CITY OF SANTA MONICA
CLIMATE ACTION & ADAPTATION PLAN
A 2030 COMMUNITY PLAN TO REDUCE CARBON EMISSIONS & BECOME CLIMATE RESILIENT
ADOPTION DRAFT MAY 2019
LETTER FROM THE MAYOR

In recent years, California has experienced historic drought, higher average temperatures, heat waves, and devastating wildfires and mudslides. Climate change is no longer a threat in a distant future. It is here now. And it will get worse unless we act.

Climate change is a global issue that requires all governments to act, no matter their size. Unfortunately, it appears that not every level of government recognizes the problem or is willing to act on it. Accordingly, cities have emerged as front-line leaders in the fight against climate change.

Santa Monica has long been a leader in promoting sustainability and tackling climate change. In 2016, we reduced our carbon emissions 20% below 1990 levels, a goal the State of California seeks to achieve by 2020.

We have the tools to achieve carbon neutrality and meet the Paris Climate Agreement by 2050 or sooner, and still our toolkit is expanding. New developments in the energy and mobility industries are pushing the City to innovate and adapt to these new opportunities which will help Santa Monica reach its goals.

This Climate Action & Adaptation Plan looks ahead to the ambitious goals and transformation we need to achieve and lays the groundwork for embracing innovation and disruption. By achieving the objectives laid out in the plan, we will achieve an 80% reduction in our emissions below 1990 levels by 2030. This will give us momentum to achieve carbon neutrality well before 2050.

In addition to reducing emissions, we also recognize the need to adjust to our changing climate and prepare for more frequent and intense climate change impacts. This plan also provides a pathway to enhance our community resilience and infrastructure to be climate ready.

The next few years are critical to reducing our carbon emissions so we can avoid the worst climate change impacts. This transformation will disrupt the status quo and require community investment in the goal and a willingness to change behaviors. This plan is a call to action for our government, businesses, and residents.

Great challenges offer great opportunities. We must be bold, ambitious, and daring. We know that this transition to a carbon-free future will improve our quality of life, our community wellbeing, and our prosperity. We invite you to join us and participate in this communitywide effort.

GLEAM DAVIS, MAYOR
Cities are on the front lines when it comes to climate change. Cities are also leading the world in reducing carbon emissions through aggressive policies and adoption of clean technologies.

Santa Monica’s Climate Action & Adaptation Plan (Plan) builds off of its success and legacy as a sustainable community to move closer to carbon neutrality, by establishing an interim goal of reducing carbon emissions 80% below 1990 levels by 2030.

The Plan is the product of collaboration and engagement with the public, businesses, stakeholder groups, and subject matter experts from academia, industry and interdepartmental staff representatives. It provides an ambitious, community-focused platform to advance policies that enhance quality of life and wellbeing, embrace smart city innovation and improve social equity.

The Plan focuses on eight objectives in three sectors to reduce emissions: Zero Net Carbon Buildings, Zero Waste and Sustainable Mobility. Early action is required to avoid significant cost and social and environmental risks to our community. In addition to California’s policies, like the Low Carbon Fuel Standard and the Renewable Portfolio Standard, these actions are estimated to achieve the Plan’s estimated 80% reduction.

**STATE POLICIES  50% of total reductions**
- Renewable Portfolio Standard
- Low Carbon Fuel Standard
- Building Energy Standards

**ZERO NET CARBON BUILDINGS  21% of total reductions**
- Achieve 100% renewable grid electricity
- Install 100 MW of local solar energy
- Reduce fossil fuel use 20% in existing buildings
- Discourage fossil fuels in new buildings

**ZERO WASTE  3% of total reductions**
- Divert 95% of materials from landfills

**SUSTAINABLE MOBILITY  26% of total reductions**
- Convert 50% of local trips to foot, bike, scooter & skateboard
- Convert 25% of commuter trips to transit
- Convert 50% of vehicles to electric or zero emission

Between 1990 and 2015, Santa Monica reduced its emissions by 276,324 metric tons of carbon dioxide equivalents (MtCO2e) to achieve 20% below 1990 levels at a rate of 0.8% per year. In order to achieve an 80% reduction by 2050, Santa Monica would need to reduce total emissions by about 929,693 MtCO2e at a rate of over 4% per year, significantly increasing the scale and speed of reductions. This ‘bending of the carbon curve’ is essential to meeting the Paris Climate Agreement and avoiding worsened climate change impacts.

The Plan provides a roadmap to advance the goals across programmatic and departmental lines. In many cases, the actions described also require new community and regional partnerships to develop and test new strategies that will build on Santa Monica’s leadership role in sustainability and innovation. These key actions identify what can be accomplished within the next decade to continue progress toward the goal of achieving carbon neutrality by 2050 or sooner.
Even if all emissions were eliminated today, we would still see climate change impacts in the future. The chart above shows the anticipated changes, hazards and impacts Santa Monica may face.

Not everyone will experience climate change the same. The people who are older, have chronic respiratory illnesses, are lower on the socio-economic spectrum, or speak English as a second language are likely to be impacted the hardest by climate change and may be the least able to adapt and prepare.

The Plan lays out a framework for enhancing Santa Monica’s resilience to climate change through four sectors: Climate Ready Community, Water Self-Sufficiency, Coastal Flooding Preparedness and Low Carbon Food & Ecosystems. The Plan identifies areas in local government, community building and support to augment by including climate change considerations and adaptation measures.

Through the last two adopted Capital Improvement Program budgets, Santa Monica has already committed to spending $383M on climate action and adaptation projects. Staff estimate that implementation of the plan will cost an additional $800M-$1B over the next 10-12 years, with some projects and programs still not fully conceived.

The investment by the community to support the Plan will be many times greater than the City’s own costs. The City will need to provide support to residents and businesses in need of funding to decarbonize their buildings, vehicles and lifestyles. At the same time, it should discourage carbon-emitting activities through fee-based systems or carbon taxes to shift community investment away from fossil fuels to clean technologies.

In order to ensure full implementation of the plan, an interdepartmental team of city staff in collaboration with civic leaders must be assembled to maintain momentum and ensure accountability. Staff will provide annual progress reports, conduct biennial greenhouse gas inventories and prepare an update to the plan after 5 years.

This plan provides a pathway to accelerate our historical success to eventually make climate change history. It is also a call to action to residents, community institutions and businesses to take an active part in our transition to a low carbon future and clean economy.

In this process, we will foster a vibrant economy, increase our resiliency and support Santa Monica’s vision for a livable and sustainable community for generations to come.
INTRODUCTION
Cities are uniquely threatened by climate change and are uniquely positioned to do something about it.

Cities are on the front lines when it comes to climate change impacts. Cities also have significant roles to play in the fight against climate change.

Santa Monica has long held ambitious sustainability goals and took early actions to meet them. We are on track to become a water self-sufficient community by 2023 and a zero waste community by 2030. We are also on track to keep peak hour vehicle trips at or below 2009 levels, as targeted in the City’s General Plan. All of these efforts contribute to our carbon reduction goals.

In order to achieve carbon neutrality by 2050 or sooner, we are committing to an interim goal of 80% reduction of emissions below 1990 levels by 2030.

Since 1990 we have seen a 20% reduction in our carbon emissions. At the same time, we increased local employment by over 50%, demonstrating that a cleaner and more prosperous economy is possible.

An 80% reduction in carbon emissions by 2030 will require a massive shift in our lifestyles and investments. Deep emissions reductions will need to be achieved at a scale and pace unlike the City has seen before. This plan provides a road map to transition to low-carbon lifestyles and technologies and significantly reduce our fossil fuel consumption.

Even if all emissions were eliminated today, we would still see climate change impacts in the future. This plan also outlines a strategy to build resilience by developing strategies to prepare, adapt and respond to unavoidable impacts.

By achieving the objectives of this plan, we will be joining a global movement of communities doing their part to fight climate change. Ultimately, the benefits of our actions will be local: we will improve our quality of life and ensure a stable climate for generations to come.
It is 2030, we have reduced our carbon emissions 80% below 1990 levels. All of our electricity comes from renewable sources. Mobility options are zero carbon, shared and active, reducing congestion and air pollution. Nearly all of our waste is reused, repurposed or recycled.

There is a culture of awareness and action. We utilize smart city technology and principles to advance efficiency in our energy and transportation systems and infrastructure.

Our prosperous economy and quality of life have benefited from this transformation. We are connected, equitable and resilient.
Santa Monica has committed to meeting the goals of the Paris Climate Agreement to limit global warming below 2 degrees Celsius and pursue action to limit warming to 1.5 degrees. C40’s Deadline 2020 Commitment offers a global pathway of city-level, inclusive climate action, that would put cities on a trajectory consistent with the ambitions of the Paris Agreement from now until the end of the century.

Meeting this increased ambition requires transformational actions to reduce transportation emissions, improve building energy efficiency, increase the supply of green energy, and change consumption patterns, while strengthening the ability to deal with the impacts of climate change through adaptation.

Santa Monica is committed to pursuing aggressive action and publicly reporting our efforts to increase awareness and maintain accountability.

We publicly report our progress and actions through various platforms and collaborate with local governments around the world to advance best practices in sustainability and climate action.
This plan was developed over a 3-year period using extensive analysis, modeling, stakeholder input, and community engagement to ensure buy-in and feasibility.

STEERING COMMITTEE
A Steering Committee representing City staff, local institutions, community groups and regional experts provided guidance and feedback throughout the project.

EMISSIONS ANALYSIS
City staff and consultants modeled various scenarios of future carbon emissions, taking into account population changes and statewide policies. The team developed strategies to estimate the potential carbon reductions of Santa Monica’s future efforts. These measures were prioritized by the Steering Committee.

COMMUNITY PRESENTATIONS
Presentations were given at 19 community and business meetings reaching approximately 300 people. These included various meetings of neighborhood associations, community organizations, church groups, business improvement districts and business events.

CLIMATE CORPS YOUTH PROGRAM
Climate Action Santa Monica, a grassroots climate organization, leads the ‘Climate Corps’ program offering summer internship and volunteer opportunities for students and young adults. The Climate Corps gauge resident and visitors’ concerns about climate change issues and support for the City’s climate policies.

SEA LEVEL RISE AUGMENTED REALITY
Augmented reality viewers were installed on the Santa Monica Pier, providing residents and visitors a view into a future with sea level rise. Over 10,000 participants were surveyed on their climate change concerns and adaptation preferences.

COMMUNITY CLIMATE ACTION SUMMIT & CLIMATEFEST
In 2016, Santa Monica held its first ever Community Climate Action Summit, inviting residents, visitors and businesses to contribute to the plan. Over 250 individuals participated in the day-long event filled with expert speakers, interactive workshops, open discussion and exhibitors. Following on the success of the Community Climate Action Summit, the City held ClimateFest in May 2018. The event featured local experts on climate policy and provided accessible resources for individual climate action. Over 600 people attended, interacting with various themes of the plan.
COMMUNITY THEMES

Climate change and climate action affects all levels of City government and community issues. A plan that addresses climate change and community resilience is a plan that creates a more livable community.

SUSTAINABILITY, WELLBEING & RESILIENCE

Resilience is the ability of a community to withstand chronic stressors or sudden shocks, and grow and thrive beyond; and is a function of both wellbeing and sustainability. Wellbeing and environmental stewardship go hand in hand when fostering a more resilient city and improving quality of life.

Santa Monica’s Wellbeing Index measures individual and community wellbeing to help improve peoples’ lives. The Wellbeing Index and the Sustainable City Plan have been integrated into The Framework for a Sustainable City of Wellbeing to guide City decision-making and investments using performance-based metrics.

By strengthening our social connections, mobility systems, buildings and infrastructure, Santa Monica will enhance its ability to withstand and recover from earthquakes, drought and heatwaves.

EQUITY IN CLIMATE ACTION

Vulnerable groups are often the least able to access resources and least likely to have a seat at the table when policies are developed. In the transition to a low-carbon future, we must create a future that is accessible to all Santa Monicans.

The policies outlined in this plan will use an equity lens to prioritize the needs of low-income communities and communities of color ensuring the just distribution of the benefits while addressing unequal burdens from climate change.

The people who are the most impacted by climate change and the least likely to be engaged in civic affairs tend to be older, people of color, lower on the socio-economic spectrum, and/or don’t speak English as their native language. Rising temperatures and worsening air quality disproportionately impact these vulnerable populations. Additionally, each of these communities have different needs.

Policy-making and program design must address both the systems that worsen climate change and inequality while reducing the disproportionate impact of climate change on the vulnerable.

SMART CITY INNOVATION

This plan recommends that the City adopt a Smart City Strategy to advance technologies in City infrastructure and leverage public-private partnerships that foster community goals.

Smart technologies, such as cloud-based sensors for buildings, traffic signals and waste bins, can allow local governments to provide services faster and more efficiently while reducing energy use and carbon emissions.

Smart technologies and infrastructure will create opportunities to improve resource efficiency and performance, while enhancing customer service, safety and wellbeing in the digital age.
Santa Monica’s carbon emissions are generated primarily from fossil fueled transportation and energy use in buildings.

The City conducted a greenhouse gas (carbon) emissions inventory to evaluate the impact of the 15x15 Climate Action Plan (CAP). At the end of 2015, Santa Monica’s annual emissions had declined by 20% compared to 1990 levels, exceeding the City’s 15% target. The 15x15 CAP actions and State level policies, such as increased renewable energy generation and vehicle fuel efficiency, resulted in the decline.

Currently, per capita emissions is approximately 11.1 mtCO2e (metric tons of carbon dioxide equivalent). If Santa Monica reduces its emissions to 80% below 1990 levels, per capita emissions would be 2.3 mtCO2e.

A dramatic transformation of our building energy and transportation systems will be necessary to achieve this significant reduction.

BENDING THE CARBON CURVE

Between 1990 and 2015, Santa Monica reduced its emissions by 276.324 mtCO2e to achieve 20% below 1990 levels at a rate of 0.8% per year.

