitigation strategies, and better equips the community to prepare for and adapt to the impacts of climate change.

The following measures are included as part of the CAAP in order to support the implementation of the GHG reduction measures. The GHG reduction potential of the community education measures is not quantified are recognized as providing support for each of the measures being to achieve the projected GHG reductions.

### Community Engagement Measures

- COM 1.1 Community Engagement Strategy
- COM 1.2 Climate Resilience Outreach
- COM 1.3 Community Energy and Climate Outreach & Education
- COM 1.4 Partner with Beverly Hills Unified School District

## Community Workshop | Text Box

A virtual (web-based Zoom) community workshop was held on May 25, 2022 to introduce the CAAP process and to gain additional input on priorities among the various optional GHG measures. The workshop participants also discussed the approach to implementing the CAAP, with a focus on voluntary or incentivized measures in the early years with a gradual shift toward a more regulatory approach over time.

Community Engagement and Partnerships						
COM 1.1 Community Engagement Strategy						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Citywide	1-3 years	N/A	Public Works, Community Services	Public Works, Rec and Parks	\$
Develop a comprehensive community engagement strategy to raise awareness and understanding around climate action and GHG reduction.						

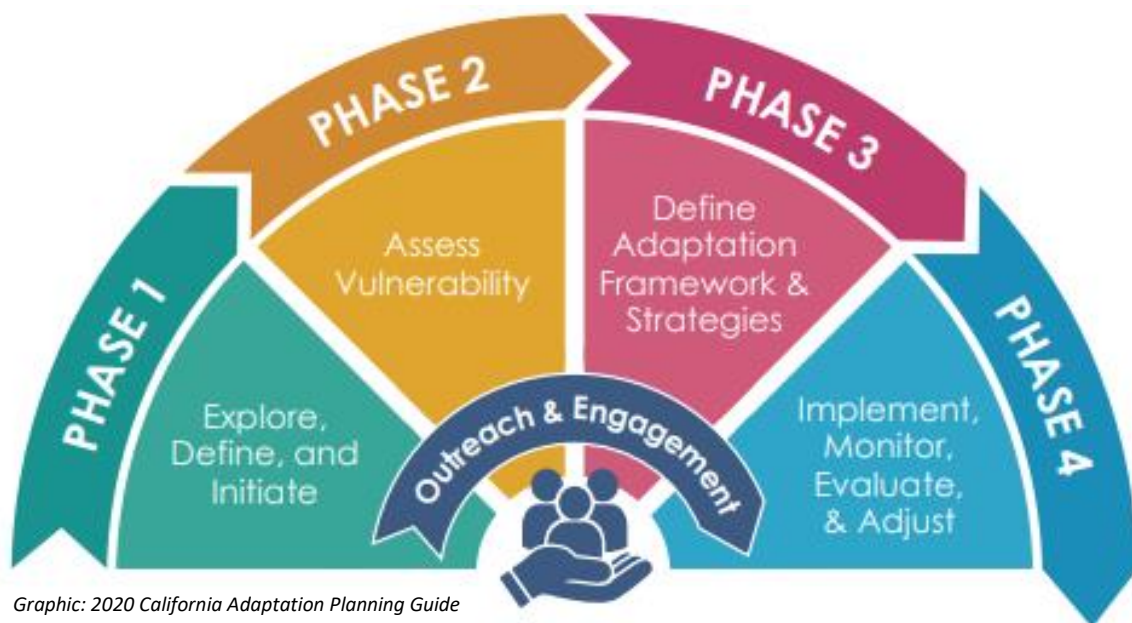
COM 1.2 Climate resilience outreach						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Citywide	1-3 years	N/A	Public Works	Public Works	\$
Provide climate hazard adaptation resources for vulnerable populations in Beverly Hills.						
COM 1.3 Community Energy Guidance and Information						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Citywide	1-3 years	N/A	Public Works	Public Works	\$
Partner with key community stakeholders, utilities, Clean Power Alliance, SoCalREN, and energy-focused organizations to develop a quarterly workshop series to engage and educate the public on rebates and incentives, programs, partnerships, and other opportunities to enrich energy and climate education.						
COM 1.4 Partner with Beverly Hills Unified School District						
GHG Reduction Potential	Applicability	Implementation Timeline	Implementation Level	Lead City Department	City Commission	Cost
Supportive	Citywide	1-3 years	N/A	Community Services	Rec and Parks	\$
Create partnership with Beverly Hills Unified School District (BHUSD) to empower students to be leaders in lowering energy consumption and utilizing EVs in their community through in-class education, internships, and other programs.						

# Chapter 3: Climate Change Adaptation

## Introduction

### Decision-Making Process & Science

The measures in the CAAP were determined collaboratively by City staff, the Community Advisory Committee, and the consultant team based on people and assets' level of vulnerability and adaptive capacity to climate hazards. The Climate Change Vulnerability Assessment evaluates how the City's population, transportation, and critical infrastructure and services can be harmed directly or indirectly by climate-related hazards. The City of Beverly Hills Climate Change Vulnerability Assessment was crafted using the vulnerability assessment process recommended by the California Governor's Office of Emergency Services, as documented in the 2020 California Adaptation Planning Guide (Cal APG). The adaptation planning process outlined by the Cal APG consists of four phases, illustrated in the graphic below, with Phase 2 detailing the vulnerability assessment process.<sup>4</sup>



The City of Beverly Hills Climate Change Vulnerability Assessment is prepared consistent with Phase 2 of the Cal APG, and is composed of the following four parts:

1. **Community Sensitivities.** Beverly Hills populations and assets most at risk to climate change.
2. **Anticipated Impacts.** The nature and degree to which different aspects of the community will be affected by changes in temperature and precipitation, and wildfire.

<sup>4</sup> CalOES. California Adaptation Planning Guide. 2020. <https://www.caloes.ca.gov/HazardMitigationSite/Documents/CA-Adaptation-Planning-Guide-FINAL-June-2020-Accessible.pdf>

3. **Adaptive Capacity.** Beverly Hills's ability to cope with extreme events, to make changes, or to transform to a greater extent, including the ability to moderate potential damages and to take advantage of opportunities.
4. **Vulnerability.** The overall risk of potential impacts to different aspects of the community, given their adaptive capacity.

Discussions with staff from key City departments, analysis of existing policies and plans, and analysis of social vulnerability highlighted areas where adaptive capacity can be improved through the CAAP adaptation measures.

## Partnerships & Collaboration

Partnerships and collaboration are key to successful implementation of adaptation measures due to the cross-jurisdictional aspect of infrastructure systems and the nature of climate hazards. Beverly Hills currently participates in a Joint Effort in Emergency Disaster Management, a program to ensure that emergency disaster management is the mutual responsibility of all City Departments and a variety of stakeholders, including the local organizations, Beverly Hills Unified School District, private schools, residents, and the business community.

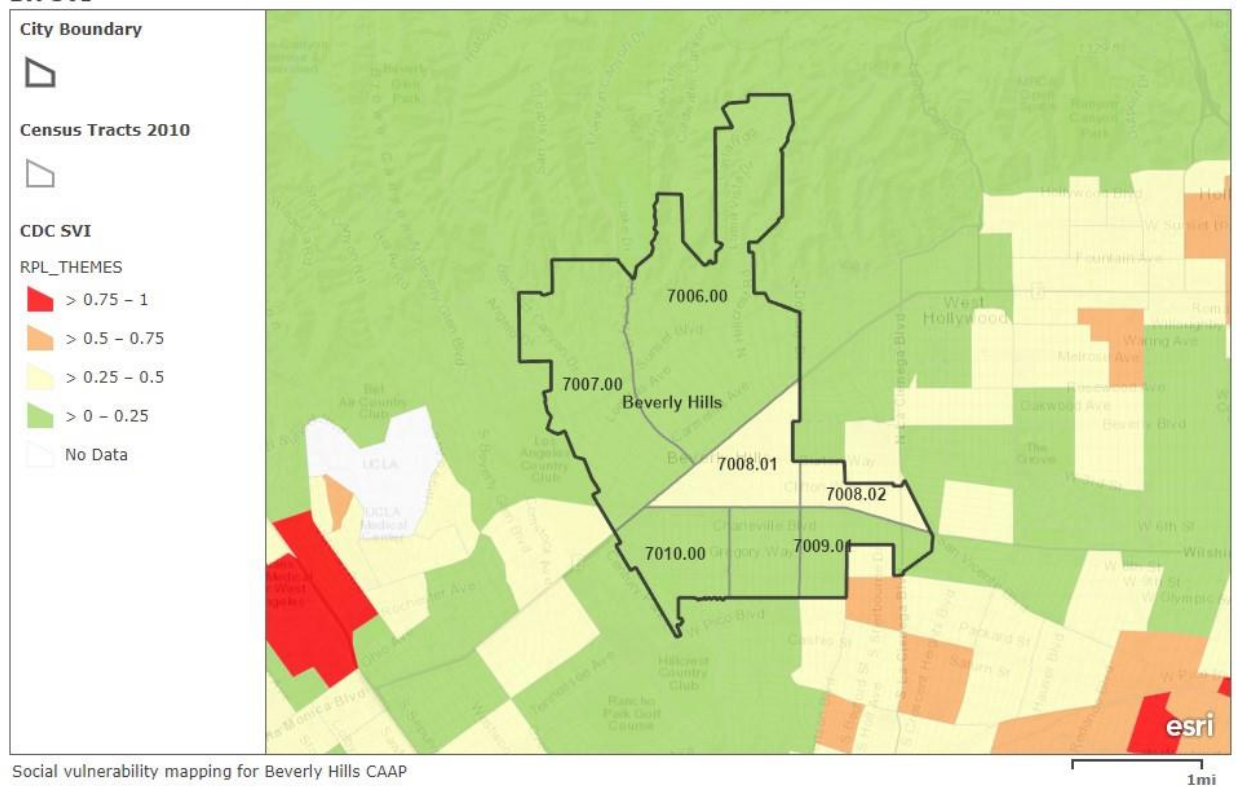
The City collaborates with the Clean Power Alliance (CPA) SoCal Edison (SCE) and SoCal Gas (SCG) to help promote their incentive programs and automated notification systems for customers. Continued partnership with these entities is essential for Beverly Hills to strengthen infrastructure, ensure back-up power, and improve resident education, especially in relation to the hazards posed by wildfire and extreme heat. The adaptation measures in the CAAP also emphasize the need for Beverly Hills to collaborate with the Los Angeles County Public Health Department to protect residents (especially vulnerable populations) from the public health impacts of climate hazards.

## Protections for Socially Vulnerable Communities

Understanding how place, demographics, and socioeconomic status contribute to climate change vulnerability has helped identify avenues for policy and/or programmatic interventions, and to better direct resources. Although climate hazards have the potential to affect all Beverly Hills residents, the severity of impacts is heavily shaped by demographic factors like race, socioeconomic status, gender, housing status, and more. Moreover, sensitive populations have less capacity to adapt to climate hazards, because of long-standing structural and institutional inequities. This assessment draws on existing literature on the subject to illustrate the geographic distribution of vulnerability in the City of Beverly Hills.

Based on the Climate Change Vulnerability Assessment (Appendix B) Beverly Hills residents have low social vulnerability to the impacts of climate change overall (Figure 3-7). This means they should be able to prepare for, respond to, and recover from climate shocks and stressors relatively well compared to other communities in California.

**Figure 3-7 Beverly Hills Overall Social Vulnerability Index Score**



Social vulnerability mapping for Beverly Hills CAAP

County of Los Angeles, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, METI/NASA, NGA, EPA, USDA

There are small portions of the population with increased vulnerability due to their socioeconomic status, physical and household characteristics, minority and language status, and housing and transportation characteristics. Three hazards, which are expected to impact vulnerable populations, are increased temperatures and extreme heat events, variable precipitation, and wildfire. As described in the Climate Change Vulnerability Assessment and summarized in Table 3-9 below, they can create direct and indirect health and safety impacts, as well as economic impacts.

**Table 3-9 Potential Impacts of Hazards on Vulnerable Groups**

Sensitivity	Hazard	Potential Impacts
Populations with Vulnerable Household Characteristics and Disability	Heat, Wildfire	<ul style="list-style-type: none"> <li>The relationship between adverse health impacts (heat stress) and high temperatures are well documented for older adults (over 65 years old), and children. Older individuals may experience cardiac strain due to heat exposure, while children have less ability to naturally cool their bodies.<sup>5,6</sup></li> <li>Older adults tend to have a higher prevalence of lung and heart conditions which make them more likely to experience adverse health impacts from wildfire smoke. Children are also more at risk of lung problems related to smoke because their lungs are still developing and other physiological factors.<sup>7</sup></li> </ul>

<sup>5</sup> Kenney WL, Craighead DH, Alexander LM. 2014. Heat waves, aging, and human cardiovascular health. *Med Sci Sports Exerc.* 46(10): 1891-1899.

<sup>6</sup> Natural Disasters and Severe Weather. 2017. Centers for Disease Control and Prevention, National Center for Environmental Health. [https://www.cdc.gov/disasters/extremeheat/heat\\_guide.html](https://www.cdc.gov/disasters/extremeheat/heat_guide.html)

<sup>7</sup> Ibid.

Sensitivity	Hazard	Potential Impacts
Individuals with Cardiovascular Disease	Heat, Wildfire	<ul style="list-style-type: none"> <li>Like the health impacts to older adults, individuals with cardiovascular disease may experience cardiac strain due to heat exposure. One measure of cardiovascular disease prevalence is that there are 138.6 cardiovascular disease deaths per 100,000 people in Beverly Hills.<sup>8</sup></li> <li>Wildfire smoke pollutes the air with fine particulate matter that may trigger severe cardiovascular events for people with underlying cardiovascular disease.<sup>9</sup></li> </ul>
Individuals with Respiratory Disease	Heat, Wildfire	<ul style="list-style-type: none"> <li>Higher temperatures are linked to respiratory problems, in part because they cause a buildup of air pollutants.<sup>10</sup> This puts people with chronic respiratory illnesses at risk of adverse health impacts. One measure of respiratory disease prevalence is that there are 18.86 ER visits per 10,000 people in Beverly Hills.</li> <li>Wildfire smoke pollutes the air with fine particulate matter that may lead to breathing difficulties and trigger symptoms for people with chronic lung diseases including asthma and chronic obstructive pulmonary disease.<sup>11</sup></li> </ul>
Populations with Lower Socioeconomic Status	Heat, variable precipitation, Wildfire	<ul style="list-style-type: none"> <li>Households with lower socioeconomic status are more at risk of heat stress and/or high temperature mortality. Having access to air conditioning contributes to people's ability to withstand high temperatures. Lower-income households may not have air conditioning in their dwellings, or if they do, they may not be able to afford running it. Additionally, individuals without a high school diploma are more likely to work in outdoor occupations where they are more exposed to high temperatures.</li> <li>Lower income individuals may not be able to take on additional expenses such as repeated home repair or flood proofing that could be required due to extreme precipitation.<sup>12</sup> Additionally, lower educational attainment (indicated by no high school diploma) can result in insufficient understanding of preparedness information for flooding risks.<sup>13</sup></li> <li>Lower socioeconomic status is correlated with less access to healthcare, which can mean higher rates of underlying health conditions which make them at risk of adverse effects from wildfire smoke.<sup>14</sup> These households may also live in lower quality housing that lack the proper air filtration or insulation that can prevent exposure. Lastly, individuals with lower socioeconomic status are more likely to work in an outdoor occupation where they may be exposed to high concentrations of wildfire smoke.<sup>15</sup></li> </ul>

<sup>8</sup> Los Angeles County Department of Public Health. 2018. City and Community Health Profiles: Beverly Hills. Available: <http://publichealth.lacounty.gov/ohae/docs/cchp/pdf/2018/BeverlyHills.pdf>

<sup>9</sup> Ibid.

<sup>10</sup> Centers for Disease Control and Prevention. N.d. Extreme Heat can Impact our Health in Many Ways. Available: [https://www.cdc.gov/climateandhealth/pubs/EXTREME-HEAT-Final\\_508.pdf](https://www.cdc.gov/climateandhealth/pubs/EXTREME-HEAT-Final_508.pdf)

<sup>11</sup> Ibid.

<sup>12</sup> United States Environmental Protection Agency (EPA). 2021. Climate Change and Social Vulnerability in the United States.

<sup>13</sup> Ibid.

<sup>14</sup> US Environmental Protection Agency (EPA). 2021. Which Populations Experience Greater Risks of Adverse Health Impacts Resulting from Wildfire Smoke Exposure? Available: <https://www.epa.gov/wildfire-smoke-course/which-populations-experience-greater-risks-adverse-health-effects-resulting>

<sup>15</sup> Ibid.

Sensitivity	Hazard	Potential Impacts
Minority and Linguistically Isolated Populations	Flood, Wildfire	<ul style="list-style-type: none"> <li>During flooding events, individuals from these groups may have limited access to information and resources because of language or cultural differences.<sup>16</sup></li> <li>During a wildfire, individuals from these groups may have limited access to information and resources related to evacuation because of language or cultural differences.<sup>17</sup> Minority and linguistically isolated populations may also not have access to information and resources about how to prepare their family and/or property for wildfire, or how to access programs that can help them do so.</li> </ul>

## Adaptation Measures

Beverly Hills intends to implement a suite of adaptation strategies to increase the resilience of the City's community members, critical facilities and services, and infrastructure from the impacts associated with climate change hazards. The measures for Beverly Hills to adapt to climate change are grouped by these sectors:

1. Community Awareness (CA)
1. Emergency Response (ER)
2. Heat Mitigation and Increased Safety/Resilience (HM)
3. Wildfire Mitigation (WM)
4. Flood Mitigation (FM)
5. City Capacity and Coordination (CC)

Each measure contains at least one action and additional details related to implementation in its accompanying table.

### Table Key

**Timeline:** The timeline to implement the measure and actions within the ranges of 1-3 years, 3-5 years, and 5-10 years

**Responsible City Departments:** The City department or entity that will lead the implementation of the action.

**Commission:** The City Commission that wields decision-making power related to the measure and action implementation

**Climate Hazard Addressed:** The climate hazard the measures and actions address based on the Climate Vulnerability Assessment.

<sup>16</sup> Gamble JL, Balbus J, Berger M, Bouye K, Campbell V, Chief K, Conlon K, Crimmins A, Flanagan B, Gonzalez-Maddux C, Hallisey S, Hutchins S, Jantarasami L, Khoury S, Kiefer M, Kolling J, Lynn K, Manangan A, McDonald M, Morello-Frosch R, Redsteer MH, Sheffield P, Thigpen Tart K, Watson J, Whyte KP, and Wolkin AF. 2016. Ch. 9: Populations of Concern. The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. U.S. Global Change Research Program, Washington, DC, 247–286. <http://dx.doi.org/10.7930/J0Q81B0T>

<sup>17</sup> Gamble JL, Balbus J, Berger M, Bouye K, Campbell V, Chief K, Conlon K, Crimmins A, Flanagan B, Gonzalez-Maddux C, Hallisey S, Hutchins S, Jantarasami L, Khoury S, Kiefer M, Kolling J, Lynn K, Manangan A, McDonald M, Morello-Frosch R, Redsteer MH, Sheffield P, Thigpen Tart K, Watson J, Whyte KP, and Wolkin AF. 2016. Ch. 9: Populations of Concern. The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. U.S. Global Change Research Program, Washington, DC, 247–286. <http://dx.doi.org/10.7930/J0Q81B0T>

## CA –Community Awareness

Increasing community awareness means educating community members on what climate change is, how it affects them personally, and what actions to take to be better prepared. Better access to information empowers Beverly Hills residents to prepare for the current and future impacts of climate change on their everyday life, homes, and neighborhoods.