In order to achieve an 80% reduction by 2030, Santa Monica would need to reduce total emissions by about 929.693 mtCO2e, at a rate of over 4% per year, significantly increasing the scale and speed of reductions. This ‘bending of the carbon curve’ is essential to meeting the Paris Climate Agreement and avoiding worsened climate change impacts.

These charts (this page and next) illustrate the relative impact each Climate Action sector in contributing to the 2030 target.
If left unabated, population and economic growth by 2030 would increase Santa Monica’s emissions.

**STATE POLICIES**
California’s ambitious climate policies (such as the Renewable Portfolio Standard and vehicle fuel efficiency standards) are expected to reduce Santa Monica’s emissions by an estimated 33% below 1990 levels by 2030.

**ZERO WASTE**
- Divert 95% of materials from landfills

**ZERO NET CARBON BUILDINGS**
- Achieve 100% renewable grid electricity
- Install 100 MW of local solar energy
- Reduce fossil fuel use 20% in existing buildings
- Discourage fossil fuels in new buildings

**SUSTAINABLE MOBILITY**
- Convert 50% of local trips to foot, bike, scooter & skateboard
- Convert 25% of commuter trips to transit
- Convert 50% of vehicles to electric or zero emission

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**SANTA MONICA PROJECTED CARBON EMISSIONS**
(metric tons of carbon dioxide equivalent or mtCO2e)

**CLIMATE ACTION REDUCTIONS**
- **STATE POLICIES**: 547,786 mtCO2e
- **ZERO NET CARBON BUILDINGS**: 232,035 mtCO2e
- **ZERO WASTE**: 27,847 mtCO2e
- **SUSTAINABLE MOBILITY**: 289,837 mtCO2e

**Target**: 80% below 1990 levels

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The CAAP is a guiding document that provides overarching policy direction to achieve the interim goal of an 80% reduction in emissions by 2030 and to increase Santa Monica’s resilience to climate change hazards and impacts. This plan supports and enhances many existing plans and initiatives within the City. The CAAP also suggests new plans and actions to supplement ongoing efforts and create new initiatives.

### CLIMATE ACTION

#### SECTOR

**ZERO NET CARBON BUILDINGS**
- Achieve 100% renewable grid electricity
- Install 100 MW of local solar energy
- Reduce fossil fuel use 20% in existing buildings
- Discourage fossil fuels in new buildings

**SUPPORTING EFFORT**
- Zero net energy for new residential construction (2017)
- Mandatory solar for new commercial construction (2017)

**ZERO WASTE**
- Divert 95% of materials from landfills

**SUSTAINABLE MOBILITY**
- Convert 50% of local trips to foot, bike, scooter & skateboard
- Convert 25% of commuter trips to transit
- Convert 50% of vehicles to electric or zero emission

**SUPPORTING EFFORT**
- Land Use & Circulation Element (2010)
- Bike Action Plan (2011)
- Pedestrian Action Plan (2016)

### CLIMATE ADAPTATION

#### SECTOR

**CLIMATE READY COMMUNITY**
- Increase community resilience to climate change
- Protect vulnerable groups from impacts
- Integrate climate change impacts into City planning, operations & infrastructure projects

**SUPPORTING EFFORT**
- All Hazards Mitigation Plan (2015)
- Santa Monica Organizations Active in Disaster (2018)

**WATER SELF-SUFFICIENCY**
- Achieve water self-sufficiency by 2023

**SUPPORTING EFFORT**
- Water Neutrality Ordinance (2017)
- Sustainable Water Master Plan (2018)

**COASTAL FLOODING PREPAREDNESS**
- Enhance natural systems to prevent damage from coastal flooding
- Increase resilience of public and private assets in the coastal flood zone

**SUPPORTING EFFORT**
- Local Coastal Program Land Use Plan (2018)

**LOW CARBON FOOD & ECOSYSTEMS**
- Increase self-reliance through local food production
- Reduce or sequester carbon emissions from food production, consumption, waste and landscape management and natural processes

**SUPPORTING EFFORT**
- Urban Forest Master Plan (2015)

The CAAP is not an element of the City’s General Plan or a regulatory document for the purposes of streamlining the California Environmental Quality Act (CEQA) process. Any policy or ordinance described in the CAAP must be developed and adopted through a public review process.
# How to Read the Plan

## Sustainable Local Energy

<table>
<thead>
<tr>
<th>ZNC1: Implement a Community Choice Energy (CCE) Program</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
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<th>Status or Timeframe</th>
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<tbody>
<tr>
<td>Implement CCE in Santa Monica, offering the highest amount of cost-competitive renewable energy. Develop programs to incentivize new local renewable-energy projects. Adopt rates to achieve 100% renewable energy by 2025.</td>
<td>$</td>
<td>CPA</td>
<td>OSE</td>
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## Strategies & Actions

The general approach, programs, policies and steps that help achieve each Objective.

## Carbon Reduction Potential

Each Action displays a potential reduction in carbon emissions. Reduction potential was approximated relative to each sector and is presented using a 1 to 4 scale.

- Large Reduction
- Medium Reduction
- Small Reduction
- Marginal Reduction

## Cost to City

Cost to the City represents the direct costs that may be borne by the City, currently not allocated or budgeted within the existing operating budget. To implement the programs, policies and steps. Costs include consultants, new programs, incentives and grants, and infrastructure. Does not consider potential for outside sources of funds.

- $$$ High Capital Cost: Requires large one-time investment or sustained investment. Outside sources of funding necessary
- $$ Medium Cost: Potential funding through Capital improvement Program. May be supported with outside funding
- $ Low or No Cost: Potential funding from existing budget

## Community Benefits

Details on next page.

## Lead

City division responsible for leading implementation, collaboration, evaluation and reporting of action.

## Partners

City division, non-City entity or community sector responsible for supporting implementation, collaboration, evaluation and reporting of action.

## City Departments & Divisions

- ASD = Architecture Services Division
- BBB = Big Blue Bus
- BM = Beach Manager
- BSD = Building & Safety Division
- CCS = Community & Cultural Services Department
- CED = Civil Engineering Division
- CPD = City Planning Division
- CRD = Community Recreation Division
- EDD = Economic Development Division
- FD = Fleet Division
- FIN = Finance Department
- FacMD = Facilities Maintenance Division
- FMD = Farmers Market Division
- HD = Housing Division
- HSD = Human Services Division
- ISD = Information Systems Department
- MD = Mobility Division
- OEM = Office of Emergency Management
- OSE = Office of Sustainability & the Environment
- OWB = Office of Civic Wellbeing
- PLD = Public Landscape Division
- PWD = Public Works Department
- RRR = Resource Recovery & Recycling Division
- WRD = Water Resources Division

## Non-City Partners

- Business = Local businesses, property owners
- Caltrans = California Department of Transportation
- CCC = California Coastal Commission
- CEC = California Energy Commission
- CPA = Clean Power Alliance of Southern California
- CPUC = California Public Utilities Commission
- Metro = Los Angeles County Metropolitan Transportation Authority
- MWD = Metropolitan Water District
- Nonprofits = Local environmental/sustainability organizations
- SQAMD = South Coast Air Quality Management District
- Utilities = Southern California Edison, Southern California Gas Company
- Schools = Santa Monica College, Santa Monica-Malibu Unified School District, private schools, teachers

## Status or Timeframe

- Near term = 0-2 years
- Mid term = 2-5 years
- Long term = 5+ years
## COMMUNITY BENEFITS

Actions and policies that prevent and prepare for climate change also reduce pollution, improve public health and support a local green economy that benefits the entire community. This plan will seek to achieve not only the goals of the Paris Climate Agreement, but also address community concerns such as systemic inequities, sources of negative public health issues and community cohesion. Nearly all of the Actions in this plan generate additional community benefits and support the City’s Framework for a Sustainable City of Wellbeing (Framework).

<table>
<thead>
<tr>
<th><strong>Meets Paris Climate Agreement</strong></th>
<th><strong>Potential to Address Equity</strong></th>
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<tbody>
<tr>
<td>Action has high carbon reduction potential to reduce emissions necessary to meet 1.5C global warming limit of the Paris Climate Agreement.</td>
<td>Action has potential to reduce environmental injustice or be designed and implemented to prioritize unequally burdened and vulnerable populations.</td>
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<tr>
<th><strong>Advances Smart City Concepts</strong></th>
<th><strong>Enhances Community Resilience</strong></th>
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<tbody>
<tr>
<td>Action supports deployment of smart city technology in City operations and private sector.</td>
<td>Action has potential to increase resilience of buildings &amp; infrastructure and/or people through social networks and increased capacity.</td>
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<table>
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<tr>
<th><strong>Potential for Cost Savings, Local Investment and Jobs</strong></th>
<th><strong>Improves Public Health &amp; Safety</strong></th>
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<tbody>
<tr>
<td>Action requires investment in local projects and programs, creating local green jobs. Action may also yield cost savings from utilities, transportation costs or avoided waste. May support Economic Opportunity outcomes and metrics from the Framework.</td>
<td>Action has potential to improve public health through improved environmental quality. Increased access to healthy food, reduced pollution. Action may also improve public safety through energy resilience and protected pedestrian &amp; biking infrastructure. May support Health and Safety outcomes and metrics from the Framework.</td>
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<th><strong>Enhances Environmental Quality</strong></th>
<th><strong>Government Leadership</strong></th>
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<tr>
<td>Action has potential to foster green spaces &amp; infrastructure and/or improve air quality, habitat &amp; biodiversity. May support Place &amp; Planet outcomes and metrics from the Framework.</td>
<td>City of Santa Monica will implement action in City operations to demonstrate leadership to the community and beyond.</td>
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CLIMATE ACTION

ZERO NET CARBON BUILDINGS

- Achieve 100% renewable grid electricity
- Install 100 MW of local solar energy
- Reduce fossil fuel use 20% in existing buildings
- Discourage fossil fuels in new buildings

ZERO WASTE

- Divert 95% of materials from landfills

SUSTAINABLE MOBILITY

- Convert 50% of local trips to foot, bike, scooter & skateboard
- Convert 25% of commuter trips to transit
- Convert 50% of vehicles to electric or zero emission
2030 OBJECTIVES

- Achieve 100% renewable grid electricity
- Install 100 MW of local solar energy
- Reduce fossil fuel use in existing buildings by 20%
- Discourage use of fossil fuels in new buildings

21% OF TOTAL REDUCTIONS
GETTING TO ZERO NET CARBON

Buildings generate 30% of Santa Monica’s total carbon emissions from their use of energy. Electricity is generated from a mixture of fossil fuel and renewable energy sources, and natural gas is used for cooking, water and space heating.

In 2017, Santa Monica became the first city in the world to require that newly constructed homes generate as much energy as they consume. This Zero Net Energy (ZNE) requirement still allowed for the use of natural gas.

In 2019, Santa Monica started to receive 100% renewable energy from the Clean Power Alliance. This action has the potential to reduce the city’s emissions by 19% from present day. (See next page) As the grid supply of electricity becomes cleaner, the next carbon source to eliminate is natural gas.

The majority of natural gas is consumed by residents for cooking, and space and water heating. In order to “decarbonize” our buildings over time, switching natural gas systems to electric powered by renewable energy is essential. This is also known as fuel switching or building electrification.

Electric appliances for water and space heating can be cost effective and efficient, while providing health and safety benefits through reduced indoor air pollution. Targeted incentives, regulations and educational resources will be essential to transforming the way we heat our buildings and water.

Where fuel switching is not viable, the City could explore alternative and renewable sources of gas — like landfill gas and waste-to-energy gas— or requiring the use of offsets or in lieu fees for carbon reduction projects.

TRANSFORMING THE BUILT ENVIRONMENT

Reducing building energy use remains a priority to reduce costs and increase the resilience of buildings. Currently less than 2% of Santa Monica’s electricity needs are met by solar systems on local rooftops. Increasing local solar will require addressing energy efficiency as well as advanced systems like district energy heating and cooling systems, microgrids and battery storage.

While new construction provides opportunities for innovation, the greatest potential for emissions reductions lies in the buildings that are already standing.

In order to reduce energy use and carbon emissions in buildings, building owners first need to understand their energy use. In 2018, the California Energy Commission implemented AB 802 requiring buildings over 50,000 square feet to benchmark their energy use. The City will implement similar requirements for buildings over 20,000 square feet and include carbon reduction targets for specific sectors.

In addition to regulations to disclose energy use and carbon emissions, public-private partnerships will be essential to increase the scale and speed of improving energy performance in existing buildings. The City will work with small and large property owners to increase the demand for sustainable energy retrofit services. Working together will reduce the costs to individual property owners.

Web-based technologies and smart appliances will also provide an opportunity to promote energy-efficient behaviors and advance smart grid technology. Individuals and businesses could soon be able to respond in real time to price signals for beneficial energy behaviors.
WHAT IS ENERGY RESILIENCE?

What does it mean to be “energy resilient”? Although there are many definitions of the concept, they all share the fundamental idea that energy supply should always meet energy demand and that energy supply needs to be constant – there can be no interruptions in the service.

Solar generates energy that can be used in buildings or fed back into the utility grid saving utility costs. But what happens during a power outage? To assume that a solar system would still work during a power outage would be wrong. Solar systems also need to be equipped with battery storage and a disconnect switch, which would allow buildings to store energy generated by the solar system, and then safely disconnect from the utility grid during a power outage, in order to operate independently.

What about natural gas? Gas-fired furnaces, boilers and space heaters produce heat by burning fuel oil or natural gas. However, they too rely on electricity to distribute heated fluid or heated air. The control systems for these appliances may also require electricity. Some gas water heaters still rely on electricity and would only be able to supply the hot water remaining in the reservoir during a power outage.

Having the ability to generate, store and use energy independent of the utility grid, particularly during power outages that may be caused by extreme heat, wildfire or earthquakes, can help improve community resilience. If you already own a solar system, consider enhancing it with battery storage.

Diagram from EnergySage
**CLEAN POWER COMES TO SANTA MONICA**

In February 2019, Southern California took a big step toward a clean energy future. The Clean Power Alliance of Southern California (CPA) started serving Santa Monica residents, along with 30 cities and the counties of Ventura and Los Angeles, with electricity sourced from a higher content of renewable energy sources. Santa Monica’s residents and businesses (in May 2019) receive a default 100% renewable electricity.