Because climate change can be a heavily scientific topic, the City must provide resources that are accessible to all residents—people with varying levels of familiarity with the topic, people whose primary language is not English, and people of all ages. Information can be disseminated by the City of Beverly Hills or other trusted community organizations, local leaders, and neighbors to target harder-to-reach populations.

### Community Awareness

CA 1.1 Create a communitywide climate change education program

#### **CA 1.1 Create a communitywide climate change education program that includes up-to-date climate science and a clear picture of near- and long-term anticipated impacts, and that evaluates opportunities for adaptation**

##### Implementation Actions

1. Designate a virtual resilience hub on the City's website where residents can access information about near- and long-term anticipated impacts to the community, adaptation-related programs (e.g., cooling center/resilience hub locations and status), and individual adaptation actions they can take
2. Provide education and outreach materials (through physical mailers and brochures, and at community events) that specifically address the dangers of heat and wildfire for older adults, people with disabilities and underlying conditions, and children
3. Partner with community-based organizations and trusted community leaders to distribute educational materials, targeting under-resourced households, domestic workers, and other hard to reach populations
4. Create educational materials, activities, and contests to engage youth in critical thinking about climate change impacts
5. Expand the role of the Block-by-Block program to include climate adaptation outreach and engagement

Implementation Timeline	Department	City Commissions	Hazards Addressed
▪ 1-3 years	▪ Public Works ▪ Community Services	▪ Various	▪ All

## **ER –Emergency Response**

The City can expect to experience a greater number of disasters because of climate change. Potential types of disasters to prepare for include extreme heat emergencies, air quality emergencies associated with wildfire smoke, wildfire, flooding, and extreme weather. Increases in wildfire risk and extreme heat emergencies will be the predominant vulnerability for the City to address because of its potential severity and increase in probability of occurrence.

Strengthening emergency systems and procedures helps to keep residents safe during climate hazard events. The City already has significant existing emergency preparation capacity in the form of existing policies, measures, and programs but more can be added especially for heat and air quality emergencies. Improvements to power, transportation, and other critical infrastructure systems will allow the city to still operate under climate stress and will minimize disruptions to people’s daily lives. These include exploring back-up sources of power and fuel for City services, as well as promoting the installation of back-up power in residences. The City can help residents prepare for hazard events by increasing participation in notification systems and partnering with local community-based organizations who serve vulnerable populations such as older adults, non-English speakers, and people with disabilities.

### **Emergency Response**

- ER 1.1 Develop resilient infrastructure and supply networks
- ER 1.2 Investigate additional offsite fueling stations for City waste fleet
- ER 1.3 Increase resilience to power outages from public safety or weather-related events
- ER 1.4 Increase community member participation in emergency notification and preparedness systems
- ER 1.5 Create evacuation procedures for vulnerable populations

#### **ER 1.1 Develop resilient infrastructure and supply networks, including back up sources of water, power, and communications**

##### Implementation Actions

1. Partner with energy utilities to explore opportunities to replace existing generators with battery back-up and fuel cells for City facilities
  - a. Support development of community-serving microgrids that provide renewable energy and backup power to community facilities and critical facilities such as community centers, hospitals, and fire stations.
  - b. Monitor the CPUC’s progress with new rulemaking on microgrids as directed by SB 1339
2. Monitor emerging technology such as vehicle-to-grid charging, which utilizes the car battery as an electricity storage cell that can deliver energy back to the grid when needed, that can be installed at city facilities and upgrades

Implementation Timeline	Department	City Commissions	Hazard Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> <li>Fire Department</li> <li>Police Department</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> <li>Planning</li> </ul>	<ul style="list-style-type: none"> <li>Wildfire</li> <li>Extreme heat</li> </ul>

## **ER 1.2 Conduct a feasibility study to investigate additional offsite fueling stations for City waste fleet to reduce disruptions during extreme heat events.**

### Implementation Actions

1. Identify potential locations for fueling stations
2. Determine the amount of fuel needed
3. Explore partnerships with other waste haulers to share facilities

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Extreme heat</li> </ul>

## **ER 1.3 Increase resilience during power outages due to public safety or weather-related events by requiring any back-up power systems be powered by renewable or carbon-free energy sources in line with backup safety codes.**

### Implementation Actions

1. Update ordinance to require carbon-free backup systems
2. Identify subsidy programs for existing structures and low-income households

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Community Development</li> </ul>	<ul style="list-style-type: none"> <li>Planning</li> </ul>	<ul style="list-style-type: none"> <li>Wildfire</li> <li>Extreme heat</li> </ul>

## **ER 1.4 Increase community member participation in emergency notification and preparedness systems**

### Implementation Actions

1. Increase membership in Beverly Hills CERT
  - a. Create a recruitment campaign that includes outreach at community events, community spaces (like places of worship), and on online platforms
2. Increase participation in emergency notification systems including Beverly Hills Emergency Alerts, Beverly Hills Nixle, and Southern California Edison Automated System
  - a. Utilize City social media to connect residents to the online registration pages
  - b. Help residents sign up on their phones at pop-ups at community events and farmer's markets

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Fire Department</li> <li>Office of Emergency Management</li> </ul>	<ul style="list-style-type: none"> <li>Health and Safety</li> </ul>	<ul style="list-style-type: none"> <li>All</li> </ul>

## ER 1.5 Create evacuation procedures for vulnerable populations in partnership with community-based organizations (CBOs) and facilities that serve identified populations.

### Implementation Actions

1. Conduct a landscape assessment of CBOs and facilities to identify those that serve vulnerable populations (including but not limited to residents who are mobility impaired, domestic workers, non-English speakers, and single -headed households)
2. Conduct focus groups with the identified CBOs and facility staff on the evacuation needs of their service population
3. Create a program to help CBOs develop their own climate emergency response procedures and organizational capacity

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Fire Department</li> <li>Police Department</li> <li>Office of Emergency Management</li> </ul>	<ul style="list-style-type: none"> <li>Health and Safety</li> </ul>	<ul style="list-style-type: none"> <li>Wildfire</li> <li>Flood</li> </ul>

## ER 1.6 Coordinate with transit providers to ensure minimal disruption to bus and train service during climate hazard events

### Implementation Actions

1. Partner with LA Metro to plan for climate hazard events and explore climate hazard event alternatives
2. Raise community awareness about hazard-related service changes

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>All</li> </ul>

## HM –Heat Mitigation and Increased Safety/Resilience

Beverly Hills is projected to experience warming of average minimum and maximum temperatures, and more extreme heat conditions. Increased frequency and length of extreme heat days will result in increased public health risks, particularly to vulnerable populations like older adults, individuals with respiratory and/or cardiovascular disease, and populations with lower socioeconomic status. The impacts of increased temperatures and extreme heat events also affect City services, water and energy systems, roadways, and ecosystem functions.

Extreme heat is a hazard on its own, but it can also lead to power outages that cause secondary impacts to infrastructure and critical services. This requires a comprehensive heat response that includes engagement with other agencies and procedures for the establishment and activation of cooling centers. This expands on City's partnership with the National Weather Service and Los Angeles County to prepare for extreme weather events.

Beverly Hills already has online and in-person outreach programs for extreme heat, and residents can participate in the SoCal Edison automated notification system. However, by implementing additional

programs and educational efforts the City can specifically help homeowners and renters be resilient during times of extreme heat and related power outages. To mitigate the impacts of extreme heat, cooling design features including light-colored, high reflectivity pavements and roofs can be applied to buildings and the streetscape. Maintaining a health urban tree canopy and ecosystem also helps cool the environment by providing shade and evapotranspiration. Together, these planning and physical interventions can address the varied impacts of extreme heat in Beverly Hills.

## **Heat Mitigation and Increased Safety/Resilience**

HM 1.1 Develop a heat emergency response annex to the Emergency Operations Plan

HM 1.2 Consider incorporating cool pavement practices into new streetscape or urban design practices

HM 1.3 Encourage the use of cool roofs

HM 1.4 Provide resources for renters to use to prepare for increased temperatures and power outages

HM 1.5 Prepare the urban forest for climate change-exacerbated heat, drought, and wildfire conditions

HM 1.6 Create ordinances and engagement activities to increase and maintain diverse and healthy trees on private property

HM 1.7 Enhance local ecosystem health in the City's open space network

### **HM 1.1 Develop a heat emergency response appendix to the Emergency Operations Plan that considers extreme heat events in conjunction with potential pandemic impacts and how to reduce strain on electricity and Wi-Fi in community centers.**

#### **Implementation Actions**

1. Coordinate with the LA County Department of Public Health
2. Conduct a report to assess the gaps and opportunities to improve/expand the city's network of cooling centers
  - a. Conduct a gap analysis to identify if existing centers are meeting the holistic needs of a diversity of users (physical and mental health, language assistance, etc.)
  - b. Assess whether areas identified by the vulnerability assessment as having high social vulnerability and exposure have adequate access to a cooling center
3. Create a method to prioritize the activation of cooling centers based on vulnerable populations served, facility amenities, ability to comply with COVID protocols and other public health protocols, proximity to transit, and other factors.
4. Develop design standards for new facilities and retrofits to account for increased temperatures
  - a. Create robust temperature and air quality control standards for new facilities and retrofits
  - b. Identify opportunities to apply other resilience strategies to cooling centers so they can also function as resilience hubs, clean air spaces, and community space during disaster events.
5. Draft and adopt a Heat Emergency Response Annex to the Emergency Operations Plan

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Office of Emergency Management</li> <li>Community Services</li> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Extreme heat</li> </ul>

## HM 1.2 Consider incorporating cool pavement practices into new streetscape or urban design practices

### Implementation Actions

1. Monitor the development of cool street technology and implement as necessary
- 2.

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> <li>Traffic and Parking</li> </ul>	<ul style="list-style-type: none"> <li>Extreme heat</li> </ul>

## HM 1.3 Encourage the use of cool roofs to reduce the urban heat island effect

### Implementation Actions

1. Consider incentives such as expedited permitting or reduced fees
2. Revise local modifications to the building code in Beverly Hills Municipal Code §1505.1 and the Roofing Permit Application

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>1-3 years</li> </ul>	<ul style="list-style-type: none"> <li>Community Development</li> </ul>	<ul style="list-style-type: none"> <li>Planning</li> </ul>	<ul style="list-style-type: none"> <li>Extreme heat</li> </ul>

## HM 1.4 Provide resources for renters to use to prepare for increased temperatures and power outages

### Implementation Actions

1. Identify portable interventions like portable air conditioners and emergency generators which can be implemented without modifying the property
2. Create a new program or increase participation in SCE programs that subsidize cooling and back-up power devices for low-income households

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>1-3 years</li> </ul>	<ul style="list-style-type: none"> <li>Community Development</li> <li>Community Services</li> </ul>	<ul style="list-style-type: none"> <li>Health and Safety</li> </ul>	<ul style="list-style-type: none"> <li>Extreme heat</li> </ul>

## HM 1.5 Prepare the urban forest for climate change-exacerbated heat, drought, and wildfire conditions as specified by the Urban Forestry Master Plan Goal 1: Creating a Climate Resilient Urban Forest section

### Implementation Actions (*Excerpt from the Beverly Hills Urban Forestry Master Plan*)

1. Provide education materials to residential homeowners on best management practices for tree trimming and maintenance, to expand the amount of large and healthy trees on private property
2. Institute an appropriate tree replacement policy that recovers the lost canopy and services of trees, and mutually helps meet the UFMP established goals
3. Incentivize replacement plantings of tree species with large canopies
4. Create an incentive program for private property developers to preserve mature trees on site plans and through development
5. Educate residential homeowners on the City's preferred plant palette

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> <li>Recreation and Parks</li> <li>Planning</li> </ul>	<ul style="list-style-type: none"> <li>Wildfire</li> <li>Extreme heat</li> <li>Drought</li> </ul>

## HM 1.6 Create ordinances and engagement activities to increase and maintain diverse and healthy trees on private property as specified by the Urban Forestry Management Plan

((See *Urban Forestry Management Plan* for implementation actions))

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>3-5 years</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Planning</li> </ul>	<ul style="list-style-type: none"> <li>Wildfire</li> <li>Extreme heat</li> <li>Drought</li> </ul>

## HM 1.7 Enhance local ecosystem health in the City's open space network

### Implementation Actions

1. Prioritize planting of native species and plants that promote local pollination with bees, butterflies, and other species
2. Continue to apply compost at City parks and facilities
3. Implement nature-based stormwater capture infrastructure such as bioswales in parkways and medians.

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>5-10 years</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> <li>Recreation and Parks</li> <li>Traffic and Parking</li> </ul>	<ul style="list-style-type: none"> <li>Extreme heat</li> <li>Drought</li> </ul>

## WM – Wildfire Mitigation

Though uncertainties exist in quantifying future changes of area burned by wildfire in the region, projections indicate that the annual area burned in the Los Angeles Region may increase over 5,000 acres by mid-century. In Beverly Hills, the California Department of Forestry and Fire Protection (CAL FIRE) has identified the area north of West Sunset Boulevard as Very High Fire Hazard Severity Zone (VHFSZ). Beverly Hills has not suffered direct infrastructural damage from past fires, but there are fire,

water, communications, pre-school, and park facilities located in the Very High Fire Hazard Severity Zone. Indirect infrastructure impacts of wildfire include road closures, power outages, and strains on public safety services. Health impacts from wildfire smoke could impact all residents but are particularly harmful for vulnerable populations including older adults, children, and people with respiratory and/or cardiovascular disease.

The City already has numerous planning assessments, codes, staff and advisory groups, and public education campaigns that contribute to its adaptive capacity. CAAP adaptation strategies for wildfire center around community awareness, improving homes to protect residents from fire and smoke, managing trees, and upgrading City facilities that are in the Very High Fire Hazard Severity Zone. These are ways all Beverly Hills residents can do to become more personally prepared, as well as to reduce the impacts of wildfire in the community at large.

## Wildfire Mitigation

- WM 1.1 Provide consolidated public messaging about wildfire preparation, evacuation, and communications avenues
- WM 1.2 Update ordinances and enforce home hardening, defensible space, and other measures
- WM 1.3 Encourage residents to do routine maintenance of their HVAC systems
- WM 1.4 Create a subsidy program for low-income residents and renters to purchase portable air filters
- WM 1.5 Reduce City managed trees' potential fire hazard in the Very High Fire Severity Zone
- WM 1.6 Reduce the potential fire hazard of trees on private property in the Very High Fire Hazard Severity Zone through education, incentives, and support
- WM 1.7 Upgrade City-owned facilities north of Sunset to withstand power outages and potential wildfires

### **WM 1.1 Provide consolidated public messaging about wildfire preparation, evacuation, and communications avenues as recommended by Recommendation 2: Improve the Firewise USA® Recognition Program in the 2021 Beverly Hills Wildfire Assessment Report**

#### Implementation Actions

1. Ensure public messaging about wildfire is published in multiple languages

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>▪ 1-3 years</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fire Department</li> <li>▪ Office of Emergency Management</li> <li>▪ Public Works</li> </ul>	<ul style="list-style-type: none"> <li>▪ Health and Safety</li> </ul>	<ul style="list-style-type: none"> <li>▪ Wildfire</li> </ul>

### **WM 1.2 Update ordinances and enforce home hardening, defensible space, and other measures to prevent structure ignitions from wind-blown embers**

#### Implementation Actions

1. Create an educational campaign to prepare residents for when new AB 3074 requirements come into effect, which require maintaining an ember-resistant zone within 5 feet of a structure in the VHFSZ
2. Accelerate home hardening retrofits north of Sunset through incentives, financial assistance programs, and code standards. Utilize the Wildfire Predictive Analysis maps analyzed in the Wildfire Assessment Report available on the City of Beverly Hill's website to identify priority areas for interventions.
3. Conduct a report analyzing new wildfire-resistant materials, exterior sprinkler system designs, and other innovative building protection strategies

Implementation Timeline	Department	City Commissions	Hazards Addressed
▪ 3-5 years	▪ Fire Department ▪ Community Development	▪ Planning ▪ Design Review	▪ Wildfire

### **WM 1.3 Encourage residents to do routine maintenance of their HVAC systems to filter particulates during wildfire smoke exposure events and improve energy efficiency**

#### Implementation Actions

1. Develop outreach materials about HVAC maintenance
2. Distribute materials at City Hall and post to the City's website

Implementation Timeline	Department	City Commissions	Hazards Addressed
▪ 3-5 years	▪ Community Development	▪ N/A	▪ Wildfire

### **WM 1.4 Create a subsidy program for low-income residents and renters to purchase portable air filters**

#### Implementation Actions

1. Research existing City-funded incentive programs
2. Determine qualifying criteria
3. Implement and promote program

Implementation Timeline	Department	City Commissions	Hazards Addressed
▪ 5-10 years	▪ Office of Emergency Management ▪ Community Services	▪ Health and Safety	▪ Wildfire

### **WM 1.5 Reduce City managed trees' potential fire hazard in the Very High Fire Severity Zone as specified by actions in the Urban Forestry Master Plan Appendix P – Beverly Hills Wildfire Assessment section 6.1.1**

(See Urban Forestry Management Plan Appendix P for implementation actions)

Implementation Timeline	Department	City Commissions	Hazards Addressed
▪ 1-3 years	Public Works	▪ Public Works	▪ Wildfire

**WM 1.6 Reduce the potential fire hazard of trees on private property in the Very High Fire Hazard Severity Zone through education, incentives, and support as specified by actions in the Urban Forestry Master Plan Appendix P – Beverly Hills Wildfire Assessment section 6.1.2.**

(See Urban Forestry Management Plan Appendix P for implementation actions)

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>1-3 years</li> </ul>	<ul style="list-style-type: none"> <li>Community Development</li> <li>Fire Department</li> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Planning</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Wildfire</li> </ul>

**WM 1.7 Upgrade City-owned facilities north of Sunset as necessary to withstand power outages and potential wildfires**

Implementation Actions

1. Identify which facilities are at highest risk
2. Determine necessary interventions for each site
3. Fund and implement upgrades

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>5-10 years</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Public Works</li> </ul>	<ul style="list-style-type: none"> <li>Wildfire</li> </ul>

## FM –Flood Mitigation

Climate change may cause low-lying areas throughout Beverly Hills to experience more frequent flooding and increase the extent of 100-year floods. Heavy precipitation events, especially those followed by wildfires, may also increase landslides in areas of the city that are already susceptible to them.

Flooding risk has been reduced in the city since the implementation of the Holly Hills Mitigation Storm Drain Project. The city's adaptive capacity is also strengthened by having an Integrated Water Resources Master Plan, a local guidebook to reduce flood losses, and SoCal Gas' partnership with California Public Utilities Commission to address risks to natural gas infrastructure from stronger storms and landslides. However, asset managers in Beverly Hills identified that the stormwater systems are older and need to be updated. The adaptation measures in this section aim to increase natural stormwater infiltration, improve landslide monitoring and prevention, and partnering to make required improvements to stormwater infrastructure.