CPA is the largest Community Choice Energy (CCE) program in California. CCE allows local governments to aggregate the buying power of individual customers to get alternative energy on a community-wide scale. CCE will play a critical role in accelerating the adoption of clean energy by creating programs that will support local renewable energy, building electrification and electric vehicles.

### ACTIONS

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<td><img src="image" alt="Dollar" /></td>
<td><img src="image" alt="People" /> <img src="image" alt="Sun" /> <img src="image" alt="Green" /></td>
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| **ZNC2: Adopt a Sustainable Energy Master Plan** | ![Clouds](image) | ![Dollar](image) | ![People](image) ![Sun](image) ![Green](image) | OSE | CPD, ASD | Near Term |
| Develop a plan identifying citywide energy needs and systems or programs that meet local energy needs and reduce greenhouse gas emissions at the neighborhood or district level. Potential projects include microgrids, district energy systems, and community solar. |

| **ZNC3: Pilot and Promote Distributed Energy Resources** | ![Clouds](image) | ![Three Dollars](image) | ![People](image) ![Sun](image) ![Green](image) | OSE | ASD, CPA, SCE | Ongoing |
| Pilot technologies like energy storage, vehicle-to-grid charging stations, web-enabled devices and microgrids within City facilities evaluate their ability to reduce utility costs and carbon emissions. |

| **ZNC4: Increase Local Solar for Residential and Commercial Tenants** | ![Clouds](image) | ![Dollar](image) | ![People](image) ![Sun](image) ![Green](image) | OSE | CPA, SCE | Near Term |
| Develop and advocate for programs and resources tailored to addressing the barriers faced by residential and commercial tenants to installing renewable energy that benefits their leased spaces. |

### EXISTING BUILDING EFFICIENCY

| **ZNC5: Adopt a Carbon Reduction Ordinance for Existing Buildings** | ![Clouds](image) | ![Dollar](image) | ![People](image) ![Sun](image) ![Green](image) | OSE | CPD, EDD, Business, Utilities, CPA, CEC | Near Term |
| Adopt a Carbon Reduction Ordinance to require energy benchmarking and carbon performance of existing buildings over 20,000 sq ft. including multifamily buildings. Require a reduction of fossil fuel use of covered buildings by 15% in five years and elimination of fossil fuel use by 2050. |

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Supporting Paris Agreement</th>
<th>Supports Smart City Concepts</th>
<th>Potential for Cost Savings, Local investment and Jobs</th>
<th>Potential to Address Equity</th>
<th>Enhances Community Resilience</th>
<th>Government Leadership</th>
<th>Improves Public Health &amp; Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td><img src="image" alt="Dollar" /></td>
<td><img src="image" alt="Yellow" /></td>
<td><img src="image" alt="Blue" /></td>
<td><img src="image" alt="Green" /></td>
<td><img src="image" alt="Green" /></td>
<td><img src="image" alt="Green" /></td>
<td><img src="image" alt="Green" /></td>
<td><img src="image" alt="Green" /></td>
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<tr>
<td>Medium</td>
<td>$</td>
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<td><img src="image" alt="Green" /></td>
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</tr>
<tr>
<td>High</td>
<td>$$$</td>
<td><img src="image" alt="Yellow" /></td>
<td><img src="image" alt="Blue" /></td>
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<td><img src="image" alt="Green" /></td>
<td><img src="image" alt="Green" /></td>
<td><img src="image" alt="Green" /></td>
</tr>
</tbody>
</table>
### ACTIONS

#### EXISTING BUILDING EFFICIENCY

<table>
<thead>
<tr>
<th>ZNC6: Implement a Resilient Building Retrofit Accelerator Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop an accelerator program to streamline the delivery of energy retrofit services and technologies for public and private buildings. Reduce capital costs for property owners by offering financing options and bulk-purchasing of technologies and services. Create partnerships to increase the speed and scale of energy-retrofit measures across the city. Prioritize assistance to owners with fewer resources and less technical ability, including smaller buildings and nonprofits.</td>
</tr>
<tr>
<td>![Clouds]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZNC7: Implement a Green Leasing Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a green leasing program to provide assistance and incentives for introducing leases that support investment in energy efficiency measures. Partner with local stakeholders to engage commercial and residential property managers.</td>
</tr>
<tr>
<td>![Clouds]</td>
</tr>
</tbody>
</table>

### BUILDING ELECTRIFICATION

<table>
<thead>
<tr>
<th>ZNC8: Adopt Carbon Neutral Construction Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Require New Construction for commercial, mixed-use and multi-family properties to achieve zero net carbon onsite or pay in lieu carbon impact fee to offset fossil fuel use. Require electric ready construction for future electrification of appliances and buildings systems. Ensure that affordable housing developers have additional financing or compliance alternatives available. Require new residential construction for single-family homes to use only electric appliances and building systems or pay in lieu fee to support more local renewable energy and electrification projects.</td>
</tr>
<tr>
<td>![Clouds]</td>
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</table>

<table>
<thead>
<tr>
<th>ZNC9: Convert Existing Natural Gas Equipment &amp; Appliances to Electric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop programs, resources and incentives to support gas-to-electric conversion of appliances, hot-water heaters and HVAC systems. Establish electrification retrofit upon sale requirements for low-rise residential, and small multifamily and commercial buildings. Where electrification is infeasible or not wanted, encourage renewable natural gas.</td>
</tr>
<tr>
<td>![Clouds]</td>
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</tbody>
</table>

### EQUITY THROUGH ENERGY

<table>
<thead>
<tr>
<th>ZNC10: Provide Educational &amp; Workforce Cleantech Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner with Santa Monica College and Santa Monica-Malibu Unified School District to offer professional development opportunities in the clean energy economy.</td>
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<tr>
<td>![Clouds]</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>ZNC11: Create Equitable Access to Clean Energy Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner with utilities and the Clean Power Alliance to provide free home energy audits and upgrade incentives for low-income households and affordable housing developers and property owners.</td>
</tr>
<tr>
<td>![Clouds]</td>
</tr>
</tbody>
</table>

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**ESTIMATED 2030 NET ZERO CARBON BUILDINGS REDUCTIONS**

**ESTIMATED PERCENT OF TOTAL 2030 REDUCTIONS**

232,035 mtCO2e

21%
ZERO WASTE

2030 OBJECTIVE

- 95% of waste is diverted from the landfill

3% OF TOTAL REDUCTIONS
Becoming a zero waste community means rethinking the way we consume and manage materials and goods throughout their entire lifecycle.

Santa Monica aims to eliminate landfilled waste through reducing the amount of waste generated, reducing consumption, limiting waste generation and increasing recycling and composting.

Daily decisions to use reusable bags, bottles and utensils can add up to a big impact. Limiting the use of disposable goods will reduce the use of natural resources, the strain on our waste management infrastructure and the littering in our neighborhoods and on our beaches.

Local regulations, like the City’s single use plastic bag and single use plastic food service ware bans, have proven to be successful in changing and individuals' behaviors and shifting markets away from single use disposable products.

Education and awareness are essential to ensuring everyone understands how they can contribute to the solution by providing them resources to be successful. Proper diversion systems like collection bins and signage are also crucial to support the needs of residents and businesses, while ensuring proper separation of recycling and organics streams.

**COMPOST: THE NEXT FRONTIER**

Organic materials, like food scraps and yard waste, are extremely valuable natural resources that can be transformed into earth-enriching compost. However, businesses and residents have historically been provided limited options to sort and manage their organic materials.

State regulations now require all commercial properties and large residential properties to utilize composting services.

To help residents and businesses, Santa Monica-based Global Green conducted waste audits, and provided food scrap pails, educational materials, outreach and program implementation assistance for apartment dwellers. The “Eco-Ambassador” program is now being scaled up to include restaurants, connecting unused food to community pantries.

**LANDFILLED WASTE CONTRIBUTES OF COMMUNITY EMISSION SOURCES (2015)**

**“TO ROT OR NOT” MAIN STREET PILOT**

In 2016, City of Santa Monica piloted an organics-recycling program called “To Rot or Not” on Main Street with participation of 172 businesses. This program improved the way restaurants dispose of their food waste by giving businesses two containers.

One is the “Rot” container which consists of materials that breakdown naturally and can be composted. The “Not” container is comprised of materials that cannot breakdown naturally like aluminum, ceramics, and sponges. These items are recycled or sorted for landfill disposal.

This simplifies the material streams and reduces contamination - or placement of non-recyclable or non-compostable items in a recycling or composting container.
THE CARBON WE CONSUME

Residents and businesses have the power to influence a global system that delivers the goods, foods, services, and by extension, the carbon, that they consume. Through our purchasing and consumption habits, we can reduce these emissions occurring elsewhere. Climate change happens on a global scale, so emissions reduced in another country or region is equally important as emissions reduced locally.

There are two lenses that cities can use to look at emissions:
- A sector-based inventory attributes all emissions to the location where the emissions occur. This is the recognized global standard for emissions reporting and action.
- A consumption-based inventory includes the emissions resulting from all consumption activities of a local community of residents. It attributes all emissions to the end consumer, including all emissions released along the supply chain. This is an emerging initiative that takes broader stock of a community’s climate impacts.

Research by C40 indicates that consumption-based carbon emissions are approximately 60 percent greater than the emissions generated within city boundaries. While cities do not have direct control over the embodied emissions of most goods and products, they do have many opportunities to design and promote more sustainable urban lifestyles that can help reduce these consumption-based emissions. As work on climate action expands at the City, opportunities to reduce embodied emissions and shift to low carbon consumption patterns will be explored.

The chart on the left shows Santa Monica’s consumption-based emissions by zip code. The emissions were estimated using the U.C. Berkeley Cool Climate Network methodology and local data where available. The household footprints include all direct and indirect greenhouse gas emissions resulting from the life cycle of energy, transportation, water, waste, food, goods, and services consumed by households in a calendar year in this case 2015.

Generally, people with higher income tend to spend more money on goods, services, and transportation (especially air travel). People with lower income tend to live in smaller dwellings, accumulate less, and take public transportation regularly.

OVERLAP BETWEEN CONSUMPTION-BASED EMISSION INVENTORIES AND SECTOR-BASED EMISSION INVENTORIES

(Source: C40)
### ACTIONS

#### ELIMINATE LANDFILL WASTE

<table>
<thead>
<tr>
<th>ZW2: Zero Waste Outreach &amp; Education</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze waste streams for multiunit dwellings and businesses. Recommend ways to reduce consumption and increase composting and recycling.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OSE, Nonprofits, Schools</td>
<td>Ongoing</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZW3: Institute Wet-Dry Sorting System for Businesses</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement a wet-dry program that collects wet organic waste separately from dry recyclable waste to more businesses in order to increase waste diversion.</td>
<td></td>
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<td></td>
<td>OSE</td>
<td>Mid Term</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>ZW4: Implement Pricing Signals to Increase Diversion</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explore fees and fines to create more incentives for recycling and composting and discourage landfill waste.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OSE</td>
<td>Mid Term</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>ZW5: Increase Construction and Demolition Debris Diversion Requirements</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explore fees and fines to create more incentives for recycling and composting and discourage landfill waste.</td>
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<td></td>
<td></td>
<td></td>
<td>OSE</td>
<td>Mid Term</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZW6: Implement Material and Landfill Bans</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ban divertible materials, such as yard waste and foods, from trash containers. Also keep out materials that cause litter, such as straws and other single-use items.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OSE</td>
<td>Mid Term</td>
<td></td>
</tr>
</tbody>
</table>

#### REUSE ECONOMY

<table>
<thead>
<tr>
<th>ZW7: Expand the Reuse and Repair Economy</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expand programs like the Citywide Annual Yard Sale and quarterly Repair Cafes to avoid wasting goods that are lightly used or damaged. Develop new programs like lending libraries for tools. Promote reusable wares for restaurants and individuals.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OSE</td>
<td>Mid Term</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZW8: Foster a Food Waste Prevention Network</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convene businesses, non-profits and institutions to develop systems, networks and infrastructure to prevent food waste by fostering connections between sources of unwanted food and communities in need. Partner with local businesses, restaurants, grocery stores and non-profits to reduce food waste and recover edible food through networking and smart phone applications. Develop and maintain a map of fruit and nut trees in Santa Monica to connect gleaners and foragers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RRR, FMD, Business, Nonprofits</td>
<td>Mid Term</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZW9: Incentivize Reusable Containers and Packaging</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce the amount of materials used in packaging. Promote and require packaging materials that are compostable and recyclable. Incentivize more grocery stores to sell bulk food to customers. Incentivize customers to bring their own reusable bags to the grocery store.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OSE</td>
<td>Mid Term</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZW10: Support and Pilot Extended Producer Responsibility Programs</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participate in campaigns and pilot programs that offer solutions for hard-to-recycle items, like mattresses and furniture.</td>
<td></td>
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<td>OSE</td>
<td>Mid Term</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZW11: Explore Waste-to-Energy Conversion Technologies</th>
<th>Carbon Reduction Potential</th>
<th>$27,847 mtCO2e</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot decentralized systems that convert locally collected organic waste into usable energy or byproducts like feedstock.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OSE</td>
<td>Mid Term</td>
<td></td>
</tr>
</tbody>
</table>

### ESTIMATED 2030 ZERO WASTE REDUCTIONS

<table>
<thead>
<tr>
<th>ESTIMATED PERCENT OF TOTAL 2030 REDUCTIONS</th>
<th>27,847 mtCO2e</th>
<th>3%</th>
</tr>
</thead>
</table>
SUSTAINABLE MOBILITY

2030 OBJECTIVES

- Convert 50% of local trips to foot, bike, scooter or skateboard
- Convert 25% of commuter trips to transit
- Convert 50% of personal vehicles to electric or zero emission

26% OF TOTAL REDUCTIONS
A NEW MODEL OF MOBILITY

Vehicle transportation contributes over 60% of Santa Monica’s total carbon emissions. According to field observations and resident surveys, driving alone accounts for almost two-thirds of all vehicle trips. Nearly one third of residential trips are one mile or shorter.