### Flood Mitigation

- FM 1.1 Design streets to incorporate vegetation, soil, and engineered systems to slow, filter, and cleanse stormwater runoff
- FM 1.2 Increase hillside monitoring and stabilization efforts after heavy rain events in areas at risk to landslides
- FM 1.3 Partner with the Los Angeles County Flood Control District to rehabilitate storm drain lines per the Integrated Water Resources Master Plan

#### FM 1.1 Design streets to incorporate vegetation, soil, and engineered systems to slow, filter, and cleanse stormwater runoff

##### Implementation Actions

1. Incorporate street trees as directed by the Urban Forestry Management Plan (UFMP)
2. Incorporate green stormwater infrastructure including bioswales into roadway designs where feasible
3. Incorporate pervious pavements into sidewalks, street furniture zones, and entire roadways/portions of roadways where landscape options are not available

Implementation Timeline	Department	City Commission	Hazards Addressed
▪ 1-3 years	▪ Public Works	▪ Public Works ▪ Traffic and Parking	▪ Flood

#### FM1.2 Increase hillside monitoring and stabilization efforts after heavy rain events in areas at risk to landslides

##### Implementation Actions

1. Install landslide monitoring equipment in Landslide Susceptibility Areas

2. Implement built and natural infrastructure to reduce the risk of landslides, such as hillside revegetation

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>▪ 1-3 years</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public Works</li> <li>▪ Community Development</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public Works</li> <li>▪ Planning</li> </ul>	<ul style="list-style-type: none"> <li>▪ Flood</li> </ul>

### **FM 1.3 Partner with the LA County Flood Control District to rehabilitate storm drain lines per the Integrated Water Resources Master Plan**

(See Integrated Water Resources Master Plan Section 4.3 for implementation actions)

Implementation Timeline	Department	City Commissions	Hazards Addressed
<ul style="list-style-type: none"> <li>▪ 1-3 years</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public Works</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public Works</li> </ul>	<ul style="list-style-type: none"> <li>▪ Flood</li> </ul>

## **CC –City Capacity and Coordination**

Building the City’s capacity and ability to coordinate with other agencies increases the City’s ability to effectively implement the climate adaptation measures of the CAAP. The City already engages in a significant amount of coordination with local, regional, and state stakeholders. Given City staffing resource constraints, improved resilience for the City and its residents will require continued coordination with existing stakeholders in a focused and efficient way.

Adding a dedicated staff person to track CAAP implementation is critical because it involves multiple City agencies, commissions, and partners. The ability to fund climate adaptation efforts with grants and other sources is also critical. Lastly, the City can demonstrate leadership in the community and ensure City services are climate ready by incorporating adaptation and resilience in all capital projects moving forward.

### **City Capacity and Coordination**

- CC 1.1 Create a new staff position to conduct activity tracking to monitor the Climate Action and Adaptation Plan implementation
- CC 1.2 Collaborate with utilities to secure outside funding for resilience efforts
- CC 1.3 Establish a consistent funding source for mitigating wildfire risk
- CC 1.4 Continue to include climate hazards and resilience benefits in capital improvement planning and building design

### **CC 1.1 Create a new staff position to conduct activity tracking to monitor the Climate Action and Adaptation Plan implementation**

#### **Implementation Actions**

1. Create a new City staff position whose duties should include:
  - a. Supporting the operation of adaptation and GHG mitigation related programs citywide
  - b. Managing partnerships with outside agencies and CBO partners

- c. Establishing activity tracking to monitor the implementation of resilience strategies
2. Add CAAP implementation monitoring to the responsibilities of an existing commission (for example, the Public Works, Traffic and Parking, Planning, Recreation and Parks commissions)

Implementation Timeline	Department	City Commissions	Hazards Addressed
▪ 1-3 years	▪ Community Development ▪ Public Works ▪ City Manager	▪ N/A	▪ All

## **CC 1.2 Collaborate with utilities to secure outside funding for resilience efforts.**

### Implementation Actions

1. Identify funding and incentives to weatherize residential and commercial buildings and address severe weather protection, energy efficiency, indoor air quality improvements, and other housing improvements.
  - a. Include an outreach campaign as part of this program to advertise the benefits of weatherizing and electrifying buildings.

Implementation Timeline	Department	City Commissions	Hazards Addressed
▪ 3-5 years	▪ Public Works	▪ Public Works	▪ All

## **CC 1.3 Establish a consistent funding source for mitigating wildfire risk**

### Implementation Actions

1. Research external funding opportunities, including grants

Implementation Timeline	Department	City Commissions	Hazards Addressed
▪ 5-10 years	▪ Public Works ▪ Finance	▪ N/A	▪ All

## **CC 1.4 Continue to consider climate change vulnerabilities and adaptation strategies in capital improvement planning and building design. Use climate change projections rather than historical averages.**

### Implementation Actions

1. Include climate hazard reduction strategies listed in this plan in CIP planning process

Implementation Timeline	Department	City Commissions	Hazards Addressed
▪ 1-3 years	▪ Public Works	▪ Public Works	▪ All

# Chapter 4: Implementation

The City of Beverly Hills developed this CAAP to be a visionary yet feasible roadmap that includes specific implementable actions that will both decrease GHG emissions within the City as well as increase resilience to the effects of climate change.

The measures and actions included in this CAAP provide a framework for how the City plans to reach its GHG emissions reduction targets, consistent with the CEQA Guidelines § 15183.5(b), while improving resilience to a changing climate. Substantial evidence (Appendix C) suggests that the measures and actions outlined in this CAAP will achieve the State goal of 40 percent below 1990 levels by 2030 consistent with SB 32. The strategies in the CAAP, including decarbonization of buildings and vehicles, also form the foundation for achieving carbon neutrality by 2045.

Though this CAAP references the best available science, policy practices, and includes the most effective and feasible technologies to mitigate and adapt to climate change, the specific actions, behaviors, and technologies that will be needed to achieve carbon neutrality are not yet fully understood. For example, implementing the Clean Fuel Transportation Plan hinges on emergent technology like hydrogen fueling stations, as well as increasingly robust but not-yet determined sources of funding to finance public EV charging stations.

Future CAAP updates will continue to evaluate best practices and establish new actions to allow Beverly Hills to achieve their long-term goals consistent with the State. Similarly for adaptation measures, it is uncertain whether implementation of these measures will be sufficient to stave off the worst effects of climate change because of evolving scientific understanding on the scope and severity of the effects of climate change. The adoption rates of each measure, cost of technology, legislative environment, and benefits assumed in this report will continue to evolve as new information becomes available. Therefore, this CAAP should be viewed as a strategic framework that will be regularly reevaluated and adjusted through regular monitoring and updates.

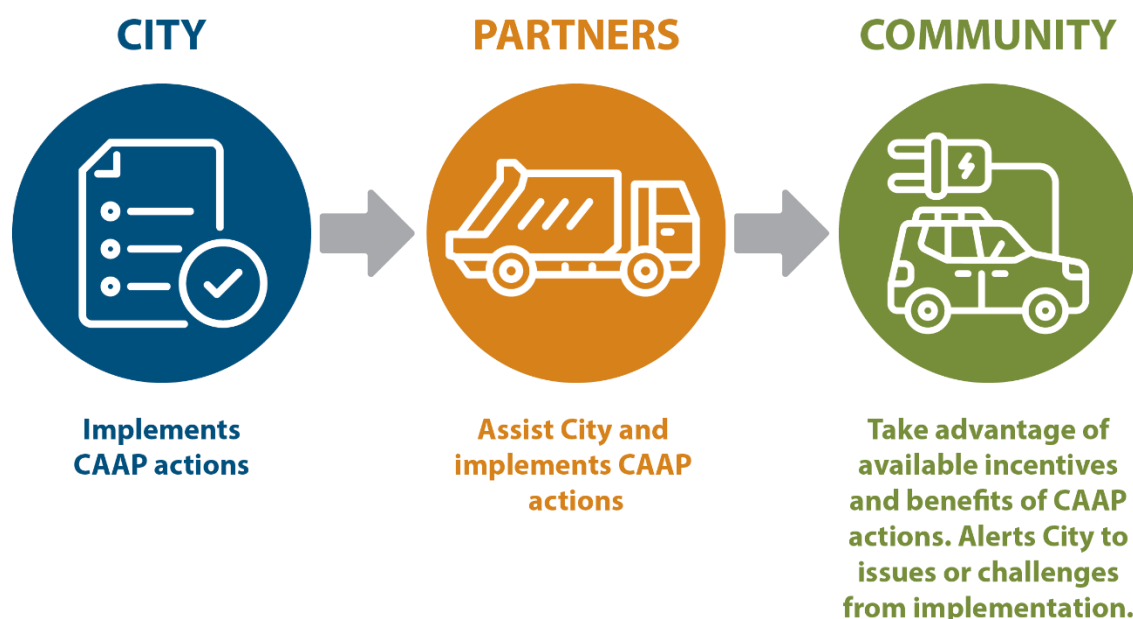
This chapter presents an implementation framework that outlines the roles and responsibilities and priorities that will allow for active implementation of the CAAP. This chapter also outlines how the City of Beverly Hills will monitor the effectiveness of implementation and the steps the City will take to adapt to changes in legislation and technologies to work towards achieving GHG reduction targets and increasing resilience to climate change.

## Community Education and Ongoing Outreach

Making meaningful progress towards reducing Beverly Hills' GHG emissions and adapting to the effects of climate change starts with City leadership and depends on education and ongoing outreach to catalyze behavior change throughout the wider community. Education, community outreach and engagement are more effective when it involves building long-lasting and meaningful partnerships between the city, local partners, community leaders and representatives, and the larger community. Community engagement measures are included in Chapter 2 and include the implementation timeline, lead City departments and commissions, and the estimated cost of implementation. The community engagement measures are intended to strengthen existing partnerships while forging new partnerships to increase the effectiveness of the CAAP in reducing GHG's and increasing resilience.