Increasing walking and biking can make meaningful progress toward reducing emissions and congestion in Santa Monica.

People are looking for new travel options with less time in the car, lower cost and more convenience. Now more than ever, people have many mobility choices for local trips, whether on train, foot, by bikeshare or even by electric scooters. Mobility services can offer a safe and convenient experience while reducing vehicle use and emissions.

Local policies, infrastructure and incentives need to encourage safety, convenience and affordable options to all members of the community. This will help residents lead car-lite or even car-free lifestyles which help reduce vehicle trips and emissions. Having convenient transit options will shift away from historical subsidies to driving through reallocating roadway space, using pricing incentives, and emphasizing roadway space efficiencies.

Mobility options are increasingly diverse, and Santa Monica can lead in creating and encouraging options, whether privately or publicly operated.

SAFE STREETS FOR ALL

Santa Monica has actively created new bike lanes, revised bus routes, and made streets more walkable. But many residents still cite a sense of vulnerability when walking and biking, frustration with vehicle speeds and yielding to pedestrians, and a desire for more short-distance on demand services to support transit use.

Creating safer streets through protected and connected pedestrian and biking facilities will be key to facilitating walking and biking as primary transportation options for people of all ages and abilities. In 2016, the City council adopted a Vision Zero target for roadway safety (see call out).

DECARBONIZED TRANSPORTATION

In addition to shifting people out of vehicles, vehicles that remain on the road must transition to electric or zero-emission technologies in order to achieve significant emission reductions.

One major barrier is the lack of charging infrastructure available for those who live in apartment buildings and condos.

The City’s Electric Vehicle Action Plan provides a strategic approach to supporting electric vehicles for residents and commuters. Expanding charging infrastructure will be key to providing low-carbon fuel to the masses.

In 2015, the Big Blue Bus (BBB) reduced its emissions from petroleum-based natural gas to 100% landfill methane gas. By 2020, BBB will initiate a transition to electric buses to further reduce its carbon footprint.

SAFETY IN NUMBERS: GETTING TO VISION ZERO

Santa Monica’s 2016 Pedestrian Action Plan included the ambitious goal to reduce and ultimately eliminate fatal and severe injuries from roadway crashes known as “Vision Zero.” Reaching this goal will require thoughtful design and actions that affect the design of the roadways, the behavior of roadway users, enforcement of safety rules, and outreach efforts.

Vision Zero will affect how we design, use, and manage roadways and prioritize the safety of pedestrians and other low-carbon emitting road users.
A CAR-FREE FUTURE

Living car-free is easier now than ever with a wide variety of shared mobility and transit options. Continuous focus on enabling car-free and car-lite households will continue to make sustainable transportation achievable for more types of needs and households. Simultaneously this supports wellbeing through increased physical activity and reduced household cost burdens.

The Land Use & Circulation Element (adopted 2010, updated 2015) sought to reduce vehicle trips and carbon emissions and proactive transportation measures. Over time, this will encourage reduced vehicle ownership.

Programs like the Transportation Demand Management Ordinance have increased trip-reduction requirements for medium and large employers, and there are resources to help businesses implement trip reduction plans.

Policies to increase the cost of driving and parking will deter solo-driving and encourage sustainable transportation. These policies must be implemented so as not to disproportionately impact lower income populations. Additionally, the City must consider the financial impacts from historically reliable revenue sources like parking fees.

 Autonomous vehicles could offer an electrified and shared option for some mobility needs, but needs to be guided by proactive sustainable policy and carefully managed to reduce vehicle congestion, reduce vehicle miles traveled, and keep roadways safe for all users.

A CLEAN MOVING ECONOMY

Trucks used for the movement of goods across the region and state account for roughly 2-3% of average daily trips along the 10 freeway. The California Department of Transportation estimates that truck traffic will increase by 50% by 2025, with no additional road capacity to accommodate them.

Additionally, short distance delivery vehicles for retail delivery increase local congestion as e-commerce and online shopping continues to grow.

In 2009, there was a single daily internet delivery for every 25 Americans. Today, there’s one for every eight Americans. That traffic is anticipated to double again by 2023.

Today’s city streets and transportation networks simply were not designed to handle this additional flood of packages and freight trucks, especially with the added pressure of next-day or, in some cases, next-hour delivery.

While the City has limited influence over internet retailers and delivery services, it does have an ability to allocate facilities and curb space to make delivery and pick-up systems more efficient for drivers and customers. Systems like pick up lockers can reduce idling for delivery trucks and package theft.

The City will need to explore systems and partnerships that will reduce vehicle congestion, encourage appropriate use of street and curb space and reduce emissions from delivery vehicles.

---

## SUSTAINABLE MOBILITY

### MOBILITY DICTIONARY

The landscape of mobility-as-a-service is changing almost every month. With so many options, you don’t even need to own a vehicle! Before you go, know the lingo!

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autonomous Vehicles</strong></td>
<td>A vehicle that is capable of sensing its environment and moving with little or no human input. Vehicles can feature various levels of sophistication and independence in automation.</td>
</tr>
<tr>
<td><strong>Bikesharing</strong></td>
<td>Provides members with access to a bike for short-term - usually by the minute - use. Bikeshare systems can be publicly operated, privately operated, peer-to-peer, one-way, round-trip, or floating in nature.</td>
</tr>
<tr>
<td><strong>Carsharing</strong></td>
<td>Provides members with access to a vehicle for short-term - usually by the hour - use. Carshare systems can be publicly operated, privately operated, or peer-to-peer, one-way, round-trip, or floating in nature.</td>
</tr>
<tr>
<td><strong>Dockless Mobility Devices</strong></td>
<td>Devices like bikes, electric bikes, electric motor scooters, and electric scooters are shared among users. They are typically enabled by technology or mobile app, and emerging services are frequently run by private companies.</td>
</tr>
<tr>
<td><strong>Microtransit</strong></td>
<td>Technology-enabled private shuttle services, serve passengers using dynamically generated routes, usually between designated stop locations rather than door-to-door.</td>
</tr>
<tr>
<td><strong>Mobility as a Service (MAAS)</strong></td>
<td>Mobility solutions that are consumed as a service, a consumer-centric model of people transportation. Travelers are offered mobility solutions based on their travel needs and typically includes some sort of journey planning.</td>
</tr>
<tr>
<td><strong>Mobility Hub</strong></td>
<td>Mobility hubs are strategically located transfer points that feature facilities for multiple transportation modes (such as bikesharing, carsharing, and transit) combined in one location.</td>
</tr>
<tr>
<td><strong>Mobility on Demand</strong></td>
<td>An innovative transportation concept where all consumers can access mobility, goods, and services on demand by dispatching or using shared mobility, delivery services, and public transportation solutions through an integrated and connected multi-modal network. The most advanced forms of MOD passenger services incorporate trip planning and booking, real-time information, and fare payment into a single user interface.</td>
</tr>
<tr>
<td><strong>Ride-sourcing/Ride-Hailing</strong></td>
<td>Connects passengers with drivers through online platforms who use personal, non-commercial vehicles.</td>
</tr>
</tbody>
</table>

Sources: Shared Use Mobility Center, Susan Shaheen, PhD
### A NEW MODEL OF MOBILITY

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SM1: Adopt a New Mobility Strategy</strong></td>
<td>🌤️🌨️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td></td>
<td>Near Term</td>
</tr>
<tr>
<td>Develop and adopt policies to govern local mobility services, designate underutilized street space, adapt to technology innovations, implement pricing strategies and foster regional integration.</td>
<td>🌤️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td></td>
<td>Near Term</td>
</tr>
<tr>
<td><strong>SM2: Expand &amp; Diversify Mobility Services &amp; Devices</strong></td>
<td>🌤️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td>Business</td>
<td>Near Term</td>
</tr>
<tr>
<td>Diversify fleet to include electric bicycles and offer options for people with different access and functional needs. Partner with operators of dockless devices to expand mobility options that are safe, convenient and affordable, and provide options for people with different needs. Improve shared-mobility services through open marketplace opportunities, permitting systems, dedicated infrastructure and payment platforms that integrate multimodal planning.</td>
<td>🌤️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td>Business</td>
<td>Near Term</td>
</tr>
<tr>
<td><strong>SM3: Expand Mobility Infrastructure</strong></td>
<td>🌤️刷卡</td>
<td>$$$</td>
<td>🚲praak</td>
<td>MD</td>
<td>Business</td>
<td>Near to Mid Term</td>
</tr>
<tr>
<td>Develop strategies and projects to use curb space as mobility hubs that can serve mobility service providers. Integrate smart-sensing and smart-charging technologies to monitor, inform and enable activities, like congestion pricing. Create tools to maximize street capacity and efficiency for people.</td>
<td>🌤️刷卡</td>
<td>$$$</td>
<td>🚲praak</td>
<td>MD</td>
<td>Business</td>
<td>Near to Mid Term</td>
</tr>
<tr>
<td><strong>SM4: Implement Parking Policies &amp; Pricing</strong></td>
<td>🌤️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td></td>
<td>Near Term</td>
</tr>
<tr>
<td>Continue to actively review and adjust parking prices citywide as market rates change, and revisit parking management and construction policies to encourage sharing existing resources. Analyze financial impacts and develop alternatives to decreased revenue from parking fees.</td>
<td>🌤️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td></td>
<td>Near Term</td>
</tr>
<tr>
<td><strong>SM5: Sustainable Goods Movement &amp; Delivery Services</strong></td>
<td>🌤️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td>Business</td>
<td>Mid to Long Term</td>
</tr>
<tr>
<td>Assess the local impacts of long distance and urban delivery systems and vehicles on street capacity, congestion and carbon emissions. Facilitate partnerships to explore ways to reduce delivery trips, prioritize bicycle delivery and smaller vehicles, idling while loading/unloading and emissions from delivery vehicles.</td>
<td>🌤️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td>Business</td>
<td>Mid to Long Term</td>
</tr>
</tbody>
</table>

### SAFE STREETS FOR ALL

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SM6: Complete Streets Network</strong></td>
<td>🌤️刷卡</td>
<td>$$$</td>
<td>🚲praak</td>
<td>MD</td>
<td>PCD, PWD</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Increase the extent and quality of the complete street network and greenways to ensure residents and visitors alike have safe, convenient, and affordable transportation options. Create designated bike lanes that are protected to provide greater safety and assurance for all riders. Emphasize the movement of people with greater space dedicated to space efficient and low emission modes of transportation. Lower speed limits to improve safety. Expand publicly owned spaces and work with property owners to facilitate public access.</td>
<td>🌤️刷卡</td>
<td>$$$</td>
<td>🚲praak</td>
<td>MD</td>
<td>PCD, PWD</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>SM7: Expand Safe Routes Programs</strong></td>
<td>🌤️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td>Schools, Nonprofits</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Expand the Safe Routes to School program to reach more schools, including private schools, and continue to pursue a Safe Routes for Seniors program.</td>
<td>🌤️刷卡</td>
<td>$</td>
<td>🚲praak</td>
<td>MD</td>
<td>Schools, Nonprofits</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
### SAFE STREETS FOR ALL

**SM8: Prioritize Transit-Oriented Affordable Housing**
Increase the housing-to-jobs ratio by prioritizing the expansion and investment in affordable housing located near dense transit hubs with limited parking. Through local zoning and incentives.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>MD</td>
<td>BBB, Metro</td>
<td>SCG</td>
<td>MD, SCAQMD</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### CONNECTED TRANSIT

**SM9: Prioritize Mass Transit Services**
Support public mass transit through infrastructure and service improvements. Dedicate lanes during rush hour to Rapid Transit services. Advocate for regional connectivity projects, like the Purple Line Extension and Bus Rapid Transit. Work with regional partners to expand the development of Bus Rapid Transit facilities throughout the City.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>MD</td>
<td>BBB, Metro</td>
<td>SCG</td>
<td>MD, SCAQMD</td>
<td>Mid to Long Term</td>
</tr>
</tbody>
</table>

**SM10: Expand Citywide Transportation Management Organization**
Increase the scope of offerings and resources available via the TMO to employees/employers, residents, and visitors in order to increase the reach and impact of existing transportation programs, facilities, and services.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>MD</td>
<td>BBB, Metro</td>
<td>SCG</td>
<td>MD, SCAQMD</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

**SM11: Offer Incentives for Transit & Mobility Services**
Increase ridership, mobility access and equity by subsidizing fares for sustainable modes of transportation like transit, vanpool, carpool and micro-transit services, for youth, students, seniors and other underserved groups.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>BBB</td>
<td>MD, SCAQMD</td>
<td>SCG</td>
<td>MD</td>
<td>Near Term</td>
</tr>
</tbody>
</table>

### VEHICLE ELECTRIFICATION

**SM12: Increase Charging Infrastructure for Electric Vehicles and Electric Mobility Devices**
Expand network of off- and on-street public charging stations to 1,000 ports by 2025. Provide charging stations that will accommodate a wide range of vehicle types including bicycles, scooters and other mobility devices. Provide outreach and additional incentives for renters, lower-income individuals and non-profit property owners. Implement emerging best practices in EV technology, including mobile charging, wireless charging, energy storage, and web/smartphone applications.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>$$$</td>
<td>OSE</td>
<td>MD, SCE, CPA, SCAQMD</td>
<td>SCG</td>
<td>MD</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

**SM13: Expand Use of EVs in Carshare and Rideshare Services**
Develop public-private partnerships with carshare providers to provide access to electric vehicles, including neighborhood electric vehicles, to residents who may not be able to own an electric vehicle on their own.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>OSE</td>
<td>Business</td>
<td>SCG</td>
<td>MD</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

**SM14: Pilot Autonomous Vehicle (AV) Technologies**
Develop protocols and policies for AV safety performance, AV City fleet vehicles, and AV commercial activities that protect all roadway users and reduce vehicle trips and carbon emissions. Work with manufacturers to pilot technologies on fixed routes with limited services that provide shared-ride and zero emission mobility solutions. Consider opportunities to pilot or deploy AV technology in the expansion of Airport Park.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>MD</td>
<td>OSE, ISD, Business</td>
<td>SCG</td>
<td>MD</td>
<td>Mid Term</td>
</tr>
</tbody>
</table>

### ESTIMATED 2030 SUSTAINABLE MOBILITY REDUCTIONS

289,837 mtCO2e

### ESTIMATED PERCENT OF TOTAL 2030 REDUCTIONS

26%
CLIMATE ADAPTATION

CLIMATE READY COMMUNITY

- Increase community resilience to climate change
- Protect vulnerable groups from impacts
- Integrate climate change impacts into City planning, operations & infrastructure projects

WATER SELF-SUFFICIENCY

- Achieve water self-sufficiency by 2023

COASTAL FLOODING PREPAREDNESS

- Enhance natural systems to prevent damage from coastal flooding
- Increase resilience of public and private assets in coastal flood zone
- Increase self-reliance through local food production

LOW-CARBON FOOD & ECOSYSTEMS

- Reduce or sequester carbon emissions from food production, consumption, waste and landscape management and natural processes
THE CLIMATE HAS CHANGED

Even if we halt all carbon emissions today, the carbon emissions currently in the atmosphere will continue to impact the climate. Sea-level rise and coastal flooding, extreme heat, drought, and declining air-quality will increasingly affect Santa Monica directly. Each of these hazards impacts the city’s people, buildings, infrastructure, environment, and economy in different ways.

Santa Monica has implemented several measures to increase its resilience against such impacts. This section offers a comprehensive response plan to climate change. To start, a vulnerability assessment was conducted for all major asset categories in the city in conjunction with the top climate hazards.

The initiatives of this plan will increase the community’s ability to thrive in the face of intensifying climate hazards, leading to stronger neighborhoods and improved quality of life for all residents.

WHAT IS RESILIENCE?

Resilience is the capacity of individuals, communities, institutions, businesses, and systems to survive, adapt, and grow, no matter what kinds of chronic stresses and acute shocks they experience.

- Shocks are typically considered single-event disasters, such as fires, earthquakes, and floods.
- Stresses are factors that pressure a city on a daily or reoccurring basis, such as chronic food and water shortages, an overtaxed transportation system, or homelessness.

Santa Monica will need dedicated public and private partners, as well as significant additional resources, to advance these initiatives and implement comprehensive climate adaptation.
EXTREME HEAT

Santa Monica is expected to see increasing trends in extreme heat days with an average of nine days above 87°F by mid-century and 22 days by the end of the century. At the 95°F threshold, Santa Monica is projected to see an increase from 0 to 3 extremely hot days per year by 2100.2

Extreme heat events in California and the Los Angeles region are becoming more frequent, more intense, and are longer lasting—and the trend is expected to continue as climate change worsens.

Extreme heat can exacerbate heat-related illnesses and deaths, while also impacting communities indirectly through energy disruption, and spikes in energy prices, impacting affordability.

Certain populations such as the homeless, outdoor workers, older adults, young children and infants, pregnant women, and people with chronic illnesses are more susceptible to warmer temperatures and heat-related illnesses.

For example, older adults may be at higher risk due to reduced ability to acclimate to changing temperatures, diminished thirst response, and a higher likelihood of chronic health conditions. Homeless populations may not have access to indoor spaces to get out of the sun and cool down.

AIR QUALITY

Air quality is strongly dependent on weather, and climate change is expected to impact air quality through warming temperatures and more frequent episodes of stagnant air. Warmer temperatures from climate change will increase the frequency of days with unhealthy levels of ground level ozone.

Ozone is the main ingredient of smog. Ground-level ozone is formed from the reaction of oxygen-containing compounds with other air pollutants in the presence of sunlight. The main sources of ozone are trucks, cars, planes, trains, factories, farms, construction, and dry cleaners.

Warming temperatures and lengthened growing seasons can also lead to increased wildfires and allergen levels, such as pollen, which can also worsen air quality.

According to CalEnviroScreen (right), California’s pollution and population vulnerability mapping tool, Santa Monica concentration of ozone is higher than 53% of all census tracts in California.

DROUGHT
Climate change is likely to increase the duration and severity of droughts in California. Increasing temperatures and changing precipitation patterns can create periods of abnormally dry weather that can result in water-supply shortages and other impacts.

In the present day, California already experiences wide swings in precipitation from year to year, and this variability is expected to continue under climate change with fluctuations between wet years and dry years.

Due to anticipated warmer temperatures, more precipitation will fall as rain instead of snow, and Southern California will have smaller windows of time to capture stored water as snowpack.

Aside from directly impacting the availability of water, changes in the amount and frequency of precipitation may affect hydropower production. Likewise, changes in weather patterns may impact growing conditions and yields for crops.

These impacts may raise the price of basic goods and services, increasing stress on lower-income communities as they spend a greater proportion of their income on food and utilities.

WILDFIRE
Wildfires can be a significant source of air pollution in Southern California, and climate change is expected to increase the number and extent of wildfires. Hot, dry summers followed by hot and dry Santa Ana wind conditions can create conditions suitable for wildfires.

Wildfires burning within 50 to 100 miles of Santa Monica routinely can cause air quality to be five to 15 times worse than normal, and often two to three times worse than the worst non-fire day of the year.

Although Santa Monica is not directly threatened by wildfire due to its surrounding urban buffer, the City is close to a number of mountain ranges where wildfire risks are projected to increase due to climate change. Wildfires stress fire and emergency management services across Los Angeles County, disrupt regional transportation and energy systems and worsen regional air quality.

While there is little Santa Monica can do to prevent wildfires directly, we support wildfire-stricken communities with firefighter assistance and emergency operations capacity, and implement protocols to protect affected workers, school students and vulnerable populations.
SEA LEVEL RISE & COASTAL FLOODING

Sea levels rise due to increased water volume from higher water temperatures and the melting of glaciers and ice sheets.

Sea level rise can create multiple coastal hazards, such as beach erosion, increased frequency and intensity of coastal storms, permanent inundation and saltwater intrusion. Coastal flooding caused by storms and high tides is a temporary condition but can have damaging consequences. Over the longer-term, sea level rise (SLR) will compound the effects from coastal flooding as storms will occur on top of higher sea levels.

LOCAL IMPACTS OF SEA LEVEL RISE

In an effort to prepare for the anticipated impacts of SLR and coastal hazards, the City, with assistance from the USC Sea Grant, the Ocean Protection Council, the California Coastal Commission (CCC), and the State Coastal Conservancy, commissioned technical reports that providing shoreline change projections, coastal hazard modeling, and vulnerability assessments.

Miles of transportation and public and private utilities infrastructure, beaches, homes, businesses and concessionaires bear some risk from SLR and coastal flooding. The map below shows projected SLR and coastal flooding by 2100 along the coast of Santa Monica. A significant number of public facilities and infrastructure, buildings, and other structures are likely to be affected by storm-induced flooding.

In addition, the Santa Monica Pier, a major tourist destination in the City, could also be impacted by increased wave height and water volume.

As the level of the Pacific Ocean continues to rise, areas that would have only been temporarily flooded or submerged during very high ‘King’ tides or El Niño conditions, may gradually begin to be permanently submerged or inundated.

Over the mid-term (i.e. SLR of 6 inches to 24 inches), the Santa Monica sandy beach area towards Pacific Coast Highway is expected to see moderate inundation levels. Some areas have been flooded in the past during severe storms or El Niño events, and research indicates that this will become an occurrence of increasing frequency.

Over the long-term (i.e. SLR of 16 inches to 66 inches, with a possibility of a 113 inch extreme scenario), the coastal inundation hazard area is expected to expand further inland, and the mean high tide line would move closer to its location at the turn of the 20th century.

Sea Level Rise and Coastal Flood Models

Legend
- Overlap of Models
- CoSMoS 150cm with 100 year storm
- ESA Coastal Flood Hazard 167cm by 2100

**CLIMATE CHANGE VULNERABILITY**

Climate change vulnerability is a measure of sensitivity to climate hazards and the ability to adapt to these hazards. Both gradual climate change and climate hazards can expose people and property to a wide range of stress-inducing and hazardous situations.

Older adults, young children, and people with chronic diseases and disabilities are more biologically sensitive to impacts from the effects of climate change, such as droughts, extreme heat, and air quality impacts. In addition, low-income populations, including homeless populations and communities of color, are generally more likely to be exposed to natural hazards and climate events, with greater sensitivity, yet have fewer resources to cope or adapt.

People for whom English is not a primary language are further disadvantaged when public information, community planning and resources are not made accessible in their native language.

Seniors are particularly vulnerable to climate change impacts as many may be isolated and living alone, threatened by hunger, and living in or near poverty. Over 20% of the population in Santa Monica is over 60. In 2016, Meals on Wheels served 342 Santa Monica-based seniors. Most of these seniors are home-bound, meaning they have difficulty leaving home due to frailty, age, chronic disease, recent hospitalization, and mental health issues. The aging population is more vulnerable to some climate change impacts, like rising temperatures and worsening air quality.

Environmental inequity is another important factor in determining population vulnerability. Communities of color and low-income people have historically born the burden of polluting industries and roadways with fewer services available to them.

**Influencing Factors of Vulnerability**

According to analysis conducted by the Pedestrian Action Plan, the areas (shown below) in dark brown are locations where investments in pedestrian facilities would have the greatest health and sustainability benefits.

The highest percentage of Latinos living in Santa Monica (26%) live in the Pico neighborhood (90404); a portion of which is also considered a Disadvantaged Community by CalEnviroScreen. According to the Wellbeing Index, Latino residents reported the least amount of physical activity and have lower than average fruit and vegetable consumption. Also, the lowest reported use of outdoor space for leisure activities was among the Latino population. Residents in the 90404 zip code experience the highest asthma rate among Santa Monica residents (12.1%).

Community health, environmental sustainability, and social equity are important values for the City of Santa Monica and the intent of this analysis is to reflect those values in the City’s planning and decision-making process.
# Vulnerability Assessment

The City conducted a vulnerability assessment across various sectors of the community. The vulnerability assessment analyzes how people, buildings, infrastructure and the economy will be affected by climate change.

The assessment incorporated quantitative data such as exposure of physical assets and facilities along Santa Monica’s coast likely be impacted by sea level rise and coastal flooding.

The assessment also utilized qualitative data concerning the sensitivity and ability to adapt to climate change of the key sectors, populations, or assets. This was gathered from City staff and key stakeholders. Based on the assessment, population groups and assets within each sector were ranked from highest to lowest vulnerability.

<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Community Sector</th>
<th>Description</th>
</tr>
</thead>
</table>
| HIGH          | • Buildings in coastal flood zone  
• Roads and parking in coastal flood zone  
• Ocean habitat  
• Santa Monica Pier | The City may have limited jurisdiction control over many of these assets. Partnerships with state and federal agencies, private businesses, and homeowners will be essential to adapt these assets to climate hazards. Adaptation measures to increase the climate resilience of these assets will take time to enact and may require a great deal of education and coordination with multiple stakeholders. |
| MEDIUM-HIGH   | • Parks  
• Water infrastructure  
• Energy supply and infrastructure  
• Urban forests  
• Beach habitat | The City has a number of current plans and programs in place to address climate hazards for these highly sensitive assets. |
| MEDIUM        | • Schools  
• General and vulnerable populations  
• Water supply  
• Sanitary water and sewer infrastructure  
• Stormwater infrastructure  
• Beach tourism and recreation  
• Businesses | Population groups particularly vulnerable to the effects of climate change, such as outdoor workers and the homeless population, are exposed to more climate hazards and/or have less capacity to adapt and may lack access to more protective indoor spaces. Outdoor workers, such as construction workers or landscapers, are more exposed to weather and the outdoors, and often lack control over their work conditions. Employers may also vary widely in their compliance with worker-protection standards. |
| LOW           | • City-operated buildings  
• Bicycle infrastructure  
• General buildings and properties  
• Local energy generation  
• Telecommunications | Although ranked lowest in vulnerability, there may be assets that are more sensitive and/or have lower ability to adapt to climate change. For example, older homes and private buildings may be much more sensitive to extreme heat and air pollution intrusion due to poor insulation and/or weatherproofing. Actions to increase adaptation to climate change may also be limited as building upgrades and energy-efficiency measures may be cost-prohibitive. |
2030 OBJECTIVES

- Increase community resilience to climate change
- Protect vulnerable groups from impacts
- Integrate climate change impacts into City planning, operations & infrastructure projects
Santa Monica is dedicated to protecting and promoting the health and safety of its residents through its adaptation actions. The City will implement actions that can both prepare residents for a changing climate and build community resilience of the community’s populations at greatest risk of climate hazards.

Emergency management capacity can be enhanced by including climate hazard considerations in emergency and natural disaster response. Considerable attention must be paid to ensuring that such programs and warnings are accessible to vulnerable groups.

In order to improving the resilience of homes and buildings, the City will work to update building standards and provide financial and technical assistance to property owners to afford upgrades and retrofits.

The City itself will need to ensure that climate change is integrated into planning processes and project development. In order to enhance the City’s own organizational capacity to plan for and adapt to climate change, Santa Monica must:
- Integrate climate change preparedness planning across City operations to enhance readiness and monitoring of climate impacts.
- Ensure that the community will be prepared for gradual changes and climate-related shocks, such as storms and coastal flooding, and that strategies will benefit population groups with the greatest climate risk.
- Utilize data to assess and monitor climate hazards and the implementation of adaptation projects.
- Design capital projects to reduce vulnerability to climate-related events and disasters.

**SMOAIID : Santa Monica Organizations Active in Disaster**

By identifying and working closely with our local partners prior to an emergency, we are all better prepared to respond when events occur.

SMOAIID is coalition of businesses and service organizations committed to preparing for disasters and building a stronger, healthier, and more resilient city. Form 2006 - 2016, SMOAIID led to improvements in Santa Monica’s emergency communications, preparedness level and response potential.