## Roles in Community Outreach & Education

- **City of Beverly Hills** – Creates communications materials and education campaigns to communicate CAAP goals, progress, and incentives for implementation. Education is delivered via City Departments including Public Works, Community Services, Office of Emergency Management, Fire Department, Economic Development, Water Conservation, Communications Department, and Community Development.
- **Partners: Community-Based Organizations and Trusted Local Stakeholders** – Work with the City to ensure that all Beverly Hills residents have access to the best climate adaptation and mitigation information. The City may also partner with local and regional organizations. Partners could potentially include organizations like Better Bike, Tree People, Beverly Hills Unified School District, Beverly Hills Chamber of Commerce, and non-governmental organizations like the Sierra Club and the US Green Building Council Los Angeles.
- **Partners: Local Businesses, Utilities, and Transit Providers** – Develop and build new services and update skills to address new technologies and communicating updates and benefits to the wider community. Partners include Clean Power Alliance, Southern California Edison, Southern California Gas, Metropolitan Water District of Southern California, Los Angeles County Metropolitan Transportation Authority Beverly Hills Community Emergency Response Team (CERT), waste haulers, local developers, local businesses, and major employers.
- **Community: Residents** – Adopt new technologies and behaviors, utilize programs and incentives, and enjoy the benefits. Communicate benefits out to friends, family, and colleagues, maximizing the “ripple effect.”



## CAAP Stakeholder Outreach Overview | CAC Highlight

### | TEXT BOX

Community participation in shaping the CAAP by the Community Advisory Committee (CAC) is an example of deep community engagement in climate action and adaptation planning. The CAC-model of community engagement will serve as a guide for future community input throughout the CAAP implementation process, which will be led by several established commissions in the City. The commissions can provide a positive feedback loop for community input in the achievement of the adaptation and mitigation measures.

#### Movie Night at Roxbury Park

Several CAC members worked with City staff to organize Movie Night at Roxbury Park on July 20, 2022. The goal of the event was to raise awareness about the CAAP process and share actions that people can take individually to reduce their carbon footprint. The film *Ice on Fire* was shown, followed by a panel discussion about what people can do now to protect the climate and what emerging innovations in GHG reduction are on the horizon and should be considered as part of the CAAP. Similar community events are recommended to be continued so that the community can work in partnership with the City in implementing the CAAP. These community events may build on existing events including Earth Day, Public Works Day, World Water Day, and Clean Air Day.

## Implementation Framework

To facilitate implementation of the measures and actions in the CAAP, this section establishes a framework defining implementation timelines, implementation phasing approaches, implementation incentives, responsible City departments and partners, and implementation strategies.

**Timeline:** Measures to reduce GHG emissions and adapt to climate change will be implemented via short, mid-term, and long-term actions. Specific City departments for implementation are also named in Chapters 2 and 3, which describes the measures and actions needed to achieve City GHG reduction and adaptation goals. Implementation of measures and actions will either be **mandatory**, **voluntary**, or **phased**. This approach recognizes that while some measures are implementable right now (low-hanging fruit), other foundational measures may take years to achieve due to financial, logistical, and regulatory barriers. This implementation framework and timeline enables the City of Beverly Hills to feasibly achieve climate targets through a blend of short and long-term policies, incentives, and education and outreach campaigns.

- Short term: 1-3 years
- Mid-term: 3-5 years
- Long-term: 5-10 years

**Key Implementing City Departments:** The measures and actions identified in the CAAP span the responsibilities of many departments within the City of Beverly Hills. To facilitate active and meaningful implementation, the City of Beverly Hills will hire a full-time Sustainability Administrator to lead and support the departments to make progress on the CAAP measures and actions. Additional staff may be

needed to fully implement the CAAP. The involvement of the following key departments will be critical to achieve the goals of this CAAP.

Mitigation:

- Public Works
- Community Development
- Finance Department
- Transportation Division
- Economic Development

Adaptation:

- Public Works
- Fire Department
- Police Department
- Community Development
- Community Services
- Office of Emergency Management
- Finance Department

**Mitigation Measure Implementation type:** In Chapter 2, the “Applicability” column for each measure details if the measure will be mandatory, voluntary, or phased, as well as the timeline for implementation.

- **Mandatory:** Mandatory measures describe actions that the City will take now, or in the near future (for example, adopting an electric vehicle reach code). As these measures and actions are near-term or immediate, they are set to achieve their full climate potential on the timeline laid out in this CAAP, and Appendix C.
- **Voluntary:** Most measures and actions proposed in this CAAP are voluntary, and will be implemented through a blend of incentives, partnership, and education and outreach. The success of voluntary measures largely hinges on the behavior change within the Beverly Hills community that results from the incentives and education put forth by the City, and community partners. In the instance that voluntary measures do not achieve estimated GHG reductions within the anticipated timespan, the City may pivot to Mandatory or Phased measures.
- **Phased:** This implementation pathway mostly applies to measures where there requires additional feasibility or cost analysis to fully implement (for example, building decarbonization). The phased approach, beginning with voluntary and then shifting to mandatory, allows the City, and collaborating partners to fully analyze the implementation implications of the proposed action, and marshal resources and collaboration as needed before it becomes mandatory.

**Implementation Incentives:** Since many measures and actions will be implemented voluntarily or phased-in, achieving their full potential for climate mitigation and action will require incentives to change behaviors (for example, changing energy usage and transportation habits).

These incentives will be leveraged through the exploration of City-funded incentives, partnerships with existing programs and incentives from utilities and the state, and collaboration with community-based organizations and agencies.

## Community Guidance for Phased-In Measures | Text Box

The CAC provided guidance on ways to encourage voluntary adoption of GHG mitigation measures through education and incentives, with the goal of phasing in the measures over time. This approach provides residents and business owners with the option of being early adopters of the GHG reduction or adaptation measures before any requirements come into effect. Providing information (e.g., green energy options for building systems and appliances), technical assistance, and rebates were suggested as ways to further encourage voluntary early adoption and build awareness and expertise in the community.

### Mitigation Implementation Strategy

Achieving the ambitious measures to achieve GHG reduction targets will require a comprehensive range of implementation strategies, as the City of Beverly Hills works to decarbonize building, energy, transit, waste, and water sectors. Key implementation strategies for climate mitigation are listed below:

- **Prioritization of implementation** based on feasibility, need, and cost effectiveness
- **Permit streamlining & decreasing regulatory burden** to achieve transformations in processes, particularly in the building sector
- **Collaboration and partnership** to help implement programs across the country
- Development and deployment of municipal-level policy (ex. building ordinances)
  - **Pilot projects** run with community partners **Technical support** provided by the City, or implementing partners (ex, workforce development training)
  - **Monitoring and adjustment** by the City will allow for on-track achievement of GHG mitigation targets, with the potential for phasing in new mandatory actions if CAAP targets are not being met

### Adaptation Implementation Strategy

Achieving the measures and actions put forward in this CAAP to ensure that the Beverly Hills community can adapt to climate change will take a comprehensive strategy of incentives, updated emergency planning, and collaboration with community partners. Key aspects of this implementation plan are listed below:

- **Communication & Outreach:** City website, education, and outreach in person at community events
  - Community engagement will target youth, and vulnerable populations, leveraging collaboration with community-based organizations to raise awareness
- **Partnerships:** Community-based organizations and trusted community leaders; LA County partnerships

- **Funding:** Grants, research for external funding opportunities
- **City-collaboration:** Integrate sustainability into existing roles, collaborate across departments
- **Implementation of existing City plans:** Pull from existing plans and accelerate their implementation to provide cross-sectional climate benefits

Adaptation measures, timelines for implementation, and specific implementing City departments and commissions are presented in Chapter 3. As adaptation measures are not classified as phased, voluntary, or mandatory, there is no specific implementation table with performance metrics provided here.

## Monitoring Framework

Monitoring the effectiveness of the measures and actions for reducing GHG emissions and increasing resilience will be critical to confirm the goals of the CAAP are being met as planned. The monitoring process includes tracking metrics established for specific measures and actions and conducting annual GHG emission inventories, evaluating the effectiveness in achieving the intended outcomes of the measures and actions, and adjusting implementation of the measures and actions or updating the CAAP document to better meet the goals of the CAAP. This plan is an iterative process that requires continual adjustments to improve overall outcomes in reducing GHG emissions and increasing resilience to climate change.



## Mitigation Metrics

The CAAP establishes metrics to monitor effectiveness of the measures and actions.

For each mitigation sector (ex. clean energy, transportation and land use), a set of performance metrics have been established to monitor effectiveness of the measures and actions (Table 4-10). In addition to the performance metrics shown here, the corresponding changes to underlying activity data (for example, vehicle miles traveled, percentage of buildings using carbon-free sources of energy) which will ultimately lead to GHG reductions is included. The full list of measures and actions are included in Chapter 2.

## How to Read this Table

Table 4-10 describes performance metrics, both quantifiable and supportive, that are the underlying basis for achieving GHG reductions. For example, reducing the number of gas-powered vehicle miles traveled, and replacing them with electric vehicle miles traveled would drive GHG reduction in the transportation sector. All performance metrics are included by sector under the ‘Performance Metrics’ column, while specific quantifiable goals for 2030 needed to achieve GHG reductions are included in the ‘2030 Metric Target’ column along with their associated GHG reductions. Appendix C includes 2045 targets and associated GHG reductions. This table is intended to serve as a guide for tracking CAAP implementation progress towards GHG mitigation targets.

**Table 4-10 Performance Metrics and GHG Reduction Potential**

Mitigation Sector	Performance Metric	2030 Metric Target:
Clean Energy	<p>Quantifiable:</p> <ul style="list-style-type: none"> <li>Participation rate (%) in Clean Power Alliance 100% Green Power</li> <li>Number of solar installations on single-family, multi-family, and commercial buildings</li> </ul> <p>Supportive:</p> <ul style="list-style-type: none"> <li>Number of battery installations</li> <li>Number of residents reached through City outreach</li> <li>Number of commercial pilot projects supported</li> <li>Increase in CPA enrollment</li> </ul>	<ul style="list-style-type: none"> <li>75% participation rate in Clean Power Alliance 100% Green Power</li> <li>1,287 solar installations on single-family homes</li> <li>833 solar installations on multi-family homes</li> <li>463 on commercial buildings</li> </ul> <p><i>Estimated reduction of 60,455 MT CO2e</i></p>
Buildings: New Construction and Remodels	<p>Quantifiable:</p> <ul style="list-style-type: none"> <li>Citywide natural gas use. No new natural gas consumption after 2023 (Carbon-free reach code)</li> </ul> <p>Supportive:</p> <ul style="list-style-type: none"> <li>Number of residents + organizations reached through outreach efforts for reach code</li> </ul>	<ul style="list-style-type: none"> <li>0 therms of natural gas added through new construction.</li> </ul> <p><i>Estimated reduction of 7,924 MT CO2e</i></p>
Buildings: Existing	<p>Quantifiable:</p> <ul style="list-style-type: none"> <li>Percent of homes and commercial buildings with replaced water heaters</li> <li>Percent of homes and commercial buildings with replaced HVAC units</li> <li>Number of energy efficiency retrofits performed in residential and commercial buildings</li> <li>Number of energy performance upgrades performed in commercial buildings</li> <li>Citywide natural gas use</li> </ul>	<p>Quantifiable:</p> <ul style="list-style-type: none"> <li>Replaced water heaters in 22% of homes</li> <li>Replaced water heaters in 22% of commercial buildings</li> <li>Replaced HVAC in 12% of homes</li> <li>Replaced HVAC in 12% of homes</li> <li>240 residential energy efficiency retrofits performed</li> <li>716 commercial energy efficiency retrofits performed</li> </ul>

Mitigation Sector	Performance Metric	2030 Metric Target:
	Supportive: <ul style="list-style-type: none"> <li>• Number of retrofits in disadvantaged communities</li> <li>• Number of energy audits taken on at time of sale/ rental agreement</li> <li>• Number of homes that opted-in to efficiency programs</li> <li>• Number of therms of renewable natural gas used via pilots</li> </ul>	<ul style="list-style-type: none"> <li>• 240 commercial building energy efficiency upgrades performed</li> </ul> <i>Estimated reduction of 12,825 MT CO2e</i>
Complete Streets Plan & Transit	Quantifiable: <ul style="list-style-type: none"> <li>• Percent of total trips taken by transit, walk, and bike</li> <li>• Number of annual transit trips</li> </ul> Supportive: <ul style="list-style-type: none"> <li>• Ridership numbers for the Beverly Hills shuttle</li> <li>• Miles of bikeways, miles of low-stress bikeways</li> </ul>	Quantifiable: <ul style="list-style-type: none"> <li>• 16.5% of total trips taken by walk/bike (6.5%), public transit (3%), and carpool (7%)</li> <li>• 460,647 annual transit trips</li> </ul> <i>Estimated reduction of 2,631 MT CO2e</i>
Shift to Clean Vehicle Miles Travel (VMT)	Quantifiable: <ul style="list-style-type: none"> <li>• Number of EV registrations</li> <li>• Number of new public EV charging installations</li> <li>• Percent of passenger and commercial EV adoption</li> </ul> Supportive: <ul style="list-style-type: none"> <li>• Number of EVs procured by City due to purchasing policy update</li> <li>• Number of stakeholders reached, and number of outreach events conducted during EV reach code outreach and education</li> </ul>	Quantifiable: <ul style="list-style-type: none"> <li>• 7,284 EV registrations by 2030</li> <li>• 364 new public EV charging installations</li> <li>• 16% total passenger EV adoption</li> <li>• 13% total commercial EV adoption</li> </ul> <i>Estimated reduction of 14,457 MT CO2e</i>
Solid Waste (SB 1383)	Quantifiable: <ul style="list-style-type: none"> <li>• Percent of total waste diverted from the landfill</li> </ul> Supportive: <ul style="list-style-type: none"> <li>• Tons of edible food recovered and redistributed</li> <li>• Number of residents reached during outreach and education</li> </ul>	Quantifiable: <ul style="list-style-type: none"> <li>• 75% of total waste diverted</li> </ul> <i>Estimated reduction of 12,499 MT CO2e</i>
Water and Ecosystems	Quantifiable: <ul style="list-style-type: none"> <li>• Percent of homes with increased indoor and outdoor water efficiency</li> <li>• Percent of commercial buildings with increased indoor and outdoor water efficiency</li> <li>• Number of new trees planted</li> </ul> Supportive: <ul style="list-style-type: none"> <li>• Gallons per capita per day (GPCD)</li> <li>• Number of stakeholder outreach events held</li> <li>• Number of residents reached through water conservation public education campaign</li> </ul>	Quantifiable: <ul style="list-style-type: none"> <li>• Increase indoor water efficiency 39% in 15% of homes</li> <li>• Increase outdoor water efficiency 60% in 15% of homes</li> <li>• Increase indoor water efficiency 39% in 15% of commercial buildings</li> <li>• Increase outdoor water efficiency 30% in 15% of commercial buildings</li> <li>• 4,400 new trees planted</li> </ul> <i>Estimated reduction of 54 MT CO2e</i>
Community Engagement	Supportive: <ul style="list-style-type: none"> <li>• Number of annual climate-related community events</li> <li>• Number of people engaged annually</li> </ul>	Supportive metrics should be continuously monitored, with the potential for City to set annual, or biannual goals for targets.

Mitigation Sector	Performance Metric	2030 Metric Target:
	<ul style="list-style-type: none"> <li>Participation rates in City CAAP and utility rebate programs</li> </ul>	

## Adaptation Metrics

The effectiveness of adaptation measures and actions will be monitored by tracking metrics implied by the implementation actions needed to assess progress towards achieving the adaptation goals. For example, in adaptation measure ER 1.4 *Increase community member participation in emergency notification and preparedness systems*, metrics for achievement could include total membership increase in Beverly Hills CERT over time which would be tracked by Beverly Hills Health and Safety Commission.

## Evaluate

To regularly evaluate the effectiveness of the measures and actions, the City will prepare biannual reports (once every two years) that contain quantitative information regarding metric tracking, as well as a narrative of lessons learned and plans to address observed and future challenges. The City will provide the biannual reports on the City's website, and present key findings to the City's appointed Commissions and City Council.

- The City Manager's Office or Designee will be in charge of collecting information from City Departments and Commissions which are spearheading implementation of the different measures and actions and compiling the results into one report.
- The City Manager's Office or Designee will be in charge of disseminating results to community-based organizations, the public, and relevant collaborators and partners.

The City of Beverly Hills will also conduct GHG emissions inventories on a biannual basis. A summary of the inventory results will be available for the community to review via the City of Beverly Hills website, with biannual reports submitted to City Council. Biannual reporting requirements will be established in collaboration with outside parties.

- The City Manager's Office or Designee will be in charge of producing biannual monitoring of GHG emissions.
- The City Manager's Office or Designee will be in charge of disseminating progress against GHG reduction targets to community-based organizations, the public, and relevant partners.

To keep adaptation and mitigation progress tracking in sync, the City of Beverly Hills will update the public on progress of adaptation measures and actions on the same timeline as biannual updates to City Council. These updates will either take the form of key performance indicators defined by the City in achieving actions, or adoption of policy and ordinance updates for strategies that integrate changes in municipal policy, codes, and plans (e.g., *Measure AR 2.3, implementation action: update ordinance to require carbon free backup systems, (backup safety codes)*).

As mitigation and adaptation measures and actions are implemented, it is imperative to assess the success by tracking the emissions reductions through biannual emission inventory reports, as well as other variables, such as cost and additional co-benefits achieved through implementation to understand the overall health of each measure. If it is determined that implementation of specific measures is not achieving the anticipated emissions reductions, then the measure may have to be revised or replaced to establish a path forward to meet the City's targets.

### Adjust

The adaptation and mitigation measures and actions will be adjusted or the strategy for implementation will change when the following findings are made by the City as part of their biannual review. These findings use the framework from the U.S. EPA Regional Resilience Toolkit, which is a guidebook for local governments on how to increase resilience to natural disasters.

- The strategies were successfully implemented, and new priorities are needed.
- Implementation is not achieving the results expected.
- The strategy has an unintended consequence.
- Funding has changed.
- Political and/or public priorities have changed.
- New climate science data is available.
- Other significant changes in the environment or circumstances.

Adjustments do not necessarily need to be extensive, requiring a full rewrite of the CAAP. For example, Measure BE 2.2 (Phased in Decarbonization Plan) promotes the retrofit of existing buildings. If the rate of retrofits, and thus GHG mitigation potential, was not keeping pace with the 2030 reduction target, the City could consider moving towards more aggressive strategies for retrofit promotion and make it a requirement through building code revisions.

Every 8 to 10 years, the CAAP will be updated to incorporate new climate science data and projections, shifting community priorities and regulatory mandates, implementation hurdles, changes in best practice, and advances in technology. Each update to the CAAP will involve engagement with the Beverly Hills community.

### **CAPDash Monitoring | Text Box**

The City will update progress towards GHG targets via a biannual community wide GHG emissions inventory in CAPDash. CAPDash is a web-based dashboard developed by Rincon Consultants, Inc. that allows Beverly Hills to track the biannual emission reductions achieved through the implementation of each measure and meet the requirements of CEQA Section 15183.5(b). CAPDash will also include tracking of the performance metrics for applicable CAAP measures and actions.