In 2011, the Los Angeles Marathon, one of the most popular marathons in the nation, experienced rain, cold and very difficult conditions for runners and public safety personnel across Los Angeles.

Many participants needed immediate care from paramedics, volunteers, and hospital staff due to the cold and wet conditions. City staff was prepared to meet the demands of this emergency. The Big Blue Bus provided busses for transporting runners out of the rain and into climate controlled environments and with the help of community partners, the City was able to coordinate treatment centers at local hotels to assist the tired, cold, and wet participants.

The communication and coordination that occurred is exemplary of the SMOAIID model of emergency preparedness.

As the threat of disasters, both natural and man made, continues to increase, the City is relaunching SMOAIID to improve community resilience and preparedness.
### ACTIONS

#### CAPACITY BUILDING FOR RESILIENCE

<table>
<thead>
<tr>
<th>CRC1: Incorporate Climate Preparedness into City Programs &amp; Operations</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish an interdepartmental working group to integrate climate preparedness in planning, maintenance, and capital improvements through the development of work plans, screening of capital improvements, and cross-sector collaboration. Update Community Emergency Response Training (CERT) curriculum to incorporate climate change hazards, like wildfire and heatwaves. Establish protocols for mitigating public health impacts from heat and air quality, with regional agencies and partners. Analyze vulnerability to vector and disease migration and work with public health stakeholders to develop strategies for outreach, engagement and prevention. Define an information-dissemination network including community-based organizations and neighborhood representatives. Establish culturally specific messages and templates, as well as provide early warning systems in multiple commonly spoken languages.</td>
<td>Low</td>
<td>$</td>
<td>OSE</td>
<td>OEM</td>
<td>Near Term</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRC2: Expand SMOAID Community Resilience Network</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify suitable locations for resilience hubs, cooling centers, disaster assistance and supplies. The locations will also need to develop backup power sources in the event of a power outage. Form partnerships with neighborhood-based organizations and businesses to develop Neighborhood Resilience Hub Programs and prepare residents and respond to climate change. Develop community outreach and engagement materials. Create a Climate Ambassador program and partner with Santa Monica Malibu Unified School District to develop a school curriculum on climate change.</td>
<td>Medium</td>
<td>$</td>
<td>OEM</td>
<td>OSE</td>
<td>Near Term</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>CRC3: Outdoor Safety Program</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work with community groups and residents to determine best methods of outreach and communication with outdoor workers. Educate employers and workers about existing worker rights and protections and ways to protect outdoor workers from the effects of extreme heat. Increase access to cooling centers and water throughout the city, especially for outdoor workers, seniors, and homeless populations. Adopt best practices and protocols within City operations and projects to accommodate City staff and City contractors during high temperature days and heat waves.</td>
<td>Low</td>
<td>$</td>
<td>OSE</td>
<td>OEM</td>
<td>Near Term</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>CRC4: Prepare for Extreme Heat</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
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<tbody>
<tr>
<td>Explore developing community cooling centers at City and non-City sites. Ensure temporary shade structures are provided for community events. Ensure coastal access is maintained for those seeking relief from the heat. Develop and adopt standards for asphalt and roof surfaces that will reduce local heat island effect. Develop outreach and educational materials on passive cooling strategies like shade trees and insulation. Increase tree canopy in vulnerable neighborhoods. Promote fossil fuel free HVAC systems, like heat pump technologies, for buildings that install air conditioning.</td>
<td>High</td>
<td>$$</td>
<td>OSE</td>
<td>OEM</td>
<td>Near Term</td>
<td></td>
</tr>
</tbody>
</table>
### ACTIONS

#### RESILIENT INFRASTRUCTURE

<table>
<thead>
<tr>
<th>Resilient Infrastructure Activity</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRC5: Climate Resilient Building Design Standards</td>
<td>![Icon]</td>
<td>$</td>
<td>![Icon]</td>
<td>OSE</td>
<td>ASD, Business</td>
<td>Mid Term</td>
</tr>
<tr>
<td>CRC6: Integrate Climate Change into Capital Improvement Program Projects</td>
<td>![Icon]</td>
<td>$</td>
<td>![Icon]</td>
<td>OSE</td>
<td>PWD, ASD, CED</td>
<td>Near Term</td>
</tr>
<tr>
<td>Incorporate climate impacts, risk, and uncertainty into capital improvement program projects design and evaluation. Review updated climate assessments and adjust infrastructure design standards and project locations to address asset- and site-specific vulnerabilities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRC7: Increase Resilience of Local Energy Infrastructure</td>
<td>![Icon]</td>
<td>$$</td>
<td>![Icon]</td>
<td>OSE</td>
<td>OEM, ASD, Utilities</td>
<td>Near Term</td>
</tr>
<tr>
<td>Partner with local utilities, regional agencies, and local jurisdictions to assess the vulnerability of energy infrastructure. Deploy local resilient energy systems such as solar, energy storage, combined heat and power, and fuel cells into new projects and existing facilities to prepare for heat waves, wildfire and other disruptions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRC8: Enhance Regional Transportation Resilience</td>
<td>![Icon]</td>
<td>$</td>
<td>![Icon]</td>
<td>OSE</td>
<td>CalTrans, OEM, TED, MD, CCC</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Partner with Caltrans and neighboring jurisdictions on measures to protect critical entry and exit routes such as Pacific Coast Highway and Interstate 10. Santa Monica will work with local agencies to develop contingency plans for operations when Highway 1 and other roads are inoperable due to coastal flooding or wildfires.</td>
<td></td>
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</tr>
</tbody>
</table>

#### TAKE ACTION: PREPARING FOR CLIMATE CHANGE

Climate change will affect communities and individuals differently. In order to be prepared for climate change, here are a few tips:

- **Learn about the hazards and risks associated with climate change**
  - How do you and your family adapt to extreme heat days? What is your plan if the number of extreme heat days and high temperatures increase?
  - Understanding climate change through real impacts and practical responses can be helpful to empower yourself against such a large subject.

- **Develop an emergency plan and preparedness kit**
  - Everyone should be prepared for an emergency and have supplies and water for up to 7 days. Make a plan with your friends and family about communicating after a disaster and prepare kits that have the necessary supplies like food, water and first aid.

- **Check on your elderly and vulnerable neighbors during extreme weather**
  - Spend time getting to know those that live around you and check on them during extreme weather and emergencies. Especially if they are elderly or vulnerable.
2030 OBJECTIVE

- Achieve water self-sufficiency by 2023
Southern California imports almost 90% of its water needs from Northern California and the Colorado River. Santa Monica is bucking the trend by becoming locally self-sufficient through local water resources like groundwater, stormwater, brackish groundwater and even wastewater.

Santa Monica has set out to become independent from imported water by 2023. The City’s current sources of potable water supply include 70 percent local groundwater, and 30 percent imported water from Northern California and the Colorado River.

Achieving self-sufficiency means using water produced only from local groundwater and other local sources and maintaining a resilient system to meet water demand. By doing this, Santa Monica will be able to withstand intermittent rain and prolonged periods of drought.

Achieving self-sufficiency requires both conservation and efficiency, coupled with increasing local water supply. Santa Monica offers resources for property owners to convert to drought tolerant landscaping and irrigation and install rainwater harvesting systems.

In 2017, the City implemented a water neutrality requirement on new construction projects, limiting new water demand from projects that use more water than previous ones. Fees paid in-lieu of reducing water demand onsite go into water efficiency projects elsewhere in the community.

Currently, the City is implementing various components of the Sustainable Water Infrastructure Project (next page) to significantly expand the use of alternative sources of water, like stormwater, wastewater and brackish water from the beach.

Santa Monica can soon utilize water that had been in the community all along but was previously discharged to the ocean and piped to sewage treatment plants. This “one water” approach protects our community from the anticipated fluctuations in precipitation due to climate change.
SUSTAINABLE WATER INFRASTRUCTURE PROJECT (SWIP)

The SWIP is a critical component to Santa Monica’s self-sufficiency goal and pushes the envelope of sustainable water management.

The SWIP comprises three technical elements designed to operate in concert to conserve groundwater, reduce wastewater, and improve beach water quality.

Element 1 provides for a modular reverse osmosis (RO) unit at the existing Santa Monica Urban Runoff Recycling Facility (SMURRF) located near the Santa Monica Pier. The RO upgraded SMURRF will also leverage the recently completed Clean Beaches Initiative Project by treating stormwater and brackish groundwater for reuse.

Element 2 provides for a new, underground Advanced Water Treatment Facility (AWTF) capable of treating up to one million gallons of wastewater per day, as well as stormwater for immediate non-potable reuse. The advanced treated water will be used for groundwater recharge.

Element 3 provides for the installation of a 4.5 MG underground stormwater harvest tank plumbed directly to the AWTF. The tank is being consolidated from two conceptual projects beneath Memorial Park and the other beneath the Civic Auditorium parking lot.

### ACTIONS

#### WATER CONSERVATION

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2O1: Commercial Sector Retrofits</td>
<td>Develop incentives and direct install programs to retrofit inefficient water fixtures in commercial properties.</td>
<td>$$$</td>
<td>$</td>
<td>G</td>
<td>OSE</td>
<td>MWD</td>
<td>Ongoing</td>
</tr>
<tr>
<td>H2O2: Coin Operated Laundry Program</td>
<td>Develop incentives targeted at multiunit dwelling property owners and laundry service vendors to replace inefficient laundry systems with new systems.</td>
<td>$$$</td>
<td>$</td>
<td>G</td>
<td>OSE</td>
<td>MWD</td>
<td>Near Term</td>
</tr>
<tr>
<td>H2O3: Increase Direct Install Program</td>
<td>Expand annual replacement of inefficient toilets in multiunit dwellings and single-family homes.</td>
<td>$$$</td>
<td>$</td>
<td>G</td>
<td>OSE</td>
<td>MWD</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

#### ALTERNATIVE WATER SUPPLY

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2O4: Arcadia Water Treatment Plant Improvements</td>
<td>Increase in production efficiencies at the Arcadia Water Treatment Plant by recovering brine concentrate.</td>
<td>$$$</td>
<td>$</td>
<td>G</td>
<td>WRD</td>
<td>ED</td>
<td>Mid Term</td>
</tr>
<tr>
<td>H2O5: Clean Beaches Initiative &amp; SMURRF Repurposing</td>
<td>Upgrade the Santa Monica Urban Runoff Recycling Facility (SMURRF), that provides a drought resilient local water supply, to increase the amount of recycled water production. Connect SMURRF to the newly constructed (2018) Clean Beaches Initiative 1.6 million gallon tank, to supply SMURRF with rain and brackish ground water when urban runoff is not available.</td>
<td>$$$</td>
<td>$</td>
<td>G</td>
<td>WRD</td>
<td>ED</td>
<td>Mid Term</td>
</tr>
</tbody>
</table>

#### LOCAL GROUND WATER PRODUCTION

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2O6: Expand Local Water Resources</td>
<td>Expand capacity at Arcadia Water Treatment Plant to accommodate more water. Restore the Olympic wellfield and develop a new well to enhance drought resilience.</td>
<td>$$$</td>
<td>$</td>
<td>G</td>
<td>WRD</td>
<td>ED</td>
<td>Long Term</td>
</tr>
</tbody>
</table>
2030 OBJECTIVES

- Enhance natural systems to prevent damage from coastal flooding
- Increase resilience of public and private assets in the coastal flood zone
COASTAL FLOODING PREPAREDNESS

PLANNING FOR THE FUTURE
Santa Monica’s expansive beaches provide not only an economic boon and regional recreation, but also protection from sea level rise.

In addition to iconic recreation and landscape, beaches are ecosystems unto themselves, providing vital habitat for local species. They are molded by wind patterns, fed by natural sediment flow and washed upon by the ocean, changing over time.

As sea levels increase, there will be a gradual landward movement of water up the beach and the beach will narrow. Current beach management practices may have to change in order to adapt to these changes in order to preserve as much of the natural barrier.

No one knows exactly how much sea level rise will occur and by when. However, it is certain that Santa Monica, like other jurisdictions along the California coast, will face new threats from sea level rise and coastal hazards that could damage or destroy coastal resources, like beaches, and infrastructure, such as road and utility lines, public amenities, and private developments within the next few decades.

Santa Monica’s recently adopted Local Coastal Program Land Use Plan establishes policies and adaptation strategies to be implemented once a certain amount of sea level rise has occurred. As changes to shoreline conditions occur, new policy phases would be activated, based on observed impacts.

VISUALIZING SEA LEVEL RISE
In 2016, the City installed two telescopic viewers on the Santa Monica Pier, in partnership with USC Sea Grant, the US Geological Survey (USGS), and Owlized, Inc. ‘The Owls on the Pier’ offered passersby an augmented reality experience into potential future scenarios of sea level rise impacts on Santa Monica’s beach. The Owls surveyed participants on their views and concerns about climate change and sea level rise and their preference for climate adaptation approaches.

Over 10,000 people visited the Owls, and more than 2,500 of those participated in all or part of the Owl’s survey. In addition about 1,000 people viewed the mobile version of the Owl and answered all or part of the survey.

NATURAL SOLUTIONS
To improve the biodiversity and resiliency of Santa Monica’s beaches, and to address potential impacts of sea level rise, the City is looking at adaptation measures that would re-introduce a more natural beach environment. One such measure is dune creation.

In 2016, the City implemented a dune pilot project in the North Beach area, by suspending beach grooming, erecting a low fence, and seeding foliage to encourage dune growth. Evaluation of the effects of this pilot project will guide future efforts. Small “dunelets” also benefit the Western Snowy Plover, by mimicking natural beach landscapes and providing protection from the wind.
### Adaptive Management

<table>
<thead>
<tr>
<th>ACTION</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF1: Resilient Buildings &amp; Infrastructure in the Coastal Zone</td>
<td>![Clouds]</td>
<td>$</td>
<td>![Heart]</td>
<td>OSE</td>
<td>CCS</td>
<td>Mid Term</td>
</tr>
<tr>
<td>Establish a process which will identify and map coastal hazards identified in the Coastal Program Land Use Plan (LUP) and of the results of any site-specific hazard analyses related to the hazards mapped in the LUP. Collaborate with the Coastal Commission and local real estate agents to develop specific guidance and language regarding point-of-sale disclosures. Adopt and implement a local ordinance specifying point-of-sale disclosures.</td>
<td>![Clouds]</td>
<td>$</td>
<td>![Heart]</td>
<td>OSE</td>
<td>CPD</td>
<td>Mid Term</td>
</tr>
<tr>
<td>CF3: Climate Ready Santa Monica Pier</td>
<td>![Clouds]</td>
<td>$$$</td>
<td>![Heart]</td>
<td>CED</td>
<td>[Nonprofits]</td>
<td>Long Term</td>
</tr>
<tr>
<td>Integrate the latest sea level rise projections in Pier structural assessments and design improvements. Implement capital improvements to withstand increased wave height and on-shore flooding.</td>
<td>![Clouds]</td>
<td>$$$</td>
<td>![Heart]</td>
<td>CPD</td>
<td>[Nonprofits]</td>
<td>Mid to Long Term</td>
</tr>
<tr>
<td>CF4: Adopt a Shoreline Management Plan</td>
<td>![Clouds]</td>
<td>$$$</td>
<td>![Heart]</td>
<td>OSE, CCS, CED, BM, Pier, Nonprofits</td>
<td>Long Term</td>
<td></td>
</tr>
<tr>
<td>Develop a shoreline management plan for specific high priority areas that are most vulnerable to sea level rise hazards. Include adaptation strategies to address sea level rise and coastal hazards and adapt to changes in wave, flooding, and erosion hazards in the short and long term for the specified area.</td>
<td>![Clouds]</td>
<td>$$$</td>
<td>![Heart]</td>
<td>CPD</td>
<td>Nonprofits</td>
<td>Mid to Long Term</td>
</tr>
<tr>
<td>CF5: Beach Nourishment &amp; Dune Creation</td>
<td>![Clouds]</td>
<td>$</td>
<td>![Heart]</td>
<td>BM</td>
<td>OSE, CCS, Nonprofits</td>
<td>Mid to Long Term</td>
</tr>
<tr>
<td>Dune creation shall be allowed to occur within the City's beach areas, provided consideration is given to any impacts on the Western Snowy Plover Special Protection Zone (SPZ) and other SPZs that may be established in the future where dune restoration occurs. Design and implement additional pilot projects utilizing green infrastructure or eco-engineering.</td>
<td>![Clouds]</td>
<td>$</td>
<td>![Heart]</td>
<td>BM</td>
<td>OSE, CCS, Nonprofits</td>
<td>Mid to Long Term</td>
</tr>
<tr>
<td>CF6: Local Coastal Program Monitoring &amp; Implementation</td>
<td>![Clouds]</td>
<td>$</td>
<td>![Heart]</td>
<td>CPD</td>
<td>Nonprofits</td>
<td>Mid to Long Term</td>
</tr>
<tr>
<td>Monitor sea level rise and coastal flooding impacts over time utilizing tidal gage data, pier scour analysis, seasonal beach width and storm flooding damage. Phase in policies and projects identified by the Local Coastal Plan as climate change impacts increase. Update coastal hazard maps at least every 5 years or sooner based on the best available science.</td>
<td>![Clouds]</td>
<td>$</td>
<td>![Heart]</td>
<td>CPD</td>
<td>Nonprofits</td>
<td>Mid to Long Term</td>
</tr>
</tbody>
</table>
LOW CARBON FOOD & ECOSYSTEMS

2030 OBJECTIVES

- Increase self-reliance through local food production
- Reduce carbon emissions from food production, consumption, waste and landscape management and natural processes
**GOING LOCAL WITH FOOD**

Conventional food production is one of the nation’s largest sources of environmental degradation. The industrialized food system is unsustainable due to its reliance on fossil fuels for fertilizers, pesticides, herbicides, industrial equipment, refrigeration, and interstate transportation. Globally, one-third of greenhouse gas emissions result from the food system when accounting for transportation, soil degradation and deforestation.

Fortunately, local and chemical-free food is on the rebound as more people recognize its value and health benefits. Meat-less or meat-free meals are becoming more popular and accessible in restaurants and home kitchens.

In Santa Monica, many residents are already embracing local and low-carbon food choices. Santa Monica offers Farmers Markets at various locations three days a week to provide residents with locally produced, fresh, and healthy food. All of the Farmers Markets in Santa Monica accept CalFresh, Farmers Market WIC and Senior Farmers Market Nutrition Program checks, making healthy and low-carbon food choices available to low-income residents.

Community gardening provides an opportunity for residents to connect to their food, the land, and their neighbors while reducing the environmental impact of the conventional food system.

**CARBON SEQUESTRATION**

Carbon sequestration is the process of removing carbon from the atmosphere (CO₂) and converting it into organic carbon (C) in biological materials. Some examples of natural sequestration include trees, soil, wetlands, marshes, geologic formations or biochar.

Sequestration offers an opportunity to invest in and restore natural ecosystems to capture and offset Santa Monica’s remaining emissions.

Despite Santa Monica’s urbanized setting, the City has several opportunities for sequestering, or storing, atmospheric carbon dioxide through natural processes. The potential to expand forested areas within the city and the proximity to the ocean offer unique possibilities for innovation and generation of co-benefits.

The most viable carbon sequestration strategies that are local to Santa Monica are urban forest management and kelp forest restoration.

**OUR FORESTS ABOVE AND BELOW**

Santa Monica’s urban forest is currently 95% stocked with approximately 33,000 trees. A fully mature tree can retain approximately 1 ton of carbon dioxide each year. By fully stocking the urban forest, the City can maximize tree canopy, cooling benefits and carbon reductions from its trees.

One way that oceans and ocean-related ecosystems contribute to carbon sequestration is through ocean vegetation like sea kelp. Kelp forests are typical of Santa Monica Bay and are present in around Malibu and Palos Verdes, but less kelp is present directly adjacent to Santa Monica due to poor water quality and invasive sea urchins, which eat and destroy kelp forests.

Efforts are underway in the Palo Verdes area to restore the kelp forests by managing the sea urchin population. The results to date demonstrate the ability of kelp, especially fast-growing species, to both absorb carbon and to mitigate an overabundance of nitrogen in ocean areas adjacent to urban communities.

While currently a pilot project, this effort is uniquely relevant and would generate numerous ecological and economic benefits in terms of fish habitat, water quality, and overall health and longevity of Santa Monica Bay.
# Resilience Through Local Food

<table>
<thead>
<tr>
<th>LCFE1: Promote Low Carbon, Low Waste Lifestyles</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote more sustainable food and drink options through campaigns, outreach events and community resources. Include all five pillars of the City’s Sustainable Food Commitment: 1) reduce meat and dairy, 2) avoid processed foods, 3) eat organic, 4) eat local, and 5) reduce waste. Develop incentives and rewards programs to support the local food system and low carbon foods. Promote sustainable pet food through outreach and education.</td>
<td>$$</td>
<td>OSE</td>
<td>FMD, EDD, OWB</td>
<td>Ongoing</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LCFE2: Increase Productivity of Public &amp; Private Lands</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase food access by planting fruit and nut trees in parks and private sites through education, incentives, and rebates. Facilitate micro-agriculture operations that utilize open land and rooftops or space efficient operations like aquaponics. Conduct a feasibility study for repurposing underutilized parkways, vacant or abandoned properties or the expansion of Airport Park for urban farming. Target affordable housing developments, homeless service providers – in order to empower communities to become self-sustaining. Support residents to start their own gardens by providing educational and training opportunities. Model programs from the Ishihara Park demonstration and learning garden.</td>
<td>$</td>
<td>OSE, PLD, CCS</td>
<td>CRD, HSD, OWB, Business, Nonprofits</td>
<td>Mid Term</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>LCFE3: Develop a Sustainable Food Master Plan</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a community plan that advances the City’s Sustainable Food Commitment, and addresses food security through strategies such as local food cultivation, resident vending or donations of local produce at markets, food banks and shelters, and land use strategies.</td>
<td>$$</td>
<td>OSE</td>
<td>FMD, OWB, Nonprofits</td>
<td>Mid to Long Term</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>LCFE4: Increase Farmers Market Low Income Patronage</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enroll all eligible residents in CalFresh and support the Farmer’s Market Match program that enhances EBT dollar value at farmers markets.</td>
<td>$</td>
<td>FMD</td>
<td>HSD, OWB, Nonprofits</td>
<td>Mid to Long Term</td>
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</tbody>
</table>

# Carbon Sequestration & Healthy Ecosystems

<table>
<thead>
<tr>
<th>LCFE5: Climate Resilient Forest &amp; Landscape Management</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>The updated Urban Forest Master Plan already addresses the effects of climate change and other potential threats to the urban forest. Assess pruning practices to preserve biomass and increase carbon sequestration potential. Encourage proper tree watering, fertilizer maintenance and protection during construction. Establish a baseline of the energy used to build and maintain the City’s urban forest and landscapes and develop a plan to reduce carbon emissions through maintenance and mulching.</td>
<td>$$</td>
<td>PLD</td>
<td>OSE</td>
<td>Near Term</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>LCFE6: Private Tree Preservation</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explore policies, incentives and funding mechanisms to encourage preservation of private trees, including revisiting the hedge ordinance.</td>
<td>$</td>
<td>PLD</td>
<td>CPD</td>
<td>Near to Mid Term</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>LCFE7: Local Carbon Sequestration</th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explore opportunities to sequester carbon on all City properties, including Woodlawn Cemetery and Airport Park expansion, and local habitat systems, like sea kelp.</td>
<td>$$</td>
<td>OSE</td>
<td>Nonprofits</td>
<td>Near to Mid Term</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Santa Monica College (SMC) has been hosting a free farmer’s market for students once a week during fall and spring semesters since February 2017. The market provides approximately 1,500 lbs of fresh produce feeding 150 students every week. To date, over 50,000 lbs of fresh produce has been distributed to over 5,300 students.

Student volunteers collect produce from vendors at the Santa Monica Wednesday Farmer’s Market, in partnership with Food Forward. The students then deliver the produce and staff the market two hours per week. SMC also supplements the program by purchasing produce from the Westside Food Bank.

Students are only required to show a valid student ID and bring their own bag. Creative recipes and nutrition consultations are offered to help students figure out how to prepare healthy meals.

SMC also purchases over 10,000 lbs of non-perishable food products from West Side Food Bank each week to stock food in six ‘food pantry’s’ around campus to help with the problem of food insecurity.

To minimize organic waste from food preparation, SMC uses 400,000 worms to eat through about 300 lbs of food scraps per week from cafeteria vendors. Over the past 17 years, SMC has been diverted 6.25 tons of organic waste from the landfill.
IMPLEMENTING THE PLAN

2030 OBJECTIVES

- Achieve carbon neutrality in municipal operations
- Foster a climate-literate community
- Develop financing resources for climate action & adaptation projects
COMMUNITY ENGAGEMENT

Climate change affects the whole community without regard for political affiliation, jurisdictional boundary or background. Most people understand that humans may be responsible, but few feel empowered to take action let alone know what to do.

This plan cannot be successful without the participation and leadership of the community. Santa Monica residents and businesses have long demonstrated their willingness to invest their time and resources to making Santa Monica more prosperous and sustainable.

The challenge will be to continue to scale up lifestyle changes and adoption of clean technologies for uninitiated individuals and under-served communities.

The City will partner with traditional and non-traditional stakeholders to develop resources and activate the entire community in culturally appropriate conversations, individual actions and community activism. Non-profits and community-based organizations, like Climate Action Santa Monica, will be key to broadening the community base for change.

CITY LEADERSHIP

Santa Monica has a long history of demonstrating leadership by adopting advanced technologies and innovating practices to be more sustainable.

The City will seek to achieve carbon neutrality in municipal operations by 2030 offering an example to other local governments, organizations and businesses to follow. This will be achieved primarily through the electrification of Big Blue Bus, building electrification and renewable energy.

An interdepartmental team of City staff in collaboration with civic leaders must be assembled to maintain momentum and ensure accountability. This group will work to ensure all policies, projects and programs are designed and implemented with equity as a core principle.

Santa Monica must continue to work beyond its borders to support and lead coalition groups of cities and local jurisdictions mobilizing and advocating for climate action at regional, state, national and international levels.
CLIMATE FINANCE

Deep emissions reductions will need to be achieved at a scale and pace unlike the City has seen before. The success of the plan depends on committing resources to implementation, and then augmenting those resources with alternative sources of funding.

The City has dedicated significant resources to meet its sustainability and climate goals. Between the adopted 16/18 and 18/20 fiscal year (FY) Capital Improvement Program (CIP) budgets, the City has already committed over $383M to climate action and adaptation projects over the next 5 years. The projects span municipal energy efficiency and renewable energy projects, electric vehicles, and pedestrian and biking improvements. This is in addition to the City’s operating budgets which cover staff time and program expenses dedicated to advancing low-carbon living and technologies.

APPROVED 5-YEAR CAPITAL IMPROVEMENT PROGRAM BUDGETS

<table>
<thead>
<tr>
<th>CLIMATE ACTION &amp; ADAPTATION SECTOR</th>
<th>SUB-SECTOR</th>
<th>FY 16/18</th>
<th>FY 18/20</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Net Carbon Buildings</td>
<td>Municipal Energy</td>
<td>$11,033,075</td>
<td>$108,663,560</td>
<td>$119,696,635</td>
</tr>
<tr>
<td>Sustainable Mobility</td>
<td>Bike &amp; Pedestrian Improvements</td>
<td>$15,541,828</td>
<td>$31,131,412</td>
<td>$47,583,240</td>
</tr>
<tr>
<td></td>
<td>Roadway &amp; Transit Improvements</td>
<td>$1,552,247</td>
<td>-</td>
<td>$1,552,247</td>
</tr>
<tr>
<td></td>
<td>Affordable Housing</td>
<td>$10,507,954</td>
<td>-</td>
<td>$10,507,954</td>
</tr>
<tr>
<td></td>
<td>Low Emission Buses</td>
<td>$21,116,000</td>
<td>$432,837,726</td>
<td>$53,953,726</td>
</tr>
<tr>
<td></td>
<td>Electric Vehicles</td>
<td>$186,690</td>
<td>$3,127,300</td>
<td>$3,313,990</td>
</tr>
<tr>
<td>Low Carbon Food &amp; Ecosystems</td>
<td>Urban Forest</td>
<td>$2,330,000</td>
<td>$2,250,000</td>
<td>$4,580,000</td>
</tr>
<tr>
<td>Water Self-Sufficiency</td>
<td>Local Water Production</td>
<td>$70,858,500</td>
<td>$65,318,436</td>
<td>$136,176,936</td>
</tr>
<tr>
<td>Coastal Flooding Preparedness</td>
<td>Pier Hardening</td>
<td>$2,124,000</td>
<td>$3,835,000</td>
<td>$5,959,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>$135,160,294</strong></td>
<td><strong>$248,163,434</strong></td>
<td><strong>$383,323,728</strong></td>
</tr>
</tbody>
</table>

New costs associated with this plan include dedicated lanes for bikes and personal mobility devices, electric buses, adaptation projects and programs and more. Staff estimate that implementation of the plan could cost roughly over $852 million over the next 10-12 years. Additionally, not all projects and programs have been fully conceived or are planned at the moment. Staff will need to leverage external funding mechanisms like grants, low-interest loans or project financing models to supplement City funds.

The investment by the community to support the Plan will be many times greater than the City’s own costs. The City will need to provide support to residents and businesses in need of funding to decarbonize their buildings, vehicles and lifestyles. At the same time, it should discourage carbon-emitting activities through fee-based systems or carbon taxes to shift community investment away from fossil fuels to clean technologies.

This Plan proposes the creation of a Community Climate Action Grant program, funded by a Carbon Development Impact Fee. The impact fee, to be assessed on new commercial construction and major renovation projects, would encourage low-carbon design and sustainable modes of transit, while at the same time providing a continuous funding mechanism for carbon reduction projects.

The City will need to focus on addressing environmental injustices and equity issues through any funding mechanism that redistributes wealth. Examples include the Pico Neighborhood Wellbeing Microgrant Program.
# COMMUNITY ENGAGEMENT

### CE1: Create a Community Climate Action Network
Work with the community partners to create a community network that facilitates communication and coordination between community members, as well as between the City and the community. The network will identify actions for individuals, neighborhoods and institutions to implement and measure the impact of grassroots activity. The network will engage the neighborhoods and people with messages that are relevant to them is necessary to reach people from all backgrounds and walks of life.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>$</td>
<td>OSE</td>
<td>OWB, Nonprofits</td>
<td>Near Term</td>
<td></td>
</tr>
</tbody>
</table>

### CE2: Pilot Block-Level & Business Sustainability Plans
Provide a framework and tools for businesses and communities to set goals, identify projects and gain support for taking climate action in their neighborhoods.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>$</td>
<td>OSE</td>
<td>OWB, Nonprofits</td>
<td>Ongoing</td>
<td></td>
</tr>
</tbody>
</table>

### CE3: Launch a Community Climate Action Grant
Establish an annual micro-grant program to support local citizen-led projects and programs that will reduce emissions, adapt to climate change and enhance equity.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium</td>
<td>$$</td>
<td>OSE</td>
<td>Nonprofits</td>
<td>Ongoing</td>
<td></td>
</tr>
</tbody>
</table>

### CE4: Increase Climate & Eco-Literacy
Increase local awareness about the need to protect the region's ecosystems from a changing climate. Develop educational curriculum, outreach materials and information for use by educators and community based organizations. Develop program resources in multiple languages to reflect the diversity in Santa Monica. Support citizen science initiatives, like local air quality monitoring.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>$</td>
<td>OSE</td>
<td>Schools, Nonprofits</td>
<td>Ongoing</td>
<td></td>
</tr>
</tbody>
</table>

# CITY LEADERSHIP

### CL1: Adopt a Smart City Strategy
Adopt a Smart City Strategy to advance technologies in City infrastructure and leverage public-private partnerships that support energy and water efficiency, mobility planning and services, public safety and communications.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>$</td>
<td>ISD</td>
<td>OSE, MD, OEM, TED</td>
<td>Near Term</td>
<td></td>
</tr>
</tbody>
</table>

### CL2: Implement Deep Carbon Reduction Retrofits in City Facilities
Implement an energy portfolio manager system to monitor real-time energy consumption and costs. Audit facilities for energy efficiency potential and implement large-scale retrofit program across the City’s portfolio. Pilot and implement conversions of natural gas building systems to electric-based systems, like heat pump water heaters and HVAC systems. Assess and pilot energy project delivery and financing models like sustainability or energy-as-a-service. Track refrigerants in buildings and vehicles. Reduce refrigerants with high global warming potential and reduce leakage rates from air conditioning systems.

<table>
<thead>
<tr>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>$$$</td>
<td>OSE</td>
<td>FacMD, ASD, TED</td>
<td>Ongoing</td>
<td></td>
</tr>
</tbody>
</table>
### CITY LEADERSHIP

<table>
<thead>
<tr>
<th><strong>CL3: Expand the Use of Distributed Energy Resources</strong></th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finalize and implement the City’s Resilient Energy Action Plans for critical facilities and community facilities in need of emergency backup power. Maximize all viable rooftop and parking facility areas for onsite solar systems, battery storage and microgrids where possible. Potential projects may include: Civic Center Microgrid, Main Library Fire Station 1 Microgrid, distributed waste-to-energy systems, community solar at Airport (post-2028 closure).</td>
<td>💙</td>
<td>💲</td>
<td>🔴</td>
<td>OSE</td>
<td>FacMD, ASD, TED</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CL4: Convert City Fleet Vehicles to Electric or Zero Emission</strong></th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot electric and zero emission vehicles for medium and heavy duty vehicles. Replace vehicles as technology becomes available. Downsize and consolidate fleet vehicles to promote vehicle sharing. Convert Big Blue Bus fleet to all electric by 2030.</td>
<td>💙</td>
<td>💲</td>
<td>🔴</td>
<td>OSE</td>
<td>FD, RRR, BBB</td>
<td>Mid to Long Term</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CL5: Clean Tech Innovation Program</strong></th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner with Los Angeles Cleantech Incubator and develop program to pilot emerging technologies on City facilities and with willing private properties.</td>
<td>💙</td>
<td>💲</td>
<td>🔴</td>
<td>OSE</td>
<td>Business</td>
<td>Near Term</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CL6: Reduce Consumption Based Emissions</strong></th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze municipal consumption based carbon emissions and identify goods and services suppliers that contribute most to the City’s carbon emissions. Develop a target and strategies to reduce emissions from prioritized suppliers.</td>
<td>💙</td>
<td>💲</td>
<td>🔴</td>
<td>OSE</td>
<td>Business</td>
<td>Near Term</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CL7: City Leadership &amp; Collaboration</strong></th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrate social and racial equity into citywide planning processes and community programs. Engage with other local governments and stakeholders at the regional, state, federal and international levels. Advocate for State and regional policies that support local targets and large-scale change. Continue to share progress through reporting platforms.</td>
<td>💙</td>
<td>💲</td>
<td>🔴</td>
<td>OSE</td>
<td>Ongoing</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CL8: Implementing Plans, Policies &amp; Ordinances</strong></th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider and approve new plans, policies &amp; ordinances and amendments to existing plans, policies and ordinances in a public review process to implement this plan.</td>
<td>💙</td>
<td>💲</td>
<td>🔴</td>
<td>OSE</td>
<td>PCD, RRR</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### CLIMATE FINANCE

<table>
<thead>
<tr>
<th><strong>CF1: Adopt a Carbon Impact Fee</strong></th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adopt an ordinance to impose a carbon impact fee on new commercial development. The fee would be based on the construction and operation of commercial properties with the exception of all electric buildings and eligible affordable housing projects. The funds generated could support the Community Climate Action Grant program.</td>
<td>💙</td>
<td>💲</td>
<td>🔴</td>
<td>OSE</td>
<td>BSD</td>
<td>Mid Term</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CF2: Explore Alternative Community Climate Financing Options</strong></th>
<th>Carbon Reduction Potential</th>
<th>Cost to City</th>
<th>Community Benefits</th>
<th>Lead</th>
<th>Partners</th>
<th>Status or Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study and pilot alternative financing mechanisms to increase community investment and streamline funding toward climate-related projects. Such ideas include carbon tax, green banks or revolving funds, crowdfunding, energy performance contracts, and sustainability-as-a-service.</td>
<td>💙</td>
<td>💲</td>
<td>🔴</td>
<td>OSE</td>
<td>FIN</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
CONCLUSION

The challenge of climate change is unprecedented in its scale and potential disruption to our way of living. Recent climate disasters have given us a preview of what may become the ‘new abnormal.’

We must act now. No longer can we avoid hard decisions and changes for the sake of convenience or politics. A climate changed-future will not wait.

However, in the face of daunting headlines, we remain hopeful and resolved. We know what to do. We have the solutions to reduce emissions, increase efficiency, promote economic vitality, and improve our quality of life.

This plan provides a pathway to accelerate our historical success so that we can make climate change history. It is also a call to action to residents, community institutions and businesses to take an active part in our transition to a low carbon future and clean economy.

In this process, we will foster a vibrant economy, increase our resiliency and support Santa Monica’s vision for a livable and sustainable community for generations to come.

MEASURING SUCCESS

This plan will serve as a living document, to be updated as technologies and policies progress.

The City will maintain a reporting platform to easily track and monitor greenhouse gases and climate action progress. Staff will provide annual progress reports and conduct biennial greenhouse gas inventories to evaluate plan effectiveness.

After five years, the City will update the plan based on the results to ensure the goals can be met by 2030 and beyond.

CLIMATE PROTECTION FOR ALL

The challenge of climate change is unprecedented in its scale and potential disruption to our way of living. Recent climate disasters have given us a preview of what may become the ‘new abnormal.’

We must act now. No longer can we avoid hard decisions and changes for the sake of convenience or politics. A climate changed-future will not wait.

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In this process, we will foster a vibrant economy, increase our resiliency and support Santa Monica’s vision for a livable and sustainable community for generations to come.
ACKNOWLEDGEMENTS

CITY COUNCIL
Gleam Davis, Mayor
Terry O’Day, Mayor Pro Tempore
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Sue Himmelrich
Ted Winterer
Pam O’Connor (1994–2018)

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Glenda Berg
Dee Capelli
June Carol Hagan, PhD
Thomas John Hill
Christy Hobart
Kathryn Kosmeya-Dodge
Lauri Ringer
Kelly S. Siegel
Delbert A Whetter, JD, MBA

STEERING COMMITTEE & PARTNERS
Breeze BikeShare
Chamber of Commerce
Climate Action Santa Monica
ClimateResolve
Community Corporation of Santa Monica
County of Los Angeles
EcoMotion
Heal the Bay
Los Angeles Regional Collaborative for Climate Action & Sustainability
Mid-City Neighbors
Northeast Neighbors
North of Montana Association
Office of Representative Richard Bloom
Office of Senator Ben Allen
RAND
Southern California Association of Governments
Santa Monica College
Santa Monica-Malibu Unified School District
Santa Monica Travel & Tourism
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Southern California Gas Company
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PRIMARY AUTHOR
Garrett Wong, Sr. Sustainability Analyst

OFFICE OF SUSTAINABILITY & THE ENVIRONMENT
Dean Kubani, Chief Sustainability Officer
Shannon Parry, Sustainability Administrator
Ariana Vito
Drew Lowell-Johnstone
James Velez-Conway
Andrew Basmajian
Amanda Grossman
Karl Bruskotter
Thomas Fleming
Karina Sandique
Salvador Gonzalez
Neal Shapiro
Russell Ackerman
Angela Von Slomski
Jennifer Simmons
Jessica Hanna

CIVICSPARK FELLOWS
Mikhael Matossian (15/16)
Delia Tyrell (16/17)
Samantha Rosenbaum (16/17)
Michael Consunji (17/18)
Maansi Shah (17/18)
Yuval Pearl (18/19)

CONSULTANTS
DNV-GL
Global Green
Raimi & Associates
Fehr & Peers

PUBLIC WORKS DEPARTMENT
Susan Cline, Director
Delana Gbemekama, Communications & Marketing Coordinator
Sergio Ramirez, Principal Administrative Analyst
Chris Celsi, Resource Recovery & Recycling Manager
Chris Dishlip, Facilities Maintenance Manager, Acting City Architect
Alex Nazarchuk, Water Resources Manager
Matthew Wells, Public Landscape Manager
Rick Valte, City Engineer

PLANNING & COMMUNITY DEVELOPMENT DEPARTMENT
Francie Stefan, Mobility Manager
Colleen Stoll
Jing Yeo, Planning Manager
Liz Bar-El
Cary Fukui
Peter James
Rachel Kwok
Roxanne Tanemori

PHOTO CREDITS
Cover: City of Santa Monica. Pg. 2: Eric Staudenmaier, Stefan Corbel, Justin Han, Iwan Baan for Community Corporation of Santa Monica, City of Santa Monica. Pg 5: Downtown Santa Monica, Pg 6: William Short. Pg 7: Kristina Sado, Justin Han.; Pg 8: William Short. Pg 11: City of Santa Monica, Gabor Ekecs, WeWork. Pg 15: City of Santa Monica, Pg 18: Iwan Baan for Community Corporation of Santa Monica. Pg 22: Terra24. Pg 27: Kristina Sado; Pg 33: City of Santa Monica, Pg 39: Santa Monica Daily Press. Pg 40: Justin Han. Pg 43: City of Santa Monica; Pg 47: Justin Han. Pg 48: City of Santa Monica. Pg 50: Kristina Sado, Pg 51: Climate Cents. Pg 52: Justin Han. Pg 54: Justin Han. Pg. 55: City of Santa Monica