# Glossary

Term	Definition
Active Transportation	A means of transportation that is powered by human energy, for example walking or biking.
Adaptation	Adjustment or preparation of natural or human systems to a new or changing environment which moderates harm or exploits beneficial opportunities
Anthropogenic	Made by people or resulting from human activities; usually used in the context of emissions that are produced as a result of human activities
Atmosphere	The envelope of gases surrounding the Earth; the gases that make up the atmosphere primarily include nitrogen (78%) and oxygen (21%), as well as argon, helium, carbon dioxide, methane, and water vapor in trace amounts
Backup Power	Any device that provides instantaneous uninterruptible power, for example, a battery or generator
Beverly Hills Wildfire Assessment	2021 assessment on wildfire threat for Beverly Hills, and recommendations on protecting the City
CALGreen	An abbreviated reference to the California Green Building Standards code, which sets minimum requirements for sustainable practices for construction (residential and commercial) projects throughout the state. It is updated every three years in accordance with the building cycle.
CALGreen Tier 1 & 2	Requirements beyond the mandatory measures laid out by CALGreen: Tier 1 adds additional requirements to the mandatory sustainability requirements, and Tier 2 further increases those sustainability requirements
CalRecycle	Agency that administers and provides oversight for all of California's state-managed non-hazardous waste handling and recycling programs
California Air Resources Board (CARB)	The lead agency for climate change programs that also oversees all air pollution control efforts in California to attain and maintain health-based air quality standards
California Building Standards Commission (CBSC)	The Commission is charged with administering California's building code adoption process, coordinating and managing the model code adoption process for state agencies, and reviewing and approving building standards adopted by state agencies, among other duties
Carbon-free Energy	Energy produced by a resource that generates no carbon emissions, for example, wind power
Carbon-neutrality/ Net-Zero Emissions	Balancing anthropomorphically generated emissions out by removing GHGs from the atmosphere in a process known as carbon sequestration
Carbon sequestration	The long-term storage or capture of carbon dioxide and other forms of carbon from the atmosphere through biological, chemical, and physical processes
California Environmental Quality Act (CEQA)	1970 California statute requiring state and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of proposed projects, and adopt all feasible measures to mitigate those impacts.
Capital Improvement Plan (CIP)	A ten-year planning document published by the California Department of Transportation (Caltrans) every five years.
Clean Power Alliance (CPA)	A non-for-profit renewable energy provider across Los Angeles and Ventura Counties. The CPA is an administrator of the Community Choice Aggregation (CCA) program. A CCA program permits cities, counties, or other authorized entities like Community Choice Aggregators to purchase and or generate electricity for residents and businesses located within the boundaries of the jurisdiction
Climate Hazard	A potential occurrence of climate related physical events or trends that may cause damage and loss
CH <sub>4</sub>	Methane, a hydrocarbon that is a greenhouse gas produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal

Term	Definition
	wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion
Climate	The average of weather patterns over a long period of time (usually 30 or more years)
Climate Change	A change in the average conditions — such as temperature and rainfall — in a region over a long period of time
Community Based Organization (CBO)	A public or private nonprofit organization that is representative of the community or specific segments of a community, and provides educational or outreach services to the community
Complete Streets	Are designed and operated to enable safe use and support mobility for all users. Complete Streets approaches address a range of elements including sidewalks, bicycle lanes, bus lanes, public transportation stops, and median islands
CO <sub>2</sub>	Carbon dioxide, a naturally occurring gas and a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes
CO <sub>2</sub> e	Carbon dioxide equivalent, a metric measure used to compare the emissions from various greenhouse gases based upon their GWP
Decarbonization	Replacing technologies and services that run on fossil fuels (ex. natural gas) with ones that run on zero-carbon sources of energy (for example electricity from renewable energy like solar or wind power), ideally from renewable sources
Disadvantaged Communities	Areas which suffer disproportionately from a combination of economic, health, and environmental burdens (e.g., poverty, high unemployment, air and water pollution, presence of hazardous wastes, as well as higher rates of asthma and heart disease)
Distributed Energy Resources (DERs)	Small-scale electricity demand or supply resources that are interconnected to the electric grid, and usually located close to load centers where they can be used individually or in aggregate to support the grid
Emissions	The release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere
Environmental Justice	The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies
Electric Vehicle (EV)	A vehicle that uses one or more electric motors or traction motors for propulsion
Energy Storage	Can provide frequency regulation to maintain balance between the network's load and detected power generated, achieving more reliable power supplies. Batteries are an example of energy storage
Fossil Fuel	A general term for fuel formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the Earth's crust
Greenhouse Gas (GHG)	A gas that absorbs infrared radiation, traps heat in the atmosphere, and contributes to the greenhouse effect
Global Warming Potential (GWP)	Total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1
Greywater	Graywater refers to water that has been used domestically, commercially, and industrially
Local Governments for Sustainability (ICLEI)	A global network of more than 1,750 local and regional governments committed to sustainable urban development – emissions estimates were calculated using ICLEI's best available methodologies
Intergovernmental Panel on Climate Change (IPCC)	The United Nations body for assessing the science related to climate change
Mitigation	An action that will reduce or prevent greenhouse gas emissions, such as electrifying buildings that previously ran on natural gas

Term	Definition
Metric Tons (MT)	Common international measurement for the quantity of greenhouse gas emissions – one metric ton is equal to 2205 pounds or 1.1 short tons
Metric tons carbon dioxide equivalent (MT CO <sub>2</sub> e)	Metric/unit that GHG emissions are reported per standard practice; when dealing with an array of emissions, the gases are converted to their carbon dioxide equivalents for comparison purposes
Microgrid	A group of interconnected loads and distributed energy resources that act as a single controllable entity in respect to the grid. A microgrid can operate in ‘island mode’ and disconnect from the grid, or operate while connection to the grid
Mode Shift	Changing from one form of transportation to another, specifically, switching from traveling via car to traveling via bicycle or public transport
N <sub>2</sub> O	Nitrous Oxide, a powerful GHG with a high global warming potential; major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning
Organic Material	Natural or organic materials, for example food scraps and yard waste
Photovoltaic (PV)	Relates to the production of electric current at the junction of two substances exposed to light (e.g. solar energy)
Qualified GHG Reduction Plan	A plan that accommodates growth in a manner that does not hinder the state’s ability to reach further emission reduction goals and specifically complies with the requirements of CEQA Section 15183.5(b)
Quantified Reduction Measure or Action	A quantified measure or action has an associated calculation that estimates the GHG reductions associated with the measure/action. Quantified measures are summed to show the total reduction expected by implementing the GGRP
Representative Concentration Pathway (RCP)	Greenhouse gas concentration trajectory scenarios adopted by the IPCC
Reach Code	A building code which requires a higher level of energy efficiency than the standard statewide code. Reach codes are allowed and encouraged under Title 24.
Remodels/ Alterations	A building update that changes the exterior detail of a structure, but not its basic shape or size
Renewable Energy	Energy derived from natural sources that are replenished at a higher rate than they are consumed (ex. wind, biomass)
Resilience	Ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate
Senate Bill (SB) 32	SB 32 is the California Senate bill in 2016 that requires there be a reduction in GHG emissions to 40% below 1990 levels by 2030.
Senate Bill (SB) 1383	California’s Short-Lived Climate Pollutant Reduction Strategy, which sets statewide targets to reduce compostable materials in landfills by 75 percent by 2025, and to rescue at least 20 percent of edible food currently disposed for human consumption by 2025.
Sequestration	The storage of carbon in plants or materials so that it cannot enter the atmosphere and cause additional warming.
Social Equity	All people having equal access to and influence on the resources and benefits of society
Socially Vulnerable Community	Although climate hazards have the potential to affect all Beverly Hills residents, the severity of impacts is heavily shaped by demographic factors like race, socioeconomic status, gender, housing status, and more. Moreover, sensitive populations have less capacity to adapt to climate hazards, because of long-standing structural and institutional inequities. Social vulnerability is scored via Social Vulnerability Index, and identifies these socially vulnerable communities described above

Term	Definition
Supportive Measure or Action	One which has not been quantified and does not provide a direct or easily quantified GHG reduction; however, these measures are expected to contribute to overall GHG reductions and/or provide co-benefits
Transportation Demand Management (TDM)	Transportation Demand Management focuses on how people make their transportation decisions, and facilitates greater usage of infrastructure for transit, ridesharing, walking, biking, and telework
Urban Forest Management Plan	An Urban Forest Management Plan (UFMP) promotes the sustainability of trees in an urban space that maximizes environmental benefits while maintaining other/ linked safety and economics goals. Beverly Hills has finalized their Urban Forest Management plan, which can be found on the City website
Vehicle Miles Traveled (VMT)	VMT is the amount of total miles traveled by motor vehicle that are generated over a population over a given timeframe (Ex. 1 year)
Vehicle to Grid Charging	A vehicle-to-grid charging device absorbs electricity from a car battery and pushes it back to the grid, allowing EVs to function as backup storage cells for the electrical grid.
Very High Fire Hazard Severity Zone (VHFHSZ)	Fire Hazard Severity Zone maps are developed using a science-based and field-tested model that assigns hazard score based on factors that influences a fire's behavior and likelihood. VHFHSZ is the highest level of severity for Fire Hazard Severity Zones, according to the State Fire Marshall
Weather	The state of the atmosphere over a short period of time (usually an hour or day), describing if it is hot or cold, wet or dry, calm or stormy, clear or cloudy, etc.
Zero-Emissions-Vehicle (ZEV)	A vehicle that never emits exhaust gas from the onboard source of power
Zero Waste	The conservation of all resources by means of responsible production, consumption, reuse, and recovery of materials and packaging, without burning, and with no discharges to land, water, or air that threaten human